BRITISH NUCLEAR TEST VETERANS: THE COMPLEXITIES OF IDENTITY, HEALTH AND WELLBEING, AND THE AGEING PROCESS

A thesis submitted for the Degree of Doctor of Philosophy

By

Amy Prescott

Department of Life Sciences, College of Health, Medicine and Life Sciences

Brunel University London

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Abstract

For 30 years ~22,000 men were silenced by the Official Secrets Act. They participated in 21 nuclear tests conducted by the UK in Australia and the South Pacific from 1952-1958. Since 1983 these men have been campaigning for recognition following premature deaths, illness, miscarriages, and offspring deformities, to no avail. They are the British Nuclear Test Veteran (BNTV) community and in 2021, almost 70 years since the first nuclear test, less than 3,000 of them remain. This unique ageing population face a double jeopardy of invisibility: hidden by government red tape, and now marginalised as the oldest old.

The discourse is dominated by the health effects of radiation and the servicemen's lived experiences, the nuances of ageing, and any health and wellbeing issues have not been investigated. This thesis therefore had three key objectives: to understand the complexities of BNTV identity; critically explore health and wellbeing issues among the BNTV community; and analyse types of leisure activities that enhance wellbeing and reasons for engagement.

Using a life history approach, this interpretivist qualitative study conducted two rounds of in-depth interviews with 29 members of the BNTV community. A systematic framework for narrative analysis led to the construction of three creative nonfiction stories representing the 'big', 'small', shared, and exceptional experiences of the BNTVs. Key findings include loneliness and loss; collective nuclear experience and identity; illness following potential exposure; and staying active to reduce the perceived side effects of ageing.

By challenging the politics of ageing, health, and wellbeing, from the perspective of this diverse ageing population, this work not only impacts the community which it interviewed but also provides the foundations for future programmes of support to address the salient issues that have been identified. Furthermore, these CNF stories provide the BNTV community with the recognition they have been seeking.

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List of abbreviations

BNTV	British nuclear test veteran
BNTVA	British Nuclear Test Veteran Association
CHRC	Centre for Health Effects of Radiological and Chemical Agents
CNF	Creative nonfiction
EOI	Expression of interest
MOD	Ministry of Defense
NA	Narrative analysis
NCCF	Nuclear Community Charity Fund
NHS	National Health Service
NRPB	National Radiological Protection Board
TA	Thematic analysis

Chapter One

INTRODUCTION

1.1 The significance of understanding the BNTVs' health and wellbeing

This is the first qualitative study to explore the lived experiences of witnessing nuclear bomb tests, the impact it has had on health and wellbeing, and understanding the nuances of the ageing process within this unique community. The primary aim was to understand the possible processes by which cultural, physical and/or leisure activities may help and contribute to improve health and wellbeing of this unique ageing community. This study involved the British Nuclear Test Veterans (BNTV) who were part of the British nuclear testing programme and clean-up operations from 1952-1964. After witnessing the tests, the BNTVs were subjected to the Official Secrets Act until the late 1980s; this prevented them from speaking to their loved ones, friends, or the Press about the things they had seen in the interest of national security. Therefore, this work shines a light on a highly secretive peace-time mission from over 57-69 years ago, which many people would not have heard of until now.

The significance of this work lies in challenging the dominant story of why the BNTVs' military service is not public. Undertaking formative archival work for the first three months of this study in 2017 highlighted the level of secrecy that surrounds this population. During this archival exploration, I made eight Freedom of Information requests for files pertaining to the nuclear tests – particularly those which discussed the potential health effects of radiation exposure. These requests were denied, and the files remain locked until 2050 – arguably until all of the remaining BNTVs have passed away. The human body's sensitivity to radiation has led to a dominant health and medical discourse rather than one that centres around lived experience. Thus, this has caused the community to worry about potential exposure, and negative health outcomes for themselves and their descendants. The BNTV community face a double jeopardy of invisibility: they were forced to be silent about their involvement in the tests as young men (18-21 years old) and are now marginalised further due to being part of the oldest old (80 years and over). This study privileges local knowledge of older people themselves and challenges an ageist ideology which tends to reinforce a deficit model of ageing and silences older people's narratives. Therefore, this study provides these individuals, at last, with an opportunity to share their truths, experiences, and personal stories before it is too late for them to do so.

The work presents a critical reading of the ageing process and contributes to understanding the politics of ageing, health, and wellbeing, particularly from the perspective of a diverse and unique ageing population. Through life history and narrative, this thesis explores how it feels to age with regards to physical, mental, social, and emotional changes. Ultimately, this study discusses that health and wellbeing is what underpins and determines one's ability to be active and engaged as people age.

Recommendations for policy and practice are discussed, this includes using a bottom-up approach for health and care interventions to account for community involvement. This aligns with the proposed Health and Care Bill (2021) which, if passed, will build on collaborations between GPs, residential care homes, community health services, mental health care, and hospitals. In so doing, the focus becomes user centred, allowing 'needless bureaucracy' (p. 9) to not stand in the way of providing care. As the Department for Health and Social Care (2021) suggest, connecting, communicating, and collaborating would be more effective at tackling the health inequalities and determinants of health which cannot be addressed by one service alone. In addition, this study believes that there needs to be governmental recognition and acknowledgement of service, improved access, and removal barriers to leisure activities for those in the oldest old age category, and the introduction of community outreach services to improve feelings of loneliness and isolation for these individuals.

1.2 Study objectives

The overall purpose of this doctoral research is to explore the life histories, lived experiences and lifelong impact of being a BNTV from the perspectives of the BNTVs themselves. In doing so, the study aims to address three key objectives:

I. To understand the complexities of BNTV identity within the community
II. To critically explore health and wellbeing issues within the BNTV community

III. To identify and analyse types of leisure activities that can enhance wellbeing and the reasons for engagement within this unique ageing population

1.3 Methodology and research design

This research was conducted in a qualitative paradigm based on the principles of multiple and constructed realities, value-bound inquiry, and understanding how people make sense of their lived experiences and structures. To understand the lived experiences of the BNTVs and their families, it was essential that this research aligned to a qualitative approach for data collection, analysis, and representation. This allowed me, as the researcher, to get at the how and why of the participants' stories and make sense of their realities. As it is interpretivist in nature, I could obtain information from my participants and construct meaningful realities from their narratives.

A life history approach was employed and involved 41 in-depth interviews (telephone and face-to-face) over two rounds of data collection with 29 members of the BNTV community (BNTVs, wives and widows). This produced over 57 hours of audio recordings, and 600 pages of transcripts. To analyse this data, a novel and systematic framework for narrative analysis was developed; involved putting the transcripts into chronological order, creating participant monologues, and exploring the 'big', 'small', shared, and exceptional experiences of the participants. To represent the findings, creative nonfiction (CNF) was used to produce three stories in a so-called book of BNTV experience, titled: *Beyond Nuclear Testing: Unheard Voices of the Affected.* CNF blends literary techniques with fact (e.g., similes, metaphors, allusions, flashbacks, point of view, imagery, and character creation) and allows for the verbalisation of the participants' experiences and the deeper meanings they have attached to them. In this instance, these stories show the reader the meaning of the BNTVs' experiences rather than just being told through thematic themes.

1.4 Findings: Retelling the stories of BNTVs

After undertaking NA and developing the CNF stories, it became increasingly evident that BNTV identity centres around the collective experience of witnessing the nuclear tests and being in the armed forces, a sense of survival for ‘passing through the veil’ or living to an age beyond their expectations. Preconceived notions of anger and resentment for the UK government were not apparent, instead the BNTVs largely enjoyed their time in Australia and the South Pacific. It was the perceived health effects of radiation that began to be discussed in the 1980’s which has led to the BNTVs wanting acknowledgement and recognition. Most of the health and wellbeing issues identified in this study are, arguably, attributable to the ageing process (e.g., coronary heart disease, high blood pressure, osteoarthritis, deafness, and poor sight). Incidences relating to cancer, cataracts, and miscarriages though were highlighted as being due to possible radiation exposure during the testing programme. The widows in this study all believed their husbands’ deaths were a direct result of the nuclear testing; it appeared that believing their ill health was the responsibility of the UK government instead of natural causes came as a form of comfort to them. The most apparent health and wellbeing issue within this community was loneliness and social isolation, with many not wanting to admit to it for fear of being a burden on others.

Most of the BNTVs were involved in a vast range of leisure activities including walking groups, gardening clubs, church groups, volunteering, and veteran reunion groups. As demonstrated in the CNF stories, the participants gained a sense of purpose, provided a routine, and delayed the perceived side effects of ageing. Some participants made it explicitly clear that being active was not possible; their bodies were frail and relied on mobility aids. For their mental wellbeing, some enjoyed knitting and embroidery, watching television, reading, or driving.

The potential impact of this study from a research, policy, and practice perspective has only just begun to crystallise, however, the impact of this work is in laying the foundations for more investigation to develop community outreach services to tackle loneliness and encourage engagement in community leisure activities for wellbeing. From a community perspective, it is clear that the BNTVs are better impacted by the fact that this research provides them with the voice they have been seeking for 70 years. They are no longer invisible. The proposed activities for knowledge translation and dissemination include conference presentations, podcast development, publications in academic journals, and an accessible book of life histories and CNF stories. Overall, this work highlights the societal and cultural impact of being visible, the true meaning of storytelling, treating participants ethically, and representing them in a way that is authentic and accessible.

1.5 Structure of the thesis

This thesis consists of seven chapters. Following this introduction, Chapter Two, *Britain's nuclear testing programme: Historical & Political Context*, provides the reader with a necessary understanding of the historical, political, scientific, and social context regarding the development of nuclear warfare. Importantly, it explores the British nuclear test strategy, the health effects of radiation exposure, and the establishment of the BNTVA. This is crucial as the experiences of the participants are situated within this context; knowledge surrounding the development of such weapons is important if we are to understand the impact of being involved in the testing and subsequent possible exposure to radiation.

Chapter three is the literature review, which consists of four key sections. The first section reviews the literature on armed forces veterans; as a specific population, they are exposed to a unique set of conditions that can bring short and long-term adverse effects. The underlying issue here is that civilians cannot relate to the military lived experience; with too much time passing before help is sought and implemented. The second section explores the literature on age, ageing and ageism; this is particularly salient as the dominant narrative of ageing is associated with frailty and disability. These narratives create self-fulfilling prophecies and leads to older adults believing prominent stereotypes about ageing and behaving in a way that propagates these views. Further, it is highlighted that a discrepancy is evident between the health and social care services provided, the active ageing agenda, and the actual needs of the target population. The third section explores the concept of loneliness and isolation. It is highlighted that constant bout of loneliness can lead to short and long-term physical and mental health problems; in regard to older adults, emotional support is valued highly to an individual and is about having quality over quantity. The final section builds on the previous areas and explores key factors that contribute to improving the health and wellbeing of older people, allowing them to continue to age healthily. The literature regarding engagement in physical activity, leisure pursuits, community work, and volunteering is reviewed.

Chapter four details the methodological approach and research design of the present study. It opens with the journey this doctoral study has taken and how particular methods have been implemented to address the research objectives. The chapter also details the process of building rapport, the systematic framework I have developed to undertake immersive narrative analysis, and the process of writing creative nonfiction stories.

In chapter five of this thesis, the findings are presented as a so-called book of BNTV experience, titled: *Beyond Nuclear Testing: Unheard Voices of the Affected.* These findings are in the form of a preface and three composite creative nonfiction stories that have been authentically created from the interview verbatim. The three stories are titled as *An Unlikely Meeting, In Sickness and Health*, and *Age is Just a Number*. Each consist of the big, small, exceptional, and shared experiences of the participants.

Chapter six acts as a critical discussion regarding what counts as knowledge, and the place of creative nonfiction with knowledge production. The contributions and impact this research makes are outlined, as well as how it should be assessed for quality and rigor. The implications for policy and practice and how this research will be translated and disseminated are also presented. Finally, chapter seven presents the conclusion, strengths and limitations, recommendations for policy and practice, before adding concluding remarks.

Chapter Two

BRITAIN'S NUCLEAR TESTING PROGRAMME: HISTORICAL AND POLITICAL CONTEXT

2.1 Introduction

This chapter provides a necessary understanding of the historical, political, scientific, and social context surrounding the development of nuclear warfare. Such context is useful as it provides a chronology of the British nuclear test strategy, the health effects of radiation exposure, and the establishment of the BNTVA. As the British testing programme was subject to the Official Secrets Act, the details surrounding it are not necessarily in the public psyche in comparison to either World War One or Two. Therefore, this chapter looks to set the context in which this study is framed.

2.2 The nuclear revolution, military power, and international warfare: 1929-2019

The development of nuclear warfare is considered to be the start of a fundamental shift in thought regarding the Earth and our relationship with it (Burkett, 2013). The development of nuclear weapons afforded humanity another opportunity to kill fellow human beings and simultaneously destroy the planet. As Caldwell (1969, p.1) suggested, "the bomb is the outstanding symbol of Man's wrong turning along the evolutionary road". However, evidence surrounding the development and evaluation of this method of warfare poses issues due to little empirical evidence about the political, military, and strategic consequences (Quinlan, 1997). Following the atomic bombings in Hiroshima and Nagasaki on August 6-9th 1945, testing programmes began to be conducted across the world for the following 35 years (Simon & Bouville, 2015). Human civilisation has therefore been shaped by the continual unearthing, manufacture, and usage of new and superior resources. The survival of great civilisations is attributed to their capacity, or failure, to manipulate these new materials into innovative forms (Srinivasan et al., 2006). These materials have given their names to key periods of time such as the Stone Age, Bronze Age, and the Iron Age (Srinivasan et al., 2006); the discovery of Plutonium-238 and Uranium-235 and 233 in 1940 by Seaborg, McMillan, Kennedy, and Wahl ushered in the 'Plutonium Age'.

The initial development of nuclear power for political and military gain is largely credited to a letter by physicists Leo Szilard and Eugene Wigner to President Roosevelt and signed by Albert Einstein in 1939 – a letter that Einstein deemed the one mistake in his life (Cirincione, 2007). This letter warned the President that "it may become possible to set up a nuclear chain reaction in a large mass of uranium…leading to the construction of extremely powerful bombs of a new type" (Einstein, 1939). It also contained theories that Germany was working on a super-weapon and must be stopped. This coincided with Germany occupying Czechoslovakia and Austria - halting the sale of uranium from Czechoslovakian mines. As Cirincione (2007) describes, the discovery of the atom was exciting for scientists, however the danger of what atomic energy could yield would soon become extremely real. While the letter led to the development of the Manhattan Project, some historians disagree with Einstein's vision of nuclear weapons changing the world.

The Manhattan project was in operation from 1942 to 1946, established in response to Einstein's letter and the Japanese attack on Pearl Harbour in December 1941 – securing America's entry into World War Two (Iriye, 2013). Following the 1943 Quebec Agreement on wartime nuclear collaboration between Britain and the US, British scientists translated theoretical physics of nuclear fission into a practical and real weapon (Maclellan, 2017); with some arguing it was powered by the superiority of British physics (Tynan, 2016). Physicist J. Robert Oppenheimer led this project alongside General Leslie Groves of the US Army Corps of Engineers with many notable scientists from the UK, Canada, and refugees from Europe also taking part (Srinivasan et al., 2006). In January 1942, President Roosevelt gave provisional approval for the development of an atomic bomb and final approval for the construction of it by December (Stine, 2009). The scientists involved in the project were curious about learning the long-held secrets of the atom and developing an atomic weapon (Gilmer & DuBois, 2002). The first successful nuclear test for the Manhattan Project was conducted in New Mexico on 16th July 1945, using plutonium as fuel. Brigadier Groves, in charge of the development and subsequent implementation of the bomb for the Manhattan Project, informed President Truman about their success in nuclear advancements. By August, the President made the decision to drop the atomic bombs on Hiroshima and Nagasaki (Gilmer & DuBois, 2002).

To imagine the scale of destruction that nuclear and atomic bombs can produce is difficult; a 1-megaton (Mt) nuclear weapon can generate temperatures of approximately

100,000,000°C at its core - five times greater than that at the centre of the sun (Postol, 1986). As described by Postol (1986), the sun's surface is approximately 6,000°C and heats the Earth's surface from a range of more than 90,000,000 miles away. A detonation of a nuclear weapon is accompanied by enormous releases of light and heat. This light and heat can ignite several fires in the areas surrounding the detonation; as the heat rises, cool air rushes in to replace it with hurricane force, with air temperatures exceeding that of boiling water. To put this into context, it is useful to discuss the damage caused in Hiroshima and Nagasaki. These atomic bombs were 15-kilotons and 21-kilotons (15% of the size of a 1Mt nuclear weapon) and were exploded 580m above ground. This produced an intense shock wave moving at 440 m/s or 984 mph; 1 second after detonation a fireball with a 200m radius was created with a ground temperature of 3,000-4,000°C within 2km of the hypocentre (Ogawa & Sasaki, 2011). These bombs killed 250,000 people – a 40% death rate (Barnaby, 1977). When discussing cause of death by these weapons, it is problematic to comprehend the level of brutality. The immediate cause of death for many would have been through crushing or burning to death (Barnaby, 1977). Thermal radiation released and the strength of the blast was an incredibly deadly combination; the intensity of the radiation alone was able to cause burning of the skin 3.5-4km away from the hypocentre of the bombs, and death by burning 1.2km away (Barnaby, 1977).

Instantaneous death aside, the consequences of being exposed to the radiation include "fatigue, high fever, epilation, nausea, vomiting, bleeding from the gums, cataracts, diarrhoea, leukopenia (low white blood cell count), and purpura (skin haemorrhaging)" (Sawada, Chaitin & Bar-On, 2004, p.45). Those exposed to high doses of radiation died up to ten days later (Barnaby, 1977). The Life Span Study (LSS) provides annual reports from the cohort of atomic bomb survivors regarding the health effects of radiation following the 1945 bombings. The total number of participants is 120,321 within three groups: a-bomb survivors within 2.5km of the hypocentre (54,000), within 2.5-10km of the hypocentre (40,000); and, more than 10km away from the hypocentre or not present when the bomb was dropped (26,580). The number of participants in the LSS reflects approximately 50% of the total number of survivors. Crucially, the LSS offers the greatest insight into quantitative risk estimates of cancer and non-cancerous diseases following low-LET exposure to radiation (Preston et al., 2007).

Questions which are often asked when exploring the necessity of nuclear weapons include, 'did the bombings of Hiroshima and Nagasaki force the Japanese to surrender in 1945?

Did nuclear weapons, in effect, win the war in the Pacific?' (Wilson, 2007, p.162). Historians continue to debate the role of the bomb ending the war with Japan. The traditional school of thought suggests that President Truman had to decide where to use the atomic bombs or subject soldiers to a difficult land invasion, with a high death toll on both sides (Cirincione, 2007). If these land invasions had occurred, thousands of US soldiers and millions of both Japanese soldiers and civilians would have perished, causing an Armageddon worse than the outcome of two atomic bombs (Allen & Polmar, 1995). An alternative argument, by Alperovitz (1965), is that the bombs were used for political gain rather than military motivations. Despite Truman being aware that Japan was close to surrender, the atomic bomb was used as diplomatic leverage and intimidation against the Soviet Union (Pollack & Reiss, 1988).

Convincing evidence proposes that the war had brutalized everyone. Senior officials alongside Truman could not see a difference between killing civilians with Trinitrotoluene (TNT) explosives or with a nuclear bomb (Bernstein, 1995). Only after the bombings on Hiroshima and Nagasaki did the general public and their political leaders begin to comprehend the danger nuclear weapons posed, drawing a strong distinction between nuclear weapons and the conventional weapons that had world had been used to (Cirincione, 2007). Further, as identified by the LSS, the consequences of using an atomic weapon are still being identified to the present day. In what could be described as a political U-turn, President Truman then attempted to control the backlash the atomic bombs had created. In his statement to Congress in October 1945, he stated: "The hope of civilisation lies in international arrangements looking, if possible, to the renunciation of the use and development of the atomic bomb" (Truman, 1965, p. 582). By November, Truman advocated to the United Nations for implementation of strict international controls, the abolition of atomic and nuclear weapons, sharing of nuclear technological information, international control of nuclear fuel, and for complete nuclear disarmament (Cirincione, 2007).

The culture of threat surrounding nuclear weapons is regarded as the primary risk to international peace and security (Chang, 2009). Large stockpiles of nuclear warheads influence politics in myriad of ways; primarily, the scale of devastation which would come from all-out war would be immense. None of the parties involved would be spared this level of destruction (Jervis, 1988); thus, nuclear warfare is considered as "mutual kill" (Brodie, 1946, p.76). In a joint statement, Ronald Reagan and Mikhail Gorbachev declared that a "nuclear war cannot be won and must never be fought" (Apple Jr, 1985, p.12). Similarly, Charles De Gaulle stated in 1960 that following a nuclear war the "two sides would have neither power…nor cities…nor cultures" (in Cirincione, 2007, p.84). According to Kissenger (1960), any war that would commence carries a threat of nuclear weapons being used. Even if nuclear weapons are not employed, both sides would have to acknowledge their presence. Nuclear warheads act as a replacement for manpower, forcing the opposition to retreat.

Although nuclear weapons serve to increase security, insecurity comes as a by-product from the inability to stop the devastating large-scale effects if detonated (Jervis, 1988). On April 4th, 1949, The North Atlantic Treaty was signed in Washington, USA, by the Foreign Ministers of Belgium, Canada, Denmark, France, Iceland, Italy, Luxembourg, the Netherlands, Norway, Portugal, the United Kingdom, and the United States of America. Greece and Turkey became members in February 1952, and the Federal Republic of Germany in May 1955 (Devadanam, 1965). The North Atlantic Treaty Organization (NATO) was founded to serve three key purposes: prevent Soviet expansion, to prohibit the revival of nationalist militarism in Europe, and to encourage political European integration (NATO, n.d). Importantly, NATO is the mechanism through which the member countries work to achieve their aims and objectives. As suggested by Devadnam (1965), due to a lack of security alliances within Europe, the early part of the 20th century witnessed the outbreak of war in both 1914 and 1939. This prompted the formation of NATO to maintain and promote peace and security within the free democratic world.

Between 1945 and the signing of the Comprehensive Nuclear-Test-Ban Treaty in 1996, atmospheric nuclear testing would be carried out by the USA, USSR, UK, China, and France – resulting in over 2000 tests. The total explosive yield was approximately 550 Mt, with the Soviet Union responsible for the production of 285 Mt, followed by the United States (200 Mt), China (22 Mt), France (13 Mt), and the United Kingdom (10 Mt) (UNSCEAR 2000). In context, this is a total force of approximately 20,000 Hiroshima bombs. The release of radioactivity and legacy of the atmospheric tests will remain for centuries (Makhijani, Hu & Yih, 1995). The harmful effects of exposure (specifically, the higher incidence rate of cancer) would not be made public knowledge or understood for many years following these testing programmes (Simon & Bouville, 2015). Concern in 1962 about radioactive fallout led to the

Partial Test Ban Treaty, however, this only forced testing to be carried out underground (Holdstock & Waterston, 2000).

In recent years, the growing tensions between the United States and North Korea surrounding nuclear weaponry serve to remind us how vulnerable humanity is if used intentionally, either as a miscalculation or by accident (Haines & Helfand, 2017). It is understood that approximately 15,000 nuclear warheads exist today, with 1,800 warheads on alert and ready for use at a moment's notice (Kristensen & Norris, 2017). Indeed, the readiness of these missiles are of concern, with the possibility of an accidental nuclear war remaining a serious risk (Forrow et al., 1998). Until the 1990s, despite only seven nations obtaining nuclear weapons, there were 34 crises between them from 1945-2001 (Asal & Breadsley, 2007). As Quek (2016) purports, if proliferation continues to accelerate, there is the very real risk of a nuclear crisis. Mueller (2010) disagrees, arguing that the threat of nuclear warfare is often blown out of proportion as the causes of nuclear war are theoretical due to the fortunate inexistence of real-world observations. When trying to understand why there has not yet been a third world war, a problem of accounting for an event which has not happened exists. Certainly, how can it be explained that the highly anticipated conflict between the USA and USSR did not develop into nuclear war? The answer to this lies in the tendency of researchers in international relations to prefer to explain what has occurred rather than what did not (Gaddis, 1986). As Blainey (1973 p. p3) posits, "for every thousand pages published on the causes of wars, there is less than one page directly on the causes of peace." The field of peace studies has put great emphasis on how we must avoid the apocalypse rather than explain why it has not yet happened (Gaddis, 1986).

2.3 The British Nuclear Testing Strategy

For Sir Winston Churchill, who was plagued with nightmares about nuclear warfare, the news that both the USSR and the USA had already developed a hydrogen bomb weighed heavily upon him (Colville, 1985). By October 1951, Churchill was now in his second term as Prime Minister, having previously held office during the Second World War (1940-1945). However, his ill health following a stroke in June 1953 combined with the successful Soviet H-bomb test in August of the same year, led to feelings of depression about the weapons that could destroy 2 million people (Gilbert, 1988). During World War Two, Churchill had actively supported the Manhattan Project and its development of the first atomic weapons that would be dropped on Japan (Farmelo, 2013). However, just before Japan's surrender in 1945, Britain elected Labour Leader Clement Atlee as Prime Minister (Maclellan, 2017). Despite defeat at the polls, Churchill was still a distinguished international statesman. In March 1946, he visited the US and gave a speech titled 'The Sinews of Peace' at Westminster College in Fulton, Missouri. The speech made the term 'iron curtain' famous and signified the demise of the partnership between the Western Allies and the USSR (Maclellan, 2017). It was in this speech that Churchill suggested the allies should not share atomic development plans with the Soviets (Rasmussen, 2003).

The United States' Atomic Energy Act, also known as the McMahon Act, came into operation in November 1946; crucially, this meant that nuclear research and technology conducted by the US would no longer be shared with other nations, even to their Western Allies (Ball, 1995). The UK-US scientific allegiance of the past was tainted by post-war espionage and political conflicts (Maclellan, 2017). The UK's reaction to this was to set up a committee in January 1947 to instigate a British Nuclear weapons programme, led by the Prime Minister and five other ministers of government (Arnold, 1987). This secretive assembly, one that would begin a nuclear institution of evading responsibility, had already spent approximately £100 million before announcement of its existence in May 1948 (Maclellan, 2017). Although Atlee remained balanced in his political and moral opinions of the nuclear programme, the ministers within the committee were combative in their approach. Anti-communist Foreign Secretary Ernest Bevin was reported to have told his cabinet associates, "we've got to have this thing [nuclear weapons] over here whatever it costs and we're going to have a bloody Union Jack flying on the top of it" (House of Lords, 2011, p.7). Despite Britain's involvement in the Manhattan Project, this was an opportunity to create an independent nuclear force; however, the McMahon Act meant that Britain no longer had access to nuclear testing facilities in the Nevada desert or Pacific atolls.

Cold war anxiety regarding nuclear attack was heightened when the Soviets announced their first nuclear test in 1949 and the commencement of fighting on the Korean Peninsula in 1950. This resulted in Britain fast-tracking their own nuclear programme and seeking a suitable location to begin conducting atomic tests (Maclellan, 2017). While Britain was only just conducting tests on fission weapons in October 1952, by November the US had already tested their first hydrogen bomb, with the USSR also testing their first thermonuclear weapon in August of 1953 (Maclellan, 2017). The impact of the thermonuclear testing caused the political leaders of the three nuclear powers great distress, with President Eisenhower declaring science to have created the power to erase life from the planet (Hewlett & Holl, 1989). Churchill feared that millions of people would be killed using H-bombs (Boyle, 1990) and the Soviet Premier, Georigii Malenkov, proclaimed that a nuclear war would result in the end of civilisation. The race to build the most destructive nuclear weapons led to public outrage across the globe. Many became concerned about the dangers that these mysterious weapons posed, and antinuclear movements were formed around the world (Holloway, 2010).

It would not be until 1957 that Britain was able to detonate its own hydrogen bomb with a yield of 1.8 Mt. The order in which Britain conducted their nuclear weapons were as follows: Operation Hurricane (1952), Operation Totem (2 detonations, 1953), Operation Mosaic (2 detonations, 1956), Operation Buffalo (4 detonations 1956), Operation Grapple (3 detonations, 1957), Operation Antler (3 detonations, 1957), Grapple X (H-bomb successful with detonation yielding 1.8 Mt, 1957), Grapple Y (2.8 Mt, 1958), and Grapple Z (4 detonations, 1958). The locations for the tests in Australia (Monte Bello Island, Emu Field and Maralinga) and Pacific Islands (Malden Island and Christmas Island) were chosen as they appeared to be vast and desolate, however they were not devoid of population. The Western powers showed little compassion for the health and wellbeing of the indigenous people, as well as the civilians and military who staffed the nuclear testing sites (Maclellan, 2017).

The official recording by the British government suggests that approximately 22,000 Britons, 14,000 Australians, 500 New Zealanders and 150 Fijians were present during Britain’s testing programme; the vast majority of these were armed forces personnel (Muirhead et al., 2003). In the lead-up to the H-bomb tests in early 1957, Prime Minister Harold Macmillan dismissed concern about potential radioactive fallout, stating that the tests were too small to add anything dangerous into the world. In March of the same year, Macmillan again dismissed radiation concerns, suggesting that any hazards were negligible (Maclellan, 2017). Yet, Maclellan (2017), in his book ‘Grappling with the bomb’, argues that service personnel, either on land or at sea, were ordered to line up with their backs to the explosion until after detonation while scientists sheltered in a bunker. The local people were taken offshore as a precaution, however, by 1958 when the final tests were being conducted at Christmas Island, these safeguards were abandoned.

The significance of ‘Operation Grapple’ is profound, as it was a series of tests designed to yield 1 Mt as well as the start of developing free-falling atomic warheads and medium range ballistic missiles (Rabbitt Roff, 2002). Upgrading Great Britain’s arsenal from atomic to hydrogen was important for the Government to achieve, as the H-bomb is thousands of times more powerful (Rhodes, 1995). An amendment of the McMahon Act in 1954 made limited exchanges between the US and UK possible once again. The continued pressures of the Cold War made the need for cooperation vital as time went by (Ball, 1995). In 1958, a major revision to the Act was made, allowing even greater collaboration between nations (Thorne, 2003; Treaty Series No. 41, 1959; p2). As a result of the renewed collaboration, Britain abandoned its own testing programme. Once nuclear testing resumed in 1961, the US and UK began conducting joint tests at the Nevada test Site, carrying out a total of 28 tests. The UK then allowed Christmas Island to be used by the US for a further 25 detonations. As argued by Holloway (2010), nuclear weapons enabled the Cold War to remain at bay without a deadly ending.

2.4 The science of nuclear warfare

To understand why nuclear warfare poses such a grave risk to humankind, it is perhaps necessary to discuss the science of radiation – including what it is, what it can be used for, and the potential health risks associated with it. Radiation is all around us, usually at harmless low levels but the very mention of the word usually creates a feeling of fear and panic, with it being thought of as a unique hazard (Dauer et al., 2011). When one thinks about radiation, the immediate thoughts tend to be catastrophised as nuclear disasters (e.g., Chernobyl and Fukushima), nuclear weapons, dirty bombs, and nuclear energy (Pastel, 2002; Ring, 2004), rather than from natural sources or the healthcare industry (Dauer et al., 2011). Radiation is described as any type of radiant energy which imparts energy through the medium it passes (Zeman, 2000). Background radiation is universal and comes in many forms, including heat, light, microwaves, x-rays (e.g., in hospital or in dentistry), radio-waves, cosmic radiation from the sun and space, and the Earth’s natural materials (e.g., uranium and thorium) (Chen, 2015).

As Chen (2015) states, an individual is not only subject to external exposure but also internal exposure. Radiation can be taken in through the air we breathe as it contains radon, and the food and drink we consume due to naturally occurring substances originating from radioactive materials in the ground. Radiation dose is measured in a variety of ways depending on how the radiation is being received. Exposure as a total charge of ions travelling through the air is measured as Roentgen (R/rem) and the absorbed dose deposited in the tissue per unit weight is measured as Gray (Gy). The effective dose multiplies the dose with a quality factor (Q) and is measured as Sievert (Sv) or millisievert (mSv) (Hill & Einstein, 2016). Although effective dose is of practical importance for comparing the relative dose, it is not based on data from one individual person and only provides a reference point for a given exposure situation (Mattsson & Söderberg, 2013). The average background radiation dose in the UK is approximately 2.4 mSv/per year (Oatway et al., 2010). This dose can range depending on location (e.g., in Brazil and Sudan, average exposures can be up to 40 mSy/year) (Thomas & Symonds, 2016). Thomas and Symonds (2016) suggest that while 16% of the radiation we receive tends to come from artificial sources, only 1% comes from the nuclear industry, including the atmospheric testing of nuclear weapons.

The absorption of energy from radiation contained in biological material can lead to ionization if the radiation has an abundance of energy to expel one or more electrons from the atom or molecule as it passes through matter (Hall & Giaccia, 2011; McLean et al., 2017), known as ionizing radiation. If the radiation does not have enough energy to expel electrons, this called non-ionizing radiation (e.g., visible light or radio waves). Exposure to both ionizing and nonionizing radiation have can pose adverse health risks (Brookhaven National Laboratory, 2008). The three most common forms of ionizing radiation are alpha, beta and gamma. Alpha particles have a positive charge with little or no penetrating power and can be halted by materials such as paper; however, if alpha-emitting material (e.g., uranium) is ingested, this can pose a serious health risk within the body. Beta radiation is made up of particles with a negative charge. In comparison to alpha, beta radiation has more penetrating power but can be stopped by aluminium, foil, and plexi-glass. Gamma radiation is emitted from a radioactive nucleus in combination with alpha or beta particles and has the strongest penetrating power, passing through solid materials such as concrete (Brookhaven National Laboratory, 2008).

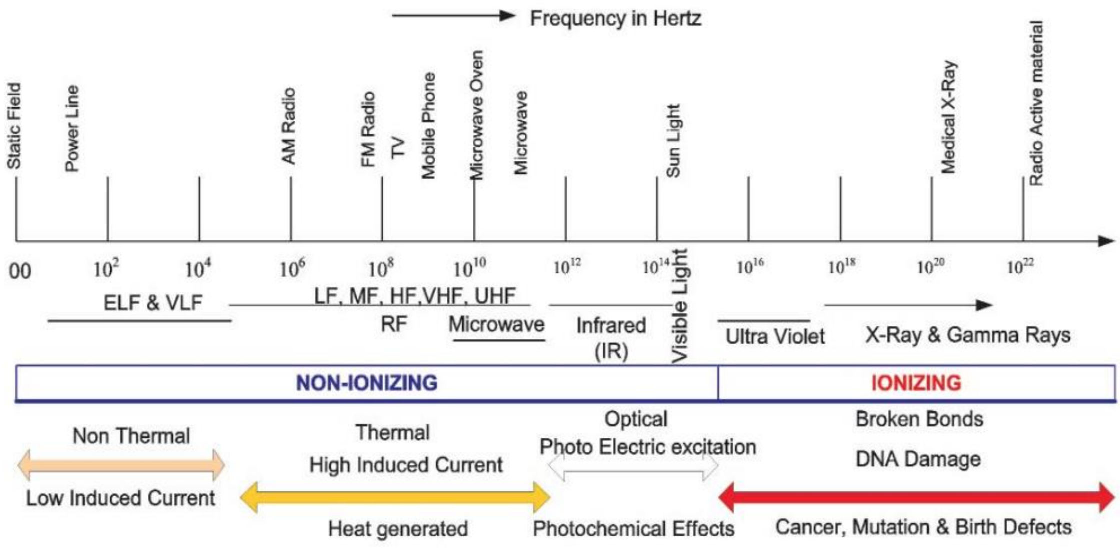


Figure 1. Radiation spectrum (Zamanian & Hardiman, 2005, p.16).

Radiation emitted by a nuclear explosion can encourage radioactivity in materials that are not habitually radioactive, transforming nitrogen in the air to carbon-14, a radioactive substance with a half-life of 5,730 years (Ruff, 2017). Freund and Dropkin (2013) suggest that the consequences of non-ionising radiation on health, like ionizing radiation, is expected to be linked to the dose that is received as well as the wavelength that is generated. In particular, the 60 Hertz (Hz) current that is used within residential homes, commercial buildings and medical facilities can have the biological impact of extremely low frequency (ELF) non-ionizing radiation. Public exposure to ELF comes from electrical appliances and household wiring (Repacholi & Greenebaum, 1999). Figure 1 is a visual representation of radiation as it increases in frequency. Research has identified a potential for reproductive, carcinogenic (Jauchem & Merritt 1991; Jauchem 1991) and cardiovascular changes (Jauchem and Frei 1992). ELF has been linked to the development of breast cancer in men and women, Alzheimer’s disease, DNA damage, brain tumours, neurodegenerative diseases, and childhood leukaemia (Hardell & Sage, 2008).

2.5 Health effects of exposure to radiation

Exposure to radiation following a nuclear explosion can be internal or external (Kamiya et al., 2015). As explained by Prăvălie (2014), radioactive dust (e.g., contaminated soil), aerosols (fine droplets of radioactive solution) or gas can be suspended in the air. Radioactive fallout is very fine, particulate radioactive matter produced during the explosion, brought back to Earth by gravity, rainfall, or wind (Simon & Bouville, 2015). It can only arise from radiation that has adequate range and energy to penetrate any shielding between the source of radiation and the person, passing through clothing and the outer layers of skin (Christodouleas et al., 2011). External exposure ceases as soon as the source is no longer in contact with the person, however, if clothing or equipment are contaminated, they may continue to be a source of exposure (War Pensions and Armed Forces Compensation Chamber; WPAFCC, 2016). Internal exposure is considered the most harmful, occurring through inhalation, ingestion, and absorption via the skin or open wounds (Christodouleas et al., 2011). This remains in the body until the radioactive material has decayed or been excreted, lasting for several years following initial exposure. The doses received by those present during the atmospheric testing in the Pacific Islands and Australia remains largely anecdotal due to the Official Secrets Act of 1920, however it is plausible that armed forces personnel and the local indigenous population were potentially exposed to high levels of radiation which would now be deemed above acceptable levels (Holdstock & Waterston, 2000).

The biologic effect of ionizing radiation depends primarily on the amount of energy absorbed and the rate of deposition in the tissue (Beebe, 1982), with the health effects from radiation differing from person to person. Young children are the most susceptible to radiation damage, with the risk gradually reducing with age, making infants four times more sensitive to radiation than middle-aged adults (National Research Council, 2006). It has also been reported that sex can also determine radiation effect on the body. Following whole-body exposure, females are 52% more likely to develop cancer than males and 38% more likely to die from it (Makhijani, Smith & Thorne, 2006). Cancer is not a rare disease, and it is estimated that 42% of people are estimated to develop some form of cancer in their lifetime (Boice Jr, 2012). However, if 100 people received 100 mSv (the unit of measurement for effective dose) once and were then analysed for life, the predicted cancer incidence rate would result in one excess case (National Research Council, 2006). It could therefore be considered ironic that radiation is often used as a treatment for cancer, as it kills the cancer cells within the body. It does this by permanently damaging the cell DNA or creating free radicals (Zeman, 2000). If radiation is used accurately and precisely, damage to surrounding health tissue is minimal (Camporeale, 2008). As such, the use of X-ray machines and CT scans in medicine has been described as a "double-edged sword" (Shi & Tashrio, 2018; p1); with medical radiation exposure becoming a major source of radiation for the public (Ruff, 2017). Cancer risk after whole-body exposure from a CT scan is greater than previously thought (Mathews et al., 2013). Mathews et al. (2013) conducted one of the largest studies to date, exploring the cancer risk following a CT scan in 680,000 young people under the age of 20 compared to 10.3 million young people who had not received a CT scan. It was found that there was a 24% increase in cancer incidence in the decade following one CT scan, with an additional 16% cancer risk for each additional scan. Findings from this study are like Smoll et al. (2016) and Pearce et al. (2012) but these had significantly smaller sample sizes.

The atomic bombings of Hiroshima and Nagasaki only offer a partial insight into the effects of a potential nuclear war. Yet, the weapons used in 1945 would be considered small by present-day benchmarks, with neither warning nor knowledge of radiation exposure (Thompson, 1986). As Thompson (1986) reports, the Hiroshima bomb would now be regarded as the detonator of a 1Mt nuclear warhead. Within radiation research, a major question exists regarding dose-response and whether a threshold of radiation exists (Schöllnberger et al., 2012). Data from nuclear workers suggests that ionising radiation is a key component of cancer development (Holdstock & Waterston, 2000). However, the type of radiation and subsequent dose rates found within a nuclear facility or even in a nuclear reactor accident are different from those present during the detonation of a nuclear weapon (Christodouleas et al., 2011). Therefore, research exploring radiation effects of nuclear workers will differ due to the varied biological consequences.

Epidemiological studies have categorically linked high doses of radiation to an elevated risk of cancer, however the estimates of risk for low dose exposures have been largely based on extrapolations and assumptions (Boice Jr, 2012). Due to the large sample sizes required, the challenge of continuous long-term health evaluations over several years and being unable to control for other influential factors (e.g., lifestyle, genetic, or environmental) for cancer development, the study of carcinogenic effects of small radiation doses is extremely difficult (Boice Jr, 2010; Gilbert 2001). Little et al. (2010) reviewed epidemiological data relating to the A-bomb survivors in Hiroshima and Nagasaki, low and moderate-dose therapeutically exposed groups, and diagnostically, occupationally, and environmentally exposed groups. The authors concluded that elevation of non-cancer and cancerous diseases increased, however for those who received moderate-low doses of radiation, this increase is suggestive rather than persuasive. Further investigation of survivors from Hiroshima and Nagasaki reported an increase in leukaemia and tumour development (Holdstock & Waterston, 2000). In an investigation by Schull et al. (1981), exploring stillbirths and child deaths among survivors of Hiroshima and Nagasaki, no significant differences were found when matched with an unexposed control group. According to the authors, a small increase in child deaths when both parents were exposed to radiation was reported, but was not statistically significant, meaning it could have occurred by chance.

The potential health effects of radiation are not limited to cancer growth but can also be linked to non-cancerous diseases (Little et al., 2010); including cardiovascular and respiratory diseases (Ruff, 2017). Death from circulatory disease due to receiving a low total dose/low dose rate has been witnessed in nuclear industry workers (Little et al., 2012). In systematic reviews of epidemiological studies and cardiovascular disease literature by Plummer et al. (2011) and McGale and Darby (2005), as well as reviews of population exposed to low-dose radiation by Little et al. (2009), Metz-Flamant et al. (2009) and Little et al. (2012), the conclusions were that a significant link exists between radiation exposure and circulatory disease.

The characterization of health effects of prolonged low-dose radiation is still incomplete and challenging (Picano et al., 2012), with UNSCEAR (2008) recommending that more attention needs to be paid to other non-cancerous and circulatory diseases. Significant associations have been suggested within the literature between death from dementia and total lifetime radiation doses in female nuclear power employees (Yamada et al., 2005) and pre-senile dementia among dentists (Sibley et al., 2003). Despite finding a link between dementia and nuclear power employees in 2005, Yamada et al. (2009) found no relationship in dementia and radiation exposure in ageing atom bomb survivors. Cataracts are a deterministic ionising radiation-induced effect when a dose threshold has been exceeded (Balter, 2010). Epidemiological studies have explored cataracts among Chernobyl clean-up operators, astronauts and A-bomb survivors with findings suggesting that lens opacity is evident when doses are 0.5 Gy (Gray) or 15 rd (Rad) (Klein et al., 2009). It has also been reported that 50% of interventional cardiologists, who frequently operate X-ray machines, suffer from the development of cataracts (Kuon et al., 2002).

One of the key areas within radiation exposure research is the link between exposure and biological injuries – particularly the potential damage to deoxyribonucleic acid (DNA) and chromosome abnormalities. DNA is found inside the nucleus of the cell and each DNA molecule is known as a chromosome. During replication, DNA unwinds for it to be copied, make proteins and transfer to new cells during cell division – each of these DNA sequences that comprises of instructions for protein creation is called a gene (NIH; National Human Genome Research Institute, 2015). As explained by the NIH (2015), half of an organism's DNA is inherited from the male's sperm (including 23 pairs of chromosomes) and half from the female's egg (including the remaining 23 pairs of chromosomes) and consists of instructions needed for the living being to develop, survive and reproduce. The 46 chromosomes in 23 matching pairs constitute a genome. Despite the precision of cell division, it is still prone to error (McKinlay et al., 2011).

Chromosome abnormalities are organised into two groups: numerical and structural abnormalities. Most occur accidently in the egg or sperm causing abnormality in every cell of the body; however, some abnormalities can occur following conception, with only some cells to have the abnormality (NIH, 2015). An example of a numerical abnormality is Down Syndrome (or trisomy 21) and is one of the most common genetic disorders impacting foetal development (Diamandopoulos & Green, 2018). Chromosome aberrations tend to occur in the cells of individuals who have been exposed to radiation (Keshava & Ong, 1999). With the development of multicolour fluorescent in situ hybridisation (mFISH), various aberration types are visible (Rowland et al., 2007). Rowland et al. (2007) explored the link between New Zealand's nuclear test veterans who were present at Operation Grapple in 1957-58 and long-term genetic damage. The findings revealed a very high frequency of total translocations in the veterans' chromosomes. Although aberrations have been reported at low doses (Lazutka et al., 1999), the link between chromosome abnormalities and ionising radiation remains unclear. There is an association between observed aberrations and the development of cancer and leukaemia, but no conclusive evidence to suggest that chromosomal damage triggers the cancer alone (Mosse, 2012).

Having presented a detailed discussion of the biological and diseases consequences of radiation exposure it is important to also consider the mental health of those who have survived exposure. Although past disasters are imperfect guides to the future, they need to be assessed if possible future reactions are to be understood (Thompson, 1986). Within the literature, the psychological impacts of disasters have been defined as those situations of enormous, collective stress (Kinston & Rosser, 1974). However, as Kinston and Rosser (1974) suggest, there has been a reluctance to fully explore the human reaction to catastrophes as if not wanting to confront the desolation of human tragedy. Considering the importance of these events, they have largely been underreported.

Work with A-bomb survivors was partial in nature and bypassed the mass readership (Thompson, 1986). Lifton (1967) interviewed 75 survivors to explore the individual's recollection of the bomb, the meaning it held in the present, the constant fear of re-attack and what it meant to the individual to be a survivor. The main theme found was a sudden and total shift from a standard existence to a confrontation with the prospect of death, a feeling that stayed with them long after the event. Both Lifton (1967) and Akizuki (1981) found that survivors wrestled with the fact that they had survived while others did not, experiencing feelings of intense guilt and shame. In line with guilt or shame, the concept of stigma is a significant issue among those who have experienced radiation exposure, with many atom bomb survivors being reluctant to express their experiences of the bombs and reveal their life history (Hasegawa et al., 2015).

Depression and anxiety regarding the concern of cancer, fear of dying and difficulty in coping on a day-to-day basis are common findings amongst nuclear survivors (Thompson, 1986). Young women in Fukushima have reported a fear of stigma pertaining to future pregnancy and genetic inheritance (Glionna, 2012). Termed self-stigma (Hasegawa et al., 2015), it can cause anger, loss of self-esteem, distress, and feelings of indifference (Corrigan, Watson & Barr, 2006). The internalisation of these negative stereotypes by applying them to oneself often leads to self-stigma and low self-esteem (Corrigan et al., 2006; Rüsch et al., 2009). Two important aspects of self-stigma exist, self-devaluation and self-isolation, with implications for recovery blocked by the individual and a decrease in social support occurs (Watson et al., 2007).

Yamada, Kodama, and Wong (1991) and Honda et al. (2002) found a significant level of posttraumatic stress disorder (PTSD) and anxiety regarding health, the health of family members, social discrimination, and employment among A-bomb survivors. Similarly, Bromet (2014) reported a prevalence of PTSD and depression linked to poor (self-rated) health in workers following the Fukushima Daiichi Accident in 2011. From examinations of evacuees from the Fukushima accident, sociodemographic, disaster-related, and social support factors (Murakami, Nakatani & Oki, 2016; Suzuki et al., 2015) were associated with a greater perception of risk following exposure to radiation. Brumfiel (2013) also found a fear of invisible radiation exposure, termed exposure worry or radiation anxiety (Fukasawa et al., 2017). Though, the concept and mechanism of exposure worry are yet to be fully explored within the research (Fukasawa et al., 2017).

Following the reactor accident in 1979, women, young people, and individuals living near the Three Mile Island nuclear power plant perceived a greater threat to their health from radiation exposure (Dohrenwend et al., 1981). However, environmental levels of radiation exposure, the association between these levels, and the mental health of the residents were not accounted for – making these findings inconsistent. While Beehler et al. (2008) found no suggestion of depression and anxiety in the 20 years since the Chernobyl accident and ground level contamination; Lehmann and Wadsworth (2011) did find a relationship between area level radiation dose between accident occurring and poor self-reported health 20 years later. Therefore, the relationship between environmental radiation and poor mental health remains unclear.

As active participants in the nuclear tests, the nuclear test veterans have expressed concern over possible biological and hereditary damage following potential exposure to radiation during service (Trundle & Scott, 2013). To forge links with scientists, lawyers, politicians, and the media, BNTVs in the UK and New Zealand have formed associations (e.g., BNTVA). These associations also unite the veterans to campaign for increased health care, research, and compensation (Moonie, 2002). However, the Ministry of Defence (MoD) have spent approximately £4m blocking the legal claims of test veterans and their families (Baverstock, 2003), while the US government has awarded compensation for veterans with 15 different cancer diagnoses (Holdstock & Waterston, 2000). Unlike the UK, its allies who took part in the nuclear testing “are now recognising the possible radiogenicity of illnesses suffered by military and civilian personnel” (Holmes, 2011, p. 835).

2.6 BNTVA: A Political Movement

The British Nuclear Test Veterans Association (BNTVA) was formed officially in 1983 to campaign for compensation and recognition for all the service personnel present at the British nuclear tests between 1952- 1958. Additionally, it was established to advocate for the clean-up of atomic test sites up until 1967 (WPAFCC, 2016). In support of the nuclear test veterans, Rabbit Roff (2012) believes the race to build Britain’s first hydrogen bomb before the atmospheric test ban treaty came into action led to health and safety procedures not being adhered to. Bombs were detonated only a few miles from shore or 1500 feet in the air instead of the anticipated several thousands of feet. Inadequate monitoring of radiation exposure amongst the veterans and civilians also occurred. Kenneth McGinley became increasingly aware of former service men in the local area, who had been present at the tests, to be suffering from a range of health problems. McGinley felt inspired to write a letter to the local paper, The Daily Record, in Glasgow to explore if any of the nuclear veterans were suffering from ill health following their service. Following this, the subject of ill health among nuclear veterans was brought up in the House of Lords. Viscount Trenchard, Minister of State for Defence Procurement indicated that no personnel were exposed in excess of internationally recognised limits and were not subject to significant health risks. This statement is still upheld by the British government today. The media helped to bring the nuclear tests to the public’s awareness, with many veterans who had been at the tests making themselves known to McGinley.

The BNTVA’s fight for recognition by the UK government began to gain momentum when the MoD commissioned a study by the National Radiological Protection Board (NRPB) in 1983 due to the public outcry regarding claims that the nuclear test veterans were suffering from poor health (Baverstock, 2003). However, the NRPB’s findings were not made available until 1988. For the study, 21,000 service personnel and employees of the Atomic Weapons Research Establishment were confirmed by MoD records as being present at the tests between 1952-1958 in Australia and the South Pacific. The cancer mortality rate and incidence within this population was then compared with the 22,000 matched controls. Liver cancer, prostate cancer, and leukaemia incidence and mortality were found to be of significance. Despite this, and the potential for future compensation claims from the British government by the test veterans and their descendants, the findings of the NRPB study have been controversial and disputed due to incidences of myeloma (bone cancer) not being included within the data set. Additionally, the exposed cohort of veterans is drawn exclusively from MoD records with cancer cases and deaths linked to the National Health Service (NHS) central register. The control group was also drawn from MoD records of servicemen who were present in similar tropical and subtropical areas for the same length of time as the test veterans (Baverstock, 2003).

Following the Crown Proceedings (Armed Forces) Act of 1987, service men and women were able to take the MoD to court for issues of negligence, however it was not until 2004 that notices of claims would be issued against the MoD. According to court documents made available by the Courts and Tribunals Judiciary (https://www.judiciary.gov.uk/), a group litigation order was made, and proceedings began in 2006 for 1,011 claimants (service veterans and civilians from UK, Fiji, and New Zealand) who wanted to sue the MoD for health conditions caused by radiation exposure during the nuclear tests. At the High Court hearing, the claims made by the veterans were said to have scientific support from a study by Wahab et al. (2008).

This study was of 50 New Zealand sailors who served near Christmas Island, using a biological technique called M-Fish for the examination of blood cells. The authors concluded that they had detected a significant number of translocations in chromosomes within the veteran cohort compared to a control group of service personnel (excluding sailors), with mutations indicative of radiological origin. Translocation is the rearrangement of chromosomes during fertilisation or just after as the cells are dividing (NHS, 2010). This evidence was not presented by experts in radiology and related disciplines. Instead, reports commenting on current standards in radiological protection, the Wahab et al. (2008) study, and a health consequences of radiation exposure report from selected specialists in radiobiology, cytogenetics, nuclear physics, and epidemiology were submitted.

The MoD appealed against the testimonies and had 90% of the lead cases struck out in accordance with the Limitation Act of 1980. The significance of this Act is that claims pertaining to illness, injury or death must have been made 3 years from the date of onset or from the date of knowledge (H. M Government, Limitation Act, 1980, c.58). This judgement was later overturned by the supreme court's ruling, whereby allowing the veterans their right to seek damages despite this time limit (Holmes, 2011). However, the nuclear veterans claim that their military medical records have been lost (Rabbit Roff, 2012). The fact that such documentation is missing presents a legal paradox, states Rabbit Roff (2012), in that the veterans could not sue the MoD as more than 3 years had elapsed between exposure and illness (or awareness of illness), and they did not have the written evidence to prove it due to lack of safeguarding by the UK government.

In 2012, the BNTVA launched a campaign to highlight the issues veterans and their families faced because of the nuclear testing programme. The campaign called for recognition and support for the nuclear veterans, reaching its peak with an organised march on Whitehall to deliver a petition of over 5000 signatures demanding the Prime Minister look at the veteran's plight. The campaign wanted to establish the identity of the Nuclear Veterans and their families and to highlight the concerns surrounding increased levels of congenital deformity and serious ill health experienced by the veterans' descendants. The Treasury then announced that the funds acquired from LIBOR fines would be used to support military and emergency services charities and other related good causes (H. M Treasury, 2015).

LIBOR (London Interbank Offered Rate) funding comes from fines levied on the banking industry for manipulating the LIBOR rate. As a result, the Aged Veterans Fund (AVF) was established in 2015 by then Chancellor, George Osborne, to support the health, wellbeing, and social care needs for veterans born before 1950 (H. M Treasury, 2015). This includes WW2 veterans, those who were conscripted into National Service and other enlisted veterans who may need focused support. The AVF has received a total of £30 million from the LIBOR funds available over the course of five years. Through the AVF, the Nuclear Community Charity Fund (NCCF) was set up in 2016 to directly fund the provision of domestic living adaptations, respite care, physical health therapies, mental health therapies, mobility aids and social integration measures. Further, the LIBOR funding allowed the NCCF to secure a further three years of funding to establish a Centre for the study of 'Health Effects of Radiological and Chemical Agents' at Brunel University London, alongside the commission of studies into potential genetic damage. The NCCF also manages a Remembrance project and a Community Communications project for the purposes of educating, informing, and supporting the work of the central activity of the Care, Wellbeing, and Inclusion Fund (CWI Fund) to reduce suffering and increase wellbeing within the Nuclear Community. The BNTVA converted into to a charity in June 2017, while the NCCF became a Charitable Incorporated Organisation (CIO) on a Foundation basis.

As the participation of the public becomes ingrained in both national and international health policy, there is a need for decision-makers (e.g., governments) to fully understand who is affected by these decisions and actions, along with how much power and influence stakeholders have over the desired outcome (Brugha & Varvasovszky, 2000; Hill & Leigh-Hunt, 2016). Stakeholders are a collective group of individuals or companies who have something to gain or lose through the results of a planning process or research project (Acland, 2010). Within current governmental policy (including local government divisions and the NHS), references to stakeholders are encouraged as stakeholder engagement is a key priority. This allows for the opinions, ideas and needs of the stakeholders to subsequently influence the design of services and facilities required (Hill & Leigh-Hunt, 2016).

An example of this was the health needs audit commissioned by the MoD in September 2010 to examine the health and wellbeing needs of 633 nuclear test veterans (Miles & Green, 2011). Key findings of this audit included: 91% of respondents reported as to having a serious or long-term condition since involvement in the nuclear tests; only 18% of respondents reported being in current good health and, 51% attributed their poor health to the tests. Following publication of the report, a veteran’s pathway was created through the NHS to meet some of the improvements put forward by the veterans. Considering the present study, the relevant stakeholder groups which are of interest include the Nuclear Test Veteran community, the BNTVA, the Nuclear Care Community Fund (NCCF) and governmental groups such as the MoD and NHS. Each of the stakeholder groups will have different assumptions or agendas as far as the outcome of the research is concerned (Franche et al., 2005).

On one hand, the BNTVA agenda will look to promote veterans’ exposure of radiation, with health and wellbeing suffering consequently. The MoD, however, would look deny links between wellbeing concerns and potential radiation exposure based on previous statements and legal battles between the veterans and the UK government. Like Franche et al. (2005), whose stakeholders were injured workers, the nuclear test veterans’ motivating factors will potentially relate to physical integrity, dignity, and self-image (Franche & Krause, 2002). Additionally, another issue that may be considered salient by the nuclear veterans will relate to healthcare professionals, the MoD, and the researchers' perceptions of whether their alleged and health and wellbeing issues are seen as legitimate (Baril et al., 2003).

2.7 Chapter summary

This chapter has covered, using historical literature, the development of nuclear weapons in the 1930s to their devastating use by the USA in Hiroshima and Nagasaki in 1945. It has also outlined the British nuclear testing strategy from 1952 to provide context for the UK's need to join the arms race. Importantly, this chapter presents an informed discussion on the physical and mental health effects following exposure to different forms and intensity of radiation. Despite the BNTVA's continued campaign for acknowledgment and compensation from the UK government, they remain thwarted by their unwillingness to change their stance regarding exposure. In the next chapter, the literature covered will move to a specific focus of veterans, ageing, loneliness, and identity, as well as wellbeing and activities for older adults.

Chapter Three

LITERATURE REVIEW

3.1 Chapter introduction

The primary purpose of this literature review is to introduce and provide a comprehensive account of the topics this thesis explores, while also identifying relevant gaps within the knowledge. This chapter commences with an examination of the literature surrounding the components of veteran identity, camaraderie and belonging, and the transitioning process. This is because the history surrounding the BNTV community has been discussed from a historical and political context in the previous chapter, while this section examines some of the health and wellbeing issues surrounding armed forces life. Next, the participants in the present study belong to the oldest old age category, as such, there is a specific need to explore pertinent conceptual and policy issues regarding age, ageing and ageism, embodiment of the ageing process and loneliness as a threat to wellbeing. Finally in this chapter, the literature on activities to alleviate loneliness and enhance health and wellbeing for older adults is examined.

3.2 Military culture and components of veteran identity

The term *veteran* is used heavily within armed forces research, yet different countries adhere to different definitions. These vary according to length of service and duty (Dandekar et al., 2006) and determine what, if any, support, recognition, and services one can access when returning to 'civvy street' (Coll et al., 2011; Fulton et al., 2019; Truusa & Castro, 2019). They also help to frame government policies and societal understanding of how best to support veterans following their transition out of the military. In the UK, the MoD defines a veteran to be an individual who has served in the armed forces for a minimum of one day and does not need to have experienced combat. In the USA, the minimum requirement is two years with active duty and must not have been discharged for dishonourable reasons (Szymendera, 2016). For the Netherlands and Australia, the individual must have served on a peacekeeping or enforcement tour in another country. Definition aside, as Bulmer and Jackson (2016) argue, veterans are a highly politicised community group, serving as mediators between international politics, countries, the armed forces, and the wider society. Consequently, Caddick (2018) notes, the stories of veterans are situated within society as they respond, support, or challenge dominant public narratives.

Irrespective of service length or duty, veterans are a specific population, having been screened at service entry for good health (e.g., termed the ‘healthy soldier’ effect’; Cox et al., 2015; Seltzer & Jablon, 1974) and later exposed to a unique set of conditions that can pose short and long-term adverse effects. This includes deployment to stressful environments, threat to life, physical injuries, and emotional/mental injury. As Kennedy-Pipe (2017) notes, the military was established to allow ‘state-sanctioned violence and the brutal business of war’ (p.24). It needs recruits to be physically fit, have a high pain threshold, a propensity for violence, and be willing/able to kill without question (Goldstein, 2001). Men have dominated the ‘business of combat’ (Kennedy-Pipe, 2017; p.24) and careers in the military have long been perceived to be a ‘manly’ job (Croce, 2021) – despite the Women’s Service Act permitting women to legally join the UK armed forces since 1948 and their involvement in war efforts since 1917. The culturally ingrained stereotype of women being mentally unstable, delicate, and needing men’s protection is a direct contrast to hegemonic masculinity (Caddick et al., 2015; Connell, 1995; Croce, 2021; Higate, 2003) – an underpinning element of military identity.

Hegemonic masculinity, as described by Connell (1995), consists of traits such as being aggressive with a potential for violence. The use of boot camps, bullying and violence during training reinforces this kind of masculinity (Steans, 1998). Basham (2013) argues that military masculinities reflect wider social assumptions about what it means and how to be a man within a justified national institution – argued as bravery and the ‘highest form of patriotism’ (Kennedy-Pipe, 2017; p.26) for serving one’s country (Crouthamel, 2014). As will be explored later, the stoicism that comes with hegemonic masculinity within the military can have a negative impact on mental health after service – especially due to physical or mental injury, trauma or transitioning back into civilian life (Lorber & Garcia, 2010). Although these are all important points to attend to, it must also be recognised that the military does offer individuals a sense of belonging, family, camaraderie, career prospects, discipline, structure, and the opportunity to see the world from another perspective.

One way of exploring and understanding the complexities of lived experiences and identity is through the application of an intersectionality framework (Smith, 2014). There is a long history of complex debate about intersectionality theory, and it is not the intention to provide an extended review in this PhD. However, a brief overview is relevant. Intersectionality, coined by Crenshaw (1989, 1991) and Collins (1990), originally referred to the description and experience of Black feminism and was related to how the convergence of racism and sexism features in Black women's lives in ways that cannot be completely captured when looking at race or gender independently. Specifically, the intersectionality framework proposes that multiple minority statuses (considered together in groups/individuals with multiple disadvantageous statuses) are more likely to have negative outcomes than the combined likelihoods of their individual minority statuses (Bowleg, 2008).

As King (2006) and Cho et al. (2013) note, the list of inequalities within the intersectionality framework has since grown to include sexuality, social class, nationality, and age. The debate of how to understand its complexity and measure its impact, though, has continued to rage (e.g., Castiello Jones et al., 2013; Choo & Feree, 2010). With this, the concept of intersectionality has evolved, with several different conceptualisations emerging to include new terms, phrases, and interlocking systems (e.g., classism, ageism, religion, and racism) (Brueck & Grant, 2011; Dhamoon, 2011). Like Wijeyesinghe and Jones (2014) discuss, having an intersectional perspective provides a foundation for comprehending the connections between these systems of power and privilege and the development of identity, particularly with regards to oppression and the shaping of personal and group experiences. Importantly, as Smith (2014) notes, the inherent focus of intersectionality is on the action of intersecting the identities and experiences of people from marginalised populations within "their own context and from their vantage point" (p. 230). By acknowledging one's multiple social identities, we are provided with a portrayal of a whole person rather than the sum of its parts (Wijeyesinghe & Jones, 2014).

As a theoretical/conceptual approach, intersectionality is perhaps best understood as a critical theory inherently tied to social justice and empowerment for marginalised individuals or groups (Keddie, Flood & Hewson-Munro, 2022). In early intersectional feminist writing, effort was made to document, theorise, and challenge the key features of social injustice. Collins (1990) stated that inequalities are preserved through four interrelated domains: societal institutional structures, bureaucracy, hegemonic and interpersonal. Crenshaw (1991), differentiated between three processes in intersecting oppression: structure, politics, and representation. Fraser (2009), however, notes that injustice occurs on three dimensions: economic injustice (maldistribution or class inequality for particular social groups), cultural injustice (hierarchical patterns of cultural value generate status inequality for particular social groups), and political injustice (individuals or groups are not granted equal voice in decision making about justice claims).

From the traditional perspective of intersectionality, the BNTVs in this study might be, arguably, overlooked - given they are white, heterosexual, and male. However, in light of other inequalities being considered (Cho et al., 2013; King, 2006) it is beneficial to note that the participants in this study were mostly of working-class status from a range of locations in the UK, some were disabled and, all were in the ‘oldest old’ category. As Hearn (2011) contends, “age, ageing, men, maleness, and masculinities intersect in many complex ways...there is frequent exclusion of older men, men with certain disabilities and dying men from analyses of and the category of men” (p. 94). In addition, following Fraser’s (2009) approach, the BNTVs have experienced political injustice through their involvement in the nuclear testing programme, the signing of the Official Secrets Act, and their continued campaign for recognition and compensation.

3.3 Camaraderie and sense of belonging in the armed forces

Despite the risks that a career in the military can pose, as an institution it brings together a vast range of individuals with the potential to form lifelong friendships, social networks and overall offers a sense of belonging (Albertson, 2019). An all-encompassing definition cannot be agreed upon by researchers (Faircloth & Hamm, 2005; Sancho & Cline, 2012), but Anant (1966) considers belonging to be a “sense of personal involvement in a social system so that persons feel themselves to be an indispensable and integral part of the system” (p.21). Baumeister and Leary (1995) later built on this, suggesting that belonging is an emotional requirement to be part of a group, or to be part of something that is bigger than oneself. Therefore, it is clear how the armed forces can be a tempting prospect for those seeking meaning in their lives and wanting to dedicate themselves to a common cause or belong to a like-minded group.

Although individuals come from a range of diverse backgrounds, they all have one overarching shared experience in common: the armed forces culture (Demers, 2013). This comprises of socially accepted norms, values, and behaviours. Becoming part of this culture means understanding the harsh disciplinary procedures, rank, the importance of the mission, and how one fits into it (Adler & McAdams, 2007; Borah & Manser, 2016). Assimilation begins when recruits have their membership to civilian life replaced with this new, shared, military identity (Demers, 2013). This is also referred to as 'military indoctrination' (McGurk et al., 2006) and has three requirements: to put aside one's own self-interests and follow direct orders, to be able to kill, and to be seen as part of a group rather than an individual. Development of this identity has three stages (Paulson, 2005): separation (removal of individuality and forceful application of new traditions and restrictions), initiation (transition from civilian to recruit and the development of relationships), and incorporation (process of identifying as a military unit). The armed forces life, therefore, has a profound impact on one's identity (Oakes, 2011), with opinions and worldviews influenced by unique collective experiences with only those who understand military culture (Freeman et al., 2009).

It is no surprise then, that the concept of camaraderie, unit cohesion or fictive kinship (Woodward & Jenkings, 2011) has been demonstrated within the research to have a profound impact on service life and beyond (Elder & Clipp, 1988). Despite the term camaraderie being used heavily within research exploring the impacts of military service, transitioning into civilian life and PTSD, there seems to be little consensus as to providing a definition. Hinojosa and Hinojosa (2011) found that military friendships (sometimes referred to as brotherhoods or bonds of war) were salient in making light of stressful events, assisting with emotional support, and bringing a welcome distraction from the sometimes-tedious elements of the job. Similarly, Setterson (2006) reported that veterans often arrange reunions on special anniversaries, visit memorials, or travel to specific places of service. Thus, the military can be a space for the promotion of relationships that last long after service has finished and into older age.

3.4 Social class, power, and military culture

Social class and power

Although Western societies place great importance on meritocratic values (those which promote the possibility of success if you have enough talent and are willing to work hard), it is argued that the social class divide is becoming wider than anticipated (Manstead, 2018). Social class is defined as one’s position in the economic hierarchy in society that arises from a combination of annual income, educational attainment, and occupation prestige (Adler et al., 1994; Kraus et al., 2017; Oakes & Rossi, 2003). Social stratification (Saunders, 1990) is the study of how different social groups relate – usually unequally. Typically, one group (wealthy upper classes) will have more economic resources, be held in higher esteem, or be able to control other groups (poorer lower/working classes). Of course, one’s social position is not perhaps completely determined at birth in the UK unlike the caste system in India; social mobility can occur over the course of a lifetime (intra-generational mobility), or between generations (inter-generational mobility) in either direction (upward or downward mobility) (Saunders, 1990). However, the agency to move up or down class is set against the challenges of structural and economic inequalities.

As Kraus et al. (2017) argue, while social class is inherently dependent on economic positioning, the impact can be multi-faceted; it can influence health and wellbeing, shape behaviour, influence social-cognitive mechanisms, and determine the groups one interacts with or belongs to (Fiske & Markus, 2012; Lareau & Conley, 2008). Indeed, it has been highlighted within research that lower-class men and women experience higher rates of obesity (El-Sayed et al., 2012), chronic illness (Kaplan & Keil, 1993), and experience greater work-place stress. These clear social and economic inequalities that exist across both local and world-wide communities have resulted in concern about their consequences. As Rodriguez-Bailon et al. (2020) aptly puts it, ‘inequality increases privilege among the powerful and the affluent and increases disadvantage among powerless and lower-class groups, perpetuating inequality over time and across generations’ (p.121).

With that in mind, it is perhaps unsurprising that social class and social power are considered to be relational in nature (Petkanopoulou et al., 2017) and interconnected social constructs. The concept of social power has been defined as the capacity to influence and control others and to administer rewards and punishments (Fiske, 1993). As Rodriguez-Bailon et al. (2020) suggest, one's perception of their ability to control outcomes and seek opportunities to gain influence and power will vary dependent on their social class or socioeconomic status. As an example, someone from lower class are unlikely to seek a high-ranking position within an organisation (Belmi & Laurin, 2016). While Anderson et al. (2012) argues that social class and power should be considered as moderating influences, Rodriguez-Bailon et al. (2020) argues that concern about power and status causes competitive social relationships and a less cohesive society overall.

Military Culture

In a 1918 speech by Eugene Debs (American socialist, political activist, trade unionist) in Ohio, he declared his reasoning for opposing America entering WW1 and explicitly highlights the issue of social class and power within the military and political settings:

> "Wars throughout history have been waged for conquest and plunder. The master class has always declared the wars; the subject class has always fought the battles. They have always taught and trained you to believe it to be your patriotic duty to go to war and to have yourselves slaughtered at their command. But in all the history of the world you, the people, have never had a voice in declaring war…no war by any nation in any age has ever been declared by the people. The working class fight all the battles, the working class who make the supreme sacrifices, the working class who freely shed their blood and furnish the corpses, have never yet had a voice in either declaring war or making peace. It is the ruling class that invariably does both. They alone declare war and they alone make peace."

Throughout the 19th and 20th centuries, rigid social class hierarchies within society were beginning to become dismantled; the military, however, have managed to retain rank structures which continue to highlight a stark contrast between the upper (e.g., commissioned officer) and lower classes (Pendlebury, 2019). In an essay by Field (2011), which explores class and politics in the British armed forces 1939-1945, he details that every facet of military life was "underscored by the distance between officers and men, or 'other ranks' as they were usually called' (p.124). This meant that officers were advised to not socialise with those considered to be ordinary soldiers, they had different food, accommodation, uniform, pensions, medals, rail permits and a separate mess (Field, 2011). This practice of segregation still exists, to a degree, in most armies, with the aim of promoting sufficient familiarity to encourage loyalty and respect but with boundaries for absolute obedience (Field, 2011).

Another way in which the British military yielded power was by ensuring that officers, non-commissioned officers, and other ranks were forbidden from participating in demonstrations and political meetings, or encouraging sedition among their comrades (Field, 2011). This has since changed to allow armed forces personnel to attend political meetings in a personal capacity only; however, they are not permitted to wear their uniform or be involved in political marches/demonstrations as it ‘may bring the Armed Forces into disrepute_and breach their values and standards’ (Howe, 2018). This therefore highlights the ability of the Armed Forces to preserve some entrenched social inequalities and ignore injustices experienced by minority groups (e.g., LGBTQ+, women, and people of colour). It must be said, though, that steps have been taken to make the Armed Forces a more inclusive organisation; for example, in 2000, the law in the UK changed to allow those who identify as part of the LGBT community to serve in the military (Parry & Evans, 2022). Additionally, in the 2021 Diversity Statistics (MoD, 2021), it was reported that female representation increased by 11.2%, as well as Black, Asian, and Minority Ethnic representation increasing by 9.4%.

With regards to the present study, it could be suggested that the BNTVs’ largely working-class backgrounds, the classist attitude of the military, and the time period (1952-1983) could explain why they were treated as they were and why it was relatively easy to ignore their demands for so long. Given the threat that the nuclear testing posed to national security, silencing the BNTV community through the Official Secrets Act would have come out necessity at the time. The Official Secrets Act would have been signed by all members of military personnel, the scientists, and members of government who would have been present. However, the residual secretive nature surrounding the nuclear tests and the MoD in general, has culminated in millions of pounds being spent on blocking the claims of the BNTVs, as well as limited acknowledgement of their existence.

3.5 Transitioning out of the armed forces

The process of transitioning is defined as being the period of reintegration back into civilian life from the armed forces and is a process of change when their military career ends (Forces in Mind Trust, 2013). This transition into civilian life marks an era of radical change and upheaval (Fulton et al., 2019), involving a shift from their military identity back to the acceptable norms and values of civilian life (Cooper et al., 2016). It should be acknowledged that most veterans experience a successful transition without mental health and wellbeing issues (Cooper et al., 2016), but an overwhelming number of veterans do struggle during this process. Many experience a range of complex issues, including anger management, homelessness, unemployment, relationship breakdown, and criminality (Klein & Alexander, 2012; Murrison, 2010).

As Cooper et al. (2016) notes, the high-octane lifestyle of the armed forces is seldom replicated on civvy street and can trigger a range of health and social difficulties (Hatch et al., 2013), including depression, anxiety (Iversen et al., 2009), and substance abuse (Fear et al., 2007). Further, some veterans may feel aggrieved, alone, isolated, and unable/ reluctant to ask for the help they need (Fulton et al., 2019). What really comes to the fore, though, is the inner identity conflict that occurs; with confusion surrounding sense of self and sense of purpose (Binks & Cambridge, 2018). The loss of structure required on a day-to-day basis and sense of a ‘family’ within the military has been emphasised within the literature as key challenges for veterans (e.g., Ahern et al., 2015). Interestingly, for those who have not engaged in combat and are transitioning out of the forces, the impact institutionalisation and assimilation to military culture has on identity remains unclear (Bergman et al, 2014); interestingly, most of the participants in this study were not exposed to a typical combat zone but have continually campaigned to be recognised for fighting what they considered to be an invisible enemy: potential radiation exposure.

There is a plethora of research which has explored the experiences and narratives of US veterans (e.g., Chinchilla et al., 2020; McCormick et al., 2019; Smith & True, 2014), but it appears that UK veterans are less willing to detail their experiences (Binks & Cambridge, 2018; Iversen et al., 2005). As Macmanus and Wessley (2013) identified, the US have been able to identify support needs for veterans faster than the UK. This delay is detrimental to the health care, support, and housing services for service personnel. Such support needs to ensure the core beliefs and values of veterans are reflected in the care they receive (McCormick et al., 2019), especially as veterans oftentimes believe civilian services cannot relate to the military lived experience (Murrison, 2010).

With that being said, in the UK, the Armed Forces Covenant (an agreement between the military community, the country, and the government) is the “moral obligation to those who serve, have served, their families and the bereaved” (MoD, 2016). The Covenant looks to ensure veterans do not experience disadvantage because of their service (Macmanus & Wessely, 2013). Over £170m in the past decade has been distributed to support commitments of the Covenant (e.g., mental health and physical injuries, commemorations, childcare, housing, and ageing veterans).

As research has shown (e.g., Hoge et al., 2004, Iversen et al., 2011 & Kehle et al., 2010) up to 60% of military veterans do not reach out for help. This reluctance to seek support has been explored, with explanations ranging from stigma (Britt et al., 2008; Gibbs et al., 2011; Gould et al., 2010); negative perceptions of mental health treatment (Kim et al., 2010; Sudom et al., 2012); practical barriers to receiving treatment (Brown et al., 2011; Iversen et al, 2011); not wanting to jeopardise career prospects (Murphy et al., 2016); maintaining masculinity (Stana et al., 2017); and, the military ‘can do’ attitude (Binks & Cambridge, 2018). Therefore, decades can pass before help is sought and implemented (Iverson & Greenberg, 2009; Murphy et al., 2016). For the community group in this study, research (albeit limited) has highlighted that even if health and social care provisions are available, many do not seek help – despite being desperately needed in later life (e.g., Miles & Green, 2011).

In work by Vaughan-Horrocks et al. (2020), occupational therapy and resilience workshops encouraged veterans to share their recovery journeys as part of a group. Being part of a group of individuals was the key, according to the authors, for improvements to wellbeing and inciting change. The workshops allowed the participants to understand the links between their former profession and their current health, as such, they were able to begin the process of change. Work by Abadi et al. (2021) also highlights the importance of group-based interventions; with their health intervention programme promoting empowerment and engagement in behaviours to improve the health and wellbeing of veterans.

In 2015, it was estimated that 1 in 8 adults aged 65 and over are ex-armed forces personnel (MoD, 2016), a product of National Service between 1939-1963 (Brewster et al., 2020). Indeed, all the participants in this study were 75-85 years old and 50% of the male veterans were National Servicemen. With the global increase of an ageing population, there is mounting pressure on health and welfare services to meet the demand of age-related health and wellbeing issues (Ashby & Beech, 2016). According to Sparkes (2015) and Williams et al. (2018), there is a paucity in the research regarding the experiences of ageing from both an older male and veteran perspective. Taking all of this into account, the next section of this literature review will now explore the key issues surrounding the ageing process.

3.6 Life after the forces: Age, ageing and ageism

3.6.1 What is *old* age?

In 2018, the World Health Organization predicted that, globally, the number of adults over the age of 60 would increase from 12% of the population to 22% by 2050. This equates to 900 million people, increasing to two billion by 2050: with one in six people being 65 years of age or older (UN, 2020). For those aged 80 years and over (the oldest old), this would increase from 120 million to 434 million people. By the end of 2020, the number of adults over the age of 60 was greater than the number of children aged five or younger. In the U.K, The Office for National Statistics (ONS; 2013) report that in 2011, 16% (9.2 million) of the population in England and Wales were 65 years old and over, an increase of approximately one million from 2001. By 2032, this figure is predicted to rise to 16.1 million. For the oldest old, projections suggest an increase from 1.3 million in 2007 to 3.1 million by 2032. While these figures clearly highlight the fact that people are living longer, increased longevity presents both opportunities and challenges on health and welfare systems, economies, and communities (Murray et al., 2018). Statistics aside, it is important to explore what it means to age and become older members of society.

Defining *old age* is difficult since age periods and stages of life are social constructs (Buchmann, 1989). The traditional view of ageing continues to be from a biomedical perspective (Phoenix & Tulle, 2017) with an inherent focus on the physical ability of the body chronologically. This means that ageing is seen as merely an inevitable process involving the gradual loss of function at cellular, tissue and organ level – with the eventual outcome being death (Declerck & Berghe, 2018). From this perspective, it is assumed that older age will cause inevitable chronological physiological decline (Levy, 2009) with poor health, dependency on others and disengagement from society (Blaikie, 1999).

Yet, rate of ageing can vary greatly; two individuals with the same chronological age will have different risk profiles for developing age-related diseases. While some 70-year-olds will have a good level of physical and mental functioning, others may require a higher level of support to meet the most basic of needs (Helbostad et al., 2017; WHO, 2015). Assessing one's physical and mental functional capacity based on their chronological age alone is not inclusive or accurate. Thus, as Schwall (2012) argues, age is more of a measure of time rather than a physiological or psychological variable. Instead, as Riley (1985) proposes, ageing should be considered a lifelong process from birth to death, moving through echelons of society rather than going beyond an arbitrary point in the life course.

The division of later life into a Third or Fourth Age has become established terminology within contemporary gerontology research (Higgs & Gilleard, 2014). Several authors have proposed the idea of the Third and Fourth age as being a distinct stage in the life course (e.g., Baltes, 1998; Baltes and Smith, 2003; Laslet, 1989). The Third Age, as noted by Laslett (1991), represents those older adults who are typically affluent, physically able, independent, and are involved within society/culture, and as such, physical ageing does not take precedence. This definition, though, has been criticised as being an ambitious, privileged middle-class image of later life (Bury, 1995).

Eventually, as much as we may wish it would not, the body will display signs of physical ageing (Tulle, 2015). This is where the Fourth Age (Gilleard & Higgs, 2000) begins; a time denoted by chronological age, bodily decline, loss of health/mobility and an increased dependency on others for once easy tasks. As Gilleard and Higgs (2000) note, this is not a stage of life that people willingly want to identify with. Although there is a reliance on health professionals or researchers to determine when this decline occurs, the individual will have their own views on their own capacity for independence and when they are losing it (Lloyd, 2015). Like Lloyd (2015) points out, the point at which the familial ends, the prospect of further decline becomes more likely.

One way of understanding the relationship between the (ageing) body and physical capacity is highlighted in research which has explored older adults' connection with their homes and gardens in later life. As Bhatti (2006) argues, older adults often feel very attached to their gardens and so strong feelings of loss and dependency on others can occur when significant life changes (e.g., retirement, onset of disability) signals a change or disturbance in the connection one has with their garden. This may be when the physical or cognitive ability to carry out tasks falls out of sync with the aspiration to do so. In work by Percival (2002), it is argued that the inability to undertake short bouts of gardening or maintenance in the garden/home without feeling strain or pain on the body is an embodied reminder of old age.

The ageing population are often framed pessimistically as a problem to be solved (Mansfield et al., 2019; Russell et al., 2018) rather than representing an opportunity to develop policy for the safe-guarding of rights and high quality of life (QoL) – especially for those over 60 years old (Cox, 2015). Seeing older adults in such a way influences how their health needs are defined and addressed (Dallaire et al., 2008). The impact of these narratives can also have serious consequences on self-esteem, self-confidence, physical and mental health, wellbeing, and cognitive functioning (Czaja, 2019; Levy et al., 2002). Basing health care provisions on chronological age fails to account for the fact that older adults are not a homogenous group (Christensen et al., 2009). It is otherwise more appropriate to look at age from either a biological (biological and physiological capability), social (developmental change over time regarding social lifestyles), or psychological (ability to adapt to changing environmental demands) perspective (Mathur & Moschis, 2005).

Opportunities for longevity are not equal; for those living in high-income and developed countries, living longer is a valuable resource. It allows individuals to plan aspects of their life, while also being able to ponder what old age might entail (Beard & Bloom, 2015), including career choices, education, or follow a passion (Beard et al., 2016). The key factor allowing for plans to be made and, indeed, live to see those plans come to fruition, is health. This poses a major question for countries, governments, policy makers and healthcare - that is, how do we allow populations to 'age well'?

3.6.2 Theories of ageing

With life expectancy and population size of older adults increasing, there is a need for the implementation of effective health and welfare policies. Researchers in gerontology have proposed different theories, including active ageing, healthy ageing, and successful ageing (Ehni et al., 2018; Phoenix & Tulle, 2017). These theories, Tuohy and Cooney (2019) argue, highlight that a new kind of ageing is emerging – one that allows for the possibility of self-development and social inclusivity. These also intend to offer solutions for societies dealing with the social, welfare and economical challenges that an ageing population brings. However, they are not designed for the individual, and are more aligned towards the social context of ageing (Ehni et al., 2018).

In 1948, the WHO proposed health to be "a state of complete physical, mental, and social well-being and not merely the absence of disease and infirmity" (p.1). This definition has been critiqued heavily over the past 60 years, but has yet to be adapted (Huber et al., 2011). Despite the prevalence and treatment of disease, public healthcare, technology, and greater medical advancements, those with chronic disease or disability are still considered 'ill' in the scheme of the WHO definition (Kanugo et al., 2010). In a step away from the WHO's (1948) definition of health, Age Concern (2006) suggests that it is the combination of intrinsic capacity and functional ability which determines ageing well, rather than the mere absence of disease (Beard et al., 2016).

Active Ageing "is the process of optimizing opportunities for health, participation and security in order to enhance quality of life as people age" (WHO, 2002; p.12). The physiological health consequences from being sedentary include reduced life expectancy, diabetes, cancer, and development of cardiovascular diseases (WHO, 2010). Those most at risk of disengagement with PA are older adults (Helbostad et al., 2017), with activity levels usually found to diminish at the point of retirement (Olesen et al., 2015). Therefore, Active Ageing is concerned with participation (older people participating within society e.g., employment, engagement, education, and cultural activities); health (older people will be able to enjoy a better quality and longer life through staying healthy and being able to look after themselves if environmental and behavioural risk factors are low); and, security (policies and programmes to meet social, financial, and physical needs in older age to ensure protection, dignity, and care).

Active ageing is underpinned by the determinants that enclose individuals, families, and nations during the ageing process. These are influenced by gender and culture and include economic, social, physical environment, health and social services, behaviour, and personal determinants. Despite many older people suffering with poor health, living with disabilities, or retiring from employment, a large percentage of the older population can continue to be contributors to their families, peers, and community (WHO, 2002). One of the important objectives of the WHO collective approach is to try and eradicate ageism through global, regional, and local action (WHO, 2002).

The second theory, healthy ageing, has been criticised for lacking clear definition, measurement, and application to real-world settings (Peel et al., 2004). The WHO (2015) World Report on Ageing and Health defines healthy ageing to be ‘the process of developing and maintaining the functional ability that enables wellbeing in older age’ (p.28). To achieve this, the model of healthy ageing outlines two necessary factors: intrinsic capacity and functional ability; simply, it is a result of continuous interaction between older individuals and their surrounding environments (WHO, 2015). The healthy ageing model frames ageing holistically with an emphasis on the life-course (Beard et al., 2016), with considerations for important life circumstances (e.g., having a role in society, maintaining relationships, independence, and having a sense of security; Bowling & Dieppe, 2005; Grewal et al., 2006; McLaughlin, Jette & Connell, 2012; Ward, Barnes & Gahagan, 2012). For an individual to be able to maintain engagement in things that are of value to them, they need to be able to maintain a level of physicality, be able to engage with others, meet their own basic needs with little/no support, make decisions and feel able to contribute (WHO, 2015).

Finally, the successful ageing framework focuses on activity and function rather than the narrative of inability and a collection of loss (Boudiny, 2013; Johnson & Mutchler, 2014). The successful ageing model (Rowe & Khan, 1997) has three key factors: low probability of disability or illness, high levels of functioning, and frequent and active participation with life. All three of these elements are relative, but the relationship is hierarchical – with avoiding disease or disability the most important for an individual to age successfully. While having the potential for activity is important, this framework denotes that successful ageing must go beyond potential and include one’s level of engagement, particularly interpersonal relations (contacts and transactions, information exchange, support, and assistance) and productivity (the level of societal input or contribution which is paid or voluntary) (Rowe & Khan, 1997).

All three theories have faced critique, particularly for being oppressive by upholding unrealistic and desirable standards of ageing. If an individual does not live up these standards, the result can be detrimental to both identity and self-worth (Holstein & Minkler, 2007). Further, as Gordon et al. (2020) argues, the trajectories of ageing are still poorly understood, for example, at what age does bodily performance changes occur? Is there a point when age-related changes become irreversible, whereby no level of physical activity or medication can alleviate this decline? (Rockwood et al., 2005). Policies that use the rhetoric of the importance of being active can cause feelings of encumbrance and isolation from society if they are disabled or are of ill health (Boaz et al., 2002).

As such, ageing policies need to reflect the individual's lived experience of ageing rather than a one-size-fits-all approach (Walker, 2002), unfortunately though, the lived experiences of older adults are often left untold as policy makers and researchers tend to make their own assumptions on how one should age well (Clarke & Warren, 2007). This is another example of older people being seen as a homogenous group, with a clear lack of diversity and inclusion (Walker, 2006). In so doing, more importance is placed on the economic needs of a society rather than the individual (Davey, 2002), and do not account for the fact that the ability to be active is determined by the resources a person has available to them (Vincent, 2000). Preventative interventions are necessary to optimise the possibility for continued health and independence of older adults. Yet, the overarching issue is that the work being done by health care systems is not enough. Simply doing more of the same work is inadequate for the promotion of ageing well.

A broader public health attitude can permit the creation of policies which are sustainable, can create stronger partnerships and networks, and allow for greater capabilities of individuals to change the social and environmental conditions of their community (Wagemakers et al., 2008). With that being said, the challenge of translating research into effective action remains (South, 2015). Effective translation of findings into action would allow for the narrowing of health inequality (The Marmot Review, 2010), a shift of focus from the individual to the community to decrease perceived stigma (South, 2015), engaging behavioural change (National Institute for Clinical Excellence; NICE, 2011), creating a strong network of peers (Harris et al., 2015), tackling key issues such as social isolation and loneliness within an aging population (Holt-Lunstad et al., 2010; Victor & Bowling, 2012), enhancing wellbeing within community life (Aked et al., 2008), and creating a constant flow of new ideas of how to improve living conditions within that community (PHE, 2014). As will be discussed in chapter six of this thesis, the use of alternative forms of knowledge production (e.g., creative nonfiction), is recommended for the advancement of policy and practice.

As the present study is concerned with the life stories of veterans in the oldest old category (see chapter four), it is of relevance to discuss some of the research that has been conducted with older veterans. Although many veterans will leave the armed forces in good physical and mental health, for some the exposure to such conditions can have a negative impact which require some form of formal intervention strategy (Burnell et al., 2017). The possible effects of service, both positive and negative, can occur across multiple domains once the individual has reached older age. This is thought to be due to a myriad of factors, such as changes in cognitive functioning, physical health decline, lack of social support or opportunities to reminisce (Burnell et al., 2017; Floyd et al., 2002).

The ‘healthy soldier effect’, as noted in the first section of this chapter, is thought to be especially salient in older age. While recruited into the armed forces due to supposed superior levels of physical and mental health compared to the general population (Waller & McGuire, 2011), this superiority has been argued to mask the impact service has had on an individual (Seligowski et al., 2012). Considering this, research by Isaacs et al. (2017) and Southwick et al. (2011) suggests that older veterans tend to be resilient individuals by adapting and overcoming the trauma and challenges that a life in the forces has brought them.

The necessity, therefore, of exploring veteran perspectives, lived experiences of what it means to age, and the motivation and accessibility to engage in physical activity, leisure, and community endeavours (Williams et al., 2018) is evident (Cooper et al., 2016). In work by Williams et al. (2018), a poignant contrast was identified between the fit and strong body which veterans remembered from their days in the military and their present-day bodies which were physically less able. Interestingly, the mentality to keep going appeared to be instilled in them from their military training and service careers. This research further highlights the importance of portraying lived experiences to promote tailored opportunities for engagement in physical activity, social and leisure activities

3.6.3 Ageism

Attitudes towards ageing and older people differ according to country and cultural values. Within Eastern cultures (e.g., China, Japan, and Korea), older people are respected, have a higher societal status (Lin & Bryant, 2009) and are considered to be the foundation of morality within society (Sung, 2001). Eastern cultures are rooted in Confucianism and collectivism (Oyserman, Coon & Kemmelmeier, 2002). Confucianism is based upon the principles of humaneness, compassion, or loving others (Yao, 2001). Collectivism, the opposite of individualism, is a worldview based on the assumption that society is communal and shares "common fate, common goals and common values" (Oyserman et al., 2002; p. 5). The key belief of Confucianism, respecting one's elders, centres on the idea that chronological age represents moral development, cultural knowledge, and insight (Hashimoto & Ikels, 2005).

Western cultures (e.g., UK, USA, Australia, and Europe), meanwhile, have a predominantly individualistic and neoliberal approach to life (Harvey, 2005; Oyserman et al., 2002). Personal success and achievement are at the core of individualism, while 'others' within society are peripheralized (Sampson, 1977). Those who align to neoliberalism believe that it enhances human wellbeing through the liberation of entrepreneurial freedom (e.g., property rights, the free market and free trade) (Harvey, 2005). With this, the focus shifts from the community to the individual and rights are placed above duties, with concern being primarily for oneself. A key tenet of neoliberalism is that government should have more of a laissez-faire attitude. he role of the state should be to safeguard liberty and rights, while the individual is responsible for the consequences of their choices and decisions (Thorsen & Lie, 2006). The reality, though, is that opportunities to live a *good life* are not evenly distributed amongst all groups within society (Kwate & Meyer, 2010).

Negative attitudes towards older people in western societies became prevalent during the Industrial Revolution (Lin & Bryant, 2009) and by the end of the twentieth century, older members of society had seemingly lost their value. They were often depicted as weak, absentminded, and out of date (Gilleard, 2005). The question we must ask is, why is ageing perceived to be such a devastating period of one's life, in the Western world, when it inevitably comes to us all? This resentment for old age begins in childhood and is reinforced over time (WHO, 2021). It is ingrained into the public psyche (Nelson, 2005); from birthday cards offering sarcastic sympathy to road signs depicting elderly people crossing (Lin & Bryant, 2009). The same attitude is reflected in the beauty industry by falsely promising to prevent ageing (Nelson, 2005). This negative discourse of ageing has a significant impact on the behaviour, treatment, and expectations of older people within society, as well as the way older people perceive their own abilities, wellbeing, and expectations of the ageing process (Levy & Myers, 2004; Pasupathi & Löckenhoff, 2002).

The concept of ageism was introduced in the late 1960s by Butler as a form of bigotry involving “prejudice by one age group towards other age groups” (1969, p. 243). It was then redefined as “a process of systematic stereotyping and discrimination against people because they are old, just as racism and sexism accomplish this for colour and gender” (Butler, 1975, p. 35). While many agree that this is the most encompassing definition of ageism, others dispute this. Iversen et al. (2009) describes it as inadequate, failing to grasp the complexity of the issue – instead, inviting stereotyping through the brash choice of language. The alternative definition proposed by Iversen et al. (2009) rectifies Butler’s (1975) lack of inclusivity; with ageism proposed to be “negative or positive stereotypes, prejudice and/or discrimination against (or to the benefit of) ageing people because of their chronological age” (p. 4). Within corporate environments, ageism remains to be an acceptable prejudice (Maher et al., 2014); with examples including the refusal to hire or promote older workers (Stypińska & Nikander, 2017), being paid less than younger employees, not being invited to participate in training programmes (Furunes & Mykletun, 2010), and forcing a fixed age of retirement despite the health or ability of the individual (Carmichael et al., 2011; Macnicol, 2006; Palmore, 1999).

The UK has been described as institutionally ageist (Hill, 2018); with older people feeling discriminated against by the health and social care system. The Royal Society for Public Health (RSPH, 2018) note in their report, That Age Old Question, that most people view old age negatively when thinking about participation in activities, memory loss, and appearance. The media helps to fuel an uncomplimentary and damaging discourse surrounding ageing (RSPH, 2018) through proliferating ageist stereotypes (Fraser et al., 2020). According to Fraser et al. (2020), the media tends to propagate ageist attitudes during times of crisis – even when age is not inherently relevant. Two recent examples of this are Brexit and the COVID-19 pandemic.

According to a YouGov poll taken after the 2016 EU Referendum, 64% of those aged 65 years and over voted to leave, while 71% of under-25s voted remain (McCarron, 2018;

Moore, 2016). The response to the referendum result and the generational divide led to an outpouring of anger via the media, with headlines blaming older voters for the consequences they were sure would follow. Social media was also rife with comments pertaining to young peoples' futures ruined by the older generation; with suggestions that the older voter's opinions counted for less and they did not understand what they were voting for (Kelly, 2016).

During the writing of this thesis, the outbreak of coronavirus brought the world to a virtual standstill, socially, politically, and economically. Originally, the discourse surrounding the virus was that it only posed a danger to older people (Fraser et al., 2020); as such, the risk to health was not taken seriously. The statistics for this pandemic are bleak, by August 2021 in the UK alone, there had been 155,465 deaths and 6,789,581 cases (UK Gov, 2021), with a high percentage of those being above the age of 60 years old (PHE, 2020). The pandemic not only brought a high level of suffering, but it has fuelled the ageist discourse (Brooke & Jackson, 2020). This has materialised as abandonment in care homes (Keeley, 2020), discriminatory language on social media (Sparks, 2020) and media coverage pertaining to older lives being of lesser value than those of younger age groups (Haffower, 2020; Meisner, 2021). The global, government, and media response to younger adults becoming extremely ill or dying due to COVID-19 contrasted with the display of disregard for older adults' lives and places within society (Fraser et al., 2020; McNamara & Gonzales, 2011). This implied that the death of a young adult merits a life story, while the death of an older adult is too often merely a statistic.

In the WHO's 2021 *Global Report on Ageism,* three strategies that have been shown to reduce ageism are discussed. Strategy one revolves around policies and legislation which look to address age discrimination, inequality, and human rights through adopting instruments at local, national, or international levels. Strategy two focuses on educational interventions (from primary school to higher education) that help to increase empathy, oust misconceptions, prejudice, and discrimination. Finally, strategy three involves making investments in intergenerational contact interventions to promote relationships between different generations, young and old. In addition to this, the report makes three key recommendations to reduce ageism; the first requires investment in evidence-based strategies such as those above, with interventions scaled up to make a difference population-wide. The second recommendation is to improve data and research to understand all aspects of ageing and reducing ageism and develop evidence-based, cost-effective strategies. The last recommendation is to change the narrative around the ageing process to eliminate ageism.

3.7 Embodiment of ageing

Phoenix and Grant (2009) argue that we have come to learn about the physicality of the ageing body through biomedical scientific research. The body was seen as a topic best left to psychology and biology rather than sociology (Shilling, 2007; Tulle, 2015). While such work has been fundamental in understanding the ageing process and the benefits of a healthy and active lifestyle, empirical research only allows for a partial appreciation for what it means and how it feels to age (Phoenix & Grant, 2009). Embodiment, therefore, is a term which encapsulates the complex relationship we have with our body and identity; as Tulle (2015) puts it, ‘we have bodies, but we are also bodies’ (p.126). The body is a representation of the self as well as being a creation in progress (Perry & Medina, 2011).

The focus on the ageing body and inability to function has been termed a narrative of decline (Gullette, 1997, 2003). This encompasses both a lack of biological capacity and social/cultural inclusion (Tulle, 2008). A narrative of ageing that is fraught with images of a body at risk of being frail or disabled and creates a culture of growing old passively rather than actively; with welfare and healthcare professionals having too much control over the abilities and environment of the older person (Phoenix & Tulle, 2017). Featherstone and Hepworth (1991) argue that the older body is in a state of conflict between a prevailing ageist society and a youthful but experienced inner self.

Accepting and internalising this narrative creates a self-fulfilling prophecy, leading to older adults believing prominent stereotypes and behaving in a way that perpetuates these cultural beliefs about ageing. The reinforcement of this narrative is visible within the media (e.g., advertising, film, and TV), and as Tulle (2008) suggests, propagates older people to be marginalised physically, socially, and economically. Within Western societies, there is an unrelenting obsession and proliferation of images featuring youth, being ‘body beautiful’ (p. 3), specific body shapes, and physical prowess. This presents a challenge for older people, whose appearance does not match these body ideals (Shilling, 2003) and so cannot be considered beautiful (Tulle, 2008) or functional.

The male embodiment of ageing within research is scarce (Steptoe et al., 2015), to the point that some researchers believe ageing studies to be fundamentally feminine (Flemming, 1999). While this point is not to belittle the female perspective of ageing, there is a need to address the lack of male voice within gerontology research (Flemming, 1999), especially regarding how older males perceive their health and wellbeing during the ageing process. This lack of exploration is interesting considering men of any age group experience higher mortality than women (Springer & Mouzon, 2011) and are more likely to benefit from approaches to encourage 'healthy' ageing upon reaching old age (Oksuzyan et al., 2008). Research that has attempted to address this gap has found that older men employ strategies to adapt to ageing, try to sustain independence, value social relationships and, often use reminiscence to cope with the past (Cartensen et al., 2019). Older women tend to view ageing negatively as it is thought to be a difficult phase of their life connected to a sense of loss, inability, and poor health.

For the present study, understanding the veteran male embodiment of ageing was considered incredibly important. As can be seen in appendix nine, questions such as these were asked during the second round of life history interviews to capture the embodied experience of ageing from the BNTV perspective. Indeed, as Tulle (2015) suggests, allowing individuals to share the lived and fleshy experiences of the ageing process presents researchers with the opportunity to uncover these otherwise hidden occurrences.

3.8 Threats to the wellbeing of older adults and veterans

Although wellbeing has become a buzzword in research, policy, self-help books and the wellness industry over the past decade (Linton et al., 2016; Zafer-Smith, 2021), its origins can be traced back to Ancient Greece (Stoll, 2014). This spotlight on wellbeing, or 'the good life' (McMahan & Estes, 2011), has culminated in a surge of research interest within the social sciences, psychology, anthropology, and economics (Cooke, Melchart & Connor, 2016). The literature on wellbeing is vast, diverse, and well established, yet a universally accepted spelling, conceptualisation and definition is still to be agreed on (Forgeard et al., 2011; Lent, 2004). Indeed, as several scholars have noted (e.g., Foregeard et al., 2011; Ryff, 1989; Thomas, 2009) this ambivalence and negligence has led to a deluge of vague definitions. As to be expected, several theories have attempted to effectively capture the concept of wellbeing, whether that be relating to human needs, capability, and life satisfaction. To complicate matters, wellbeing is defined differently across disciplines; as such, it is often associated with quality of life, wellness, and happiness (Linton et al., 2016). Without an agreed definition, measuring wellbeing has become a subsequent challenge (Deci & Ryan, 2008; Dodge et al., 2012).

Wellbeing is multifaceted, with conceptualisations falling under the umbrella of two distinctive philosophies (Gale et al., 2014), hedonism and eudaimonism (Ryan & Deci, 2001). Both are founded on human nature and what a good society comprises of; seeking to question how developmental and social practices interrelate with wellbeing and recommend different frameworks for better living (Ryan & Deci, 2001), and fulfilling one's potential. Eudaimonia is concerned with realising one's potential (Waterman, 1993); from this perspective, wellbeing is not the end goal but is an ongoing process (Deci & Ryan, 2008) and considers the full functioning of the individual (Ryan & Deci, 2001). The hedonic perspective focuses on feelings of happiness, pleasure, and avoidance of pain (Kahneman et al., 1999) and is closely linked to subjective wellbeing. This refers to how individuals feel about their lives and centres on life satisfaction, satisfaction with key domains (e.g., employment, health, and relationships), positive affect and low negative affect (Diener, 2000; Diener et al., 1999).

The Office for National Statistics' (ONS) 'Measuring National Wellbeing Programme' asks the population what matters to them, whereby including people's consideration of their quality of life and experiences to measure social progress, identify good governmental policies and charitable endeavours. The dimensions of wellbeing include: the natural environment, personal wellbeing, relationships, health, what we do, where we live, personal finance, the economy, education and skills, and governance. Wellbeing has become a significant area for PHE which now organises and leads public health policy and subsequent practice in England (Public Health England, 2014). Most health care research has continued to focus on reducing disease and disability without addressing the positive dimensions of wellbeing (Keyes, 2002), therefore, if interventions and policies are to be effective, they need to be designed to improve the physical and mental wellbeing of the wider population, not just specific sub-groups (Windle et al., 2010). The desired outcome is to have populations empowered to remain healthy, active, and independent for as long as possible - instilling a mentality of prevention rather than cure (MacAuley, Bauman & Frémont, 2016).

Research has identified key factors that contribute to improving the health and wellbeing of older people, allowing them to age healthily (Irving et al., 2017; McKnight & Kashdan, 2009). These factors include having a sense of purpose (Owen, Berry & Brown, 2021), resilience (the ability to adapt and overcome adversity, e.g., Liu et al., 2013; Luthar et al., 2000; Smith & Hollinger-Smith, 2015), staying physically active (Chen et al., 2021), and reciprocal social relationships (Helliwell & Putnam, 2005). Older adults are not a homogenous group despite gerontological research typically treating ageing populations in this way. Thus, these factors above cannot be considered as innate personality traits or the natural lifestyle choice for all.

Although some research has explored ageing in diverse groups, including HIV (Rosenfield et al., 2018); dementia (Nagaratnam, Nagaratnam & Cheuk, 2018); LGBT (Hughes & King, 2018; Westwood, 2018); prisoners (Codd, 2018); international migrants (Torres, 2006); rural populations (Davies, 2011); and ethnic minorities (Walsh et al., 2012), social gerontology continues to approach ageing from a homogenous perspective (Nguyen et al., 2019). In so doing, insufficient research attention has been given to diversify the ageing literature (Westwood, 2018), thus failing to acknowledge the diversity in the individual's lived experience (Anderson, 2019; Martinson & Berridge, 2014). It is therefore unsurprising that many authors (e.g., Naaldenberg et al., 2012; Pickett & Pearl, 2001; Srivathan et al., 2019; Yen, Micheal & Perdue, 2009) are beginning to highlight the inequalities among older adults dwelling in disadvantaged communities. These individuals tend to have greater health and psychosocial needs than their more privileged counterparts. Further, the traditional homogenous view of ageing in combination with a sole focus on individual lifestyle behaviours do not allow for the context of the wider community. Consequently, a discrepancy is evident between the services provided and the actual needs of the target population.

It is apparent that populations are living longer but this longevity does not necessarily equate to good health and wellbeing (Windle et al., 2010). Having explored the relevant health issues in the sections above, understanding the threat to wellbeing has come to the fore. While some studies (e.g., Diener & Suh, 1997) argue that increased age does not mean decreased life satisfaction, Allen (2008) points out that the amount of older people living with poor wellbeing and low QoL has risen. Copeland et al. (1999), Davidson and Meltzer-Brody (1999), McDougall et al. (2007), and Van't Veer-Tazelaar et al. (2008) report that depressive symptoms are commonplace and are often undiagnosed or untreated. It is therefore vital that physical and mental wellbeing amongst the older population is promoted as it can play a major role in active ageing, overall health and for the prevention of mental illness (Windle et al., 2010). One such threat to wellbeing in older age, particularly for veterans, is loneliness (Victor et al., 2018)

3.8.1 Loneliness among older adults and veterans

Humans are social creatures (Coyle & Dugan, 2012) with a strong yearning for social engagement – which, when unmet, can result in negative outcomes (Baumeister & Leary, 1995). Loneliness is an experience that has accompanied humankind from the beginning of time, but the concept, definition and phenomenology have only been receiving research attention in the past five decades (Ernst & Cacioppo, 1999). The key definition comes from Perlman and Peplau (1981), whereby loneliness is "an unpleasant experience that occurs when a person's network of social relations is deficient in some important way, either quantitatively or qualitatively" (p. 31). Other scholars have tried to conceptualise loneliness (McHugh Power et al., 2019) and capture the theoretical and conceptual complexity (Victor et al., 2000). This includes, an "exceedingly unpleasant and driving experience connected with inadequate discharge of the need for human intimacy" (Sullivan, 1953; p. 290); "the absence or perceived absence of satisfying social relationships, accompanied by symptoms of psychological distress" (Young, 1982; p. 380); or as a "deficit condition in response to the absence of specific relational provisions" (Weiss, 1973 p. 227). All human beings will experience loneliness in their lifetimes (de Jong-Gierveld & Havens, 2004), but as Mansfield et al. (2019) puts it, loneliness as a concept is just incredibly complicated.

Chronic and constant bouts of loneliness can lead to a range of both short and long-term problems (Pinquart & Sorensen, 2001) including high blood pressure, depression, dementia and Alzheimer's disease, and mortality (Boss et al., 2015; Cutler, 2012; Holt-Lunstad et al., 2015). The older population are frequently exposed to poor health, loneliness, and isolation, yet the general population is ageing, and more attention should be paid to improving the lives of older people – especially those who live alone. For effective interventions to be designed and implemented, the mechanisms through which loneliness occurs needs to be understood (Wight et al., 2015). It is imperative to have an empirically validated theory of loneliness, an understanding of the precursors to loneliness and the consequential effects on both the individual and society (McHugh Power et al., 2019).

Weiss conceptualised loneliness as the social needs approach (or interactionist view) - consisting of two distinct types of loneliness: emotional and social. Emotional loneliness comes from a lack of close, intimate attachments to others (e.g., newly divorced, widowed, or single individuals), culminating in feelings of anxiety and isolation. Social loneliness occurs from a lack of social networking (e.g., retirement, having to give up certain hobbies, or moving to a new town), with feelings of aimlessness, boredom, and marginalisation. The greater the deficit of emotional quality of social interactions (e.g., feeling loved, supported, and appreciated), the more likely it is that someone will feel lonely. Emotional support is valued highly to an individual and is about having quality over quantity (Cacioppo et al., 2015; Pinquart & Sörensen, 2001).

The second conceptualisation of loneliness is based on the cognitive discrepancy model (CDM; Perlman & Peplau, 1981). The CDM considers loneliness from the perspective of the individual (Heinrich & Cullone, 2006), and looks at the number and type of personal relationships, desired relationships, and the discrepancy between them. Cognitive processes (e.g., perception, memory, learning, emotion; Newen, 2017) can have a mediating influence on the subjective experience of loneliness. Some may not experience loneliness despite having low quality or frequency of relationships, while others may feel lonely despite being socially embedded (Peplau et al., 1982; Shiovitz-Ezra et al., 2018). The CDM has been criticised for being too broad as it is possible to feel discontent with the relationships one has, but not experience loneliness; it could be the manifestation of dissatisfaction (Stein & Tuval-Mashiach, 2015).

Much of the research exploring loneliness tends to use terms such as social isolation or social exclusion interchangeably. De Jong Gierveld (1998) defines social isolation as an objective concept which is the opposite of good social support due to the lack of contact with others. The absence of social contact is also quantifiable. Further, social isolation refers to a condition that allows for an element of choice; as Killeen (1998) notes, social isolation where choice is given is aloneness, while social isolation without choice can equal loneliness. An example of this is when a person actively chooses solitude and takes time away from their busy or everyday life to experience nature (Bekhet et al., 2008). Therefore, it has more of an optimistic outcome and recognises freedom of choice – which may help individuals realise and overcome their feelings of loneliness (Younger, 1995).

Weiss (1973) asks, if “loneliness is a condition that is widely distributed and severely distressing…why, then, has there been so little research on loneliness? Loneliness is much more often commented on by songwriters than by social scientists” (p. 9). Killeen (1998) answers Weiss’s question, noting that loneliness is a “pervasive, depressing, debilitating condition than can affect all of one’s life…it is still very taboo, and it is almost an embarrassment to admit that you are or ever have been lonely” (p. 763). Interestingly (and arguably out of necessity), 22 years later, loneliness is now receiving widespread attention; with headlines in the press labelling it as a “national crisis” (Jones, 2020) and “one of the greatest public health challenges of our time” (UK Government, 2018).

The key risk factors for feeling lonely include low income, poor physical and/or mental health, living alone and geographical isolation due to living in rural communities or deprived city communities (Cutler, 2012). A number of studies have reported worrying statistics; 35% of people aged between 65-79 have reported feelings of loneliness, increasing to 50% for those aged 80 and over (Hawkley & Kochergisky, 2018; Dykstra, 2009); 12% of older adults incur feelings of being trapped in their own home, with only 6% leaving their house less than once per week (Cutler, 2012); 17% of older people engage with family, friends or neighbours less than once per week, while 11% only have interaction with others less than once per month (Victor et al., 2003); 3.9 million people feel their television is their main source of company (Age UK, 2014); and, 51% of people aged 75 and over are living alone (ONS, 2010). So, as the world population is increasingly ageing, and technology is advancing at a rapid rate, it is seemingly leaving older populations behind (Savolainen et al., 2020).

Experiencing the death of a spouse/long-term partner or family member is one of the most taxing and stressful life events a person can go through (Carr, 2018; Li, 2007). Widowhood is an important issue to discuss given that some of the BNTVs in this study had experienced the death of a partner. Recent statistics suggest that 6.6% of the population are widowed (equating to 3,139,776 people) (ONS, 2018). In 2005, the ONS reported that within the female population (65-74 years old) 30% are widowed, compared with only 10% of males of the same age. For those in the oldest old group, 44% of males are still married but 80% of females are widowed.

Widowhood can lead to a range of potentially harmful outcomes, including: grief (Johnson et al., 2009); development of mental health problems (e.g. anxiety and depression) (Stroebe, Schut & Stroebe, 2007); increased risk of morbidity and mortality (Jadhav & Weir, 2018; Kristiansen et al., 2019; Onrust & Cuijpers, 2006); the breakdown of social relationships, changing family dynamics (Breen & O’Connor, 2011); economic hardship and financial burdens (Holler, 2019); and, loneliness and isolation (Bartlett et al., 2013; Victor et al., 2012).

Unsurprisingly, research has found this almost inevitable life experience in old age to be a dreaded and feared event due to the influence it has on overall health, wellbeing, and happiness (Agrawal & Arokiasamy, 2009; Perkins et al., 2016).

The loss of a spouse can signal the onset of 'encore' adulthood; whereby embracing lost interests or hobbies, new forms of work, giving back to the community by volunteering, travelling, going back to education, and starting a new romantic relationship. Females often develop a new sense of personal identity once their spouse or partner dies, giving them the opportunity to begin to live a full life (Lee & Bakk, 2001) – allowing them to blossom (Lopata, 1973).

With regards to loneliness in public health policy, recently, the Jo Cox Commission on Loneliness, founded by MP Jo Cox before her murder in 2016, was established to help those living with feelings of loneliness and explain how it can manifest in anyone. Over a period of 12 months, the cross-party commission worked in partnership with 13 charities, businesses, and members of different communities (e.g., older people, carers, refugees, asylum seekers, disabled people) affected by loneliness. Their report highlighted some profound statistics, including over nine million adults are often or always lonely; weak social connection is as harmful to health as smoking 15 cigarettes per day; and, more than one in three people aged 75 and over report feelings of loneliness out of their control. The Commission wanted to create a call to action for the UK government to get involved and tackle the issue of loneliness. Their suggestions included: a UK-wide strategy, employing a lead minister, a national indicator on loneliness across all ages, and an annual report on loneliness. In response to the Commission's work, the conversation surrounding loneliness is changing and become more prominent within public life (Wilson et al., 2019).

In June 2018, £20m of funding was awarded by the UK government to support organisations (either voluntary, charitable or community) that were focused on confronting the issue of loneliness. Then, in October, the UK government released its first loneliness strategy (H.M Government, 2018). Further, the government appointed a first minister for loneliness, Tracey Crouch – the first in the world (Fried et al., 2020). The loneliness strategy has three overarching aims; firstly, to improve the evidence base on how to understand why loneliness occurs. Two connected (but not directly related) systematic reviews have been conducted, including an overview of reviews regarding the effectiveness of interventions to address loneliness (Victor et al., 2018) and a conceptual review of loneliness across the life course (Mansfield et al., 2019) as part of the What Works Centre for Wellbeing. The second goal was to include loneliness within government policy, particularly recognising what factors can intensify loneliness.

Finally, the third goal was to raise awareness of the causes and impact of loneliness – but most importantly, to get the country talking about loneliness to break the stigma (DCMS, 2018). This strategy outlined by the government is an important first step in tackling loneliness, as it allows frameworks to be implemented to ensure a more connected society. In the conceptual review by Mansfield and colleagues (2019), several recommendations are made for research, policy, and practice surrounding loneliness. These recommendations include focusing on a range of age groups for a life course perspective, to recognise the impact of transition, change and socio-cultural influences, and for more research to employ mixed methods, particularly coproduction methods.

3.8.2 Loneliness in the forces

The issue of loneliness within the armed forces and among veterans has received little research attention - despite isolation and loneliness being dominant in the narratives of military veterans (Royal British Legion, 2018; Wilson et al., 2018). Factors found to trigger feelings of loneliness and isolation within the military include increased volume of life transitions (e.g., deployment and long periods of separation from family); armed forces culture (self-reliance and help-avoidance ethos and feeling like an outsider); relationship issues (bereavement); accommodation (lack of welfare support on deployment); and, health, ageing and injury (RBL, 2018). Research has shown that some coping strategies employed by veterans are not conducive to a healthy lifestyle of dealing with related mental health issues (Christeson et al., 2012). Methods of coping include abnormal eating, decreased physical activity, alcohol, substance and drug abuse, smoking, reckless driving, and overuse injuries through excessive physical activity (Chu et al., 2013; Varki & Brower, 2013). The RBL (2018) refer to the pervasive culture of heavy alcohol consumption in lieu of seeking mental health support.

The internet and social media sites are significant tools for support and socialising (RBL, 2018). Aguila (2009) and Dainton and Aylor (2002) both posit the benefits of using digital media for the enhancement of romantic, platonic, and family relationships. Connection to the outside world is constant, but the feeling of disconnect from others is stronger than ever; with less face-to-face interactions with others, cyber bullying, and a sense of exclusion from society (Tsimtsiou et al., 2017). This is also evident among the public; as Victor et al. (2018) notes, some technology-based interventions could cause individuals to feel a sense of social isolation if they lacked confidence or physical/mental capacity to use it. Thus, despite the benefits of digital communication, some armed forces personnel find it to be a trigger for loneliness and isolation (RBL, 2018). Just as studies have highlighted older people to be at an increased risk of loneliness, older veterans are prone to such feelings due to health deterioration, retirement from service/public duty or lessening social interactions (RBL, 2018).

Other forms of support programmes or interventions include arts and creativity (e.g., Castle et al., 2021); outdoor therapeutic landscapes (e.g., Havlick et al., 2021; Kay & Sutton, 2021); and sport and physical activity (e.g., Burke & Utley, 2013; Caddick, Smith & Phoenix, 2015; Carless et al., 2013). In their systematic review of the impact of sport and physical activity on the wellbeing of veterans, Caddick and Smith (2014) highlight that some of the key factors for intervention success appear to be those that promote positive self-identity, a sense of achievement and purpose, and allow for new perspectives of their problems within the wider world. The overarching ingredient for success, as noted above and in Caddick and Smith's (2014) review, is the use of group settings. Encouraging social support or camaraderie with other veterans fosters understanding, communication and supportive relationships (e.g., Carless et al., 2013; Hawkins et al., 2011).

3.9 Supporting and addressing the health and wellbeing of older adults

Several studies have recognised (e.g., Allerhand et al., 2014; Charles et al., 2001; Gerstorf et al., 2007) that wellbeing is susceptible to decline from around the age of 70 years old. It is from this age, characteristically, that capacity changes and onset of disease begin to come to the fore. The losses experienced during the ageing process make it more difficult or prevent individuals engaging in those activities or behaviours they would have previously enjoyed (e.g., Pinquart, 2002) – especially for those belonging to the oldest old category (Landi et al., 2010). These barriers to engagement also make it increasingly difficult for health and social care services to provide meaningful programmes of support (Owen et al., 2021). Both clinical and community interventions have been shown to improve the health and wellbeing of older adults. There is not enough scope to provide critical discussion about both approaches and contexts within this thesis (see Brandel, Vescovelli and Ruini, (2017), Johnstone et al. (2021) or Morato et al. (2021) for examples of systematic reviews on clinical approaches to improving wellbeing); as such the focus here is on the two most common and promoted intervention types with the largest evidence base: community and leisure.

3.9.1 Community leisure activities for wellbeing for older adults

Community is conceptualised in a number of ways, with many definitions, including a ‘local geopolitical’ group (Green & Mercer, 2001, p. 1927), a homogenous and integrated entity (Schwartz, 1981), to groups of individuals with a shared characteristic or affinity (NICE, 2008), or a group of individuals with the following shared elements: membership, shared symbolism, norms and values, shared needs and problem solving, mutual emotional connection, community influence, geographical location, religion, or ethnicity (Israel et al., 1994). A community may consist of individuals who live within the same locale but are not connected by any other means. Indeed, differences between individuals exist, and include wealth and poverty, gender, age, power, ethnic background, and religion (Cornwall & Jewkes, 1995). The first approach to discuss, with regards to improving wellbeing in older adults, is physical activity. This is due to physical activity becoming a universal strategy for successful and active ageing and the associated health benefits that come from sustained involvement.

Physical activity

Despite the myriad benefits of being active, physical inactivity is a leading risk factor for preventable deaths (Stevens et al., 2009), yet most individuals are still not engaging with it (Boisgontier & Iversen, 2020). For older adults, the benefits include prevention of osteoporosis (Kannus, 1999), improved QoL and fitness levels, improved cardiovascular health (Cherubini et al., 1998) and reducing the possibility or frequency of falls (Gardner et al., 2000), and improvements to mental health (Ruuskanen & Ruoppila, 1995; Stephens, 1988). Biological explanations for this include the release of endorphins and adrenaline (Costello et al., 2011), and providing a psychological buffer for stressful situations.

Physical activity programmes are being integrated into the daily life of older adults instead of focusing on high impact sport programmes (Clemson et al., 2012). With physical ability declining as we age, regularly attending gyms or classes can be an unattractive prospect (Baez et al., 2016). Some older adults may prefer to engage in home-based individual interventions or within community settings. As such, long-term adherence is more likely to be achieved when conducted in group settings (Freene et al., 2013; Van der Bij, Laurant & Wensing, 2002) due to the social interactions with others of a similar age or belonging to the same community (De Groot & Fagerström, 2011). When attempting to get the adult population into regular physical activity, a number of barriers have been identified, including time constraints, poor health (Cohen-Mansfield, Marx & Guralnik, 2003), fear of injury (Booth et al., 2002), inconvenient location and accessibility (Salis et al., 1997), safety concerns, finances (Belza et al., 2004), low motivation (Clark, 1999) and lack of knowledge regarding the physical and mental benefits (Hui & Morrow, 2001).

Promoting physical activity as a panacea, however, is not appropriate for all individuals, and especially not for those in older age (Kay, 2016; Mansfield et al., 2019; Williams & Gibson, 2018). The Exercise is Medicine (EiM) initiative is one such example (Lobelo et al., 2014) and encourages healthcare professionals to prescribe physical activity instead of medication (Sallis, 2015). EiM compels the individual to take the neoliberal view of being responsible for their own health and wellbeing (Berryman, 2010). In practice, yes, we should encourage positive lifestyle behaviours for the sake of health, but we should be cognisant of the fact that this mentality automatically excludes those who are suffering with poor health, chronic pain, disability, or non-communicable diseases.

As Dodd et al. (2010) notes, perpetuating exercise as a miracle cure for all does not account for individual differences, not least the potential negative impacts of engaging with physical activity (Nesti, 2016). Work by Williams et al. (2019) supports this argument; for those with spinal cord injuries and arthritis, pain was an unwelcomed side-effect of physical activity and had negative consequences for engagement and motivation. In the UK, one in ten middle-aged to older adults are diagnosed as having osteoarthritis, with the knees, hips, hands, ankles and feet being the most affected areas of the body (Swain et al., 2020). This causes restrictions to movement, muscle atrophy and bone deformity (Cook et al., 2007), meaning daily living activities, work and social activity can become limited (Payne et al., 2006). Outcomes of this include depression, poor coping behaviours and lower QoL (e.g., Zimmer et al., 1995). Thus, pushing a one-size-fits-all physical activity agenda is not the solution for trying to engage 70% of the global sedentary population (Katzmarzyk et al., 2017). As Smith (2016) argues, a more holistic approach is required, with other forms of sedentary or gentle leisure activities recommended to maintain wellbeing.

Although higher standards of living are one of the positive outcomes of modernisation, the constant development of buildings and increase in road traffic has led to new and rising health problems (Schultz et al., 2016). In response to these problems, many cities have looked to develop accessible natural environments and green spaces (Schultz et al., 2016). Bell et al. (2014) notes that the large body of research over the last three decades points to the positive impact green space can have on one's health and wellbeing, particularly that of older adults (Cervinka et al., 2012; Van Houwelingen-Snippe et al., 2021; Wyles et al., 2016). The improved air quality (Hartig et al., 2014), opportunities to connect with nature (e.g., birdwatching, landscape gardens), socialise with others (Maas et al., 2009; WHO, 2017), and use the space for physical activity (Gordon-Larsen et al., 2006; Thompson-Coon et al., 2011) lead to better physical health (Maas et al., 2006; Nielsen & Hanson, 2007), manage stress and promote healthy lifestyle behaviours.

For older adults, Wen et al. (2018) highlights that value is placed on the aesthetics of the environment, accessibility, and well-maintained walking routes within natural and green spaces; with landscape/therapeutic gardens the preferred choice of older adults (Detweiler et al., 2012; Milligan et al., 2004). In a similar way to Wen et al. (2018), Alves et al. (2008) and Aspinall et al. (2010) found that one's decision to visit such places are determined by having public toilets, suitable areas for sitting and cafes. Unfortunately, though, some older adults will find that their advancing age will limit their opportunities to engage with nature and green space (Houwelingen-Snippe et al., 2021), and may lead to feelings of angst, loneliness, and depression (Gross & Lane, 2007).

As technology continues to make impressive strides, methods that have been suggested to make nature more accessible for those who cannot enjoy it are virtual and augmented reality representations (Annerstedt et al., 2013; Houwelingen-Snippe et al., 2021; Kjellgren & Buhrkall, 2010). Examples of this include virtual reality cycling (e.g., Grani & Bruun-Pedersen, 2017) and virtual nature within residential care facilities (e.g., Ludden et al., 2019). Augmented reality technologies have proved useful with older adults within the context of daily living tasks, navigation, and gaming (Arruanno & Garzotto, 2019; Saracchini et al., 2015). Aside from the losses caused by biological ageing, the COVID pandemic will have meant that many older adults will have been shielding and unable to leave their homes. Of those who may have been able to leave, the anxiety surrounding catching coronavirus may have prevented them from venturing into the outside world (Houwelingen-Snippe et al., 2021; Simon et al., 2020). Therefore, more investigation into developing technologies that allow the outside in are warranted (D'Cunha et al., 2019; Houwelingen-Snippe et al., 2021).

Music and singing

Equally as common and beneficial for wellbeing are community music and singing projects (Daykin et al., 2016). Many participants in the present study discussed their memberships to church choirs or local performing groups, with mentions made to improved breathing and lung capacity. The physicality of singing, as noted in the literature, can have this positive effect on an individual's physical health; employing breathing control during singing has been shown to improve the symptoms of Chronic Obstructive Pulmonary Disease (Bonilha et al., 2009). This is supported by Clift et al. (2016) in their evaluation of the Military Wives Choir groups; with singing improving wellbeing, confidence, morale, tension, and stress. Additionally, as Daykin et al. (2016) reports in their systematic review, being part of choirs or community singing groups also allows for identity construction, revisions, and reminiscence; this is especially salient given that the participants in this study experienced issues regarding their own identity as BNTVs and former members of the armed forces.

Research has highlighted that even just listening to music helps to maintain the wellbeing of older adults and prevent or reduce states of depression (Daykin et al., 2016; Hays & Minichiello, 2005). This includes partaking in a musical activity (e.g., playing an instrument; Newman et al., 2015) or singing (Creech et al., 2013). Indeed, playing an instrument has been shown to provide a sense of purpose, self-satisfaction, and control, and facilitate social engagement (Perkins & Williamon, 2014). To explain this, Newman et al. (2015) suggests that music offers an opportunity to escape from trauma, enhance mood and improve productivity through a decrease in anxiety levels (Hars et al., 2014), depressive symptoms (Seinfeld et al., 2013), and feelings of loneliness (Cohen et al., 2006).

Despite the wealth of literature to suggest that wellbeing can be improved through musical engagement, there is little empirical clarification of the ‘why’ (Creech et al., 2013) - this is a common feature for studies to fail to examine and evaluate the mechanisms of the intervention which have improved wellbeing. An explanation of why music can have such a positive impact has been offered by Clift et al. (2010). Termed ‘generative mechanisms’, qualities include creation of happiness to counter feelings of depression, concentration to prevent worrying, the use of deep breathing to alleviate anxiety, social engagement counteracts isolation, learning and staying accountable to the community group.

Crawford et al. (2013) suggests that the success of music or the use of creative practices within a community approach to wellbeing is through the process of mutual recovery. These can be novel ways of generating open forums for understanding and support (Perkins et al., 2016). With that in mind, group singing has been explored using a range of specific subgroups of individuals, including homeless males (Bailey & Davidson, 2005), female prisoners (Silber, 2005), underprivileged adults (Dingle et al., 2013), and the elderly (Coulton et al., 2015).

Volunteering

Another important and relevant community activity comes in the form of volunteering. For older adults, much of the research on volunteering focuses on the concept of productive ageing or ageing well to encourage an active and fulfilling life (Gonzales et al., 2015). While older age brings about the loss of parental and/or spousal roles, retirement and loss of structure/routine can threaten one’s sense of belonging. Volunteering, therefore, offers a communal activity to compensate for a number of these losses (Russell et al., 2018). Indeed, most of the participants in this study discussed their pride in being able to give back to the local community in the form of driving for a local residential home, belonging to the Freemasons, organising clubs/activities for the elderly, and gardening groups for their local village

Volunteering involves spending time without the exchange of money which aims to primarily benefit the environment or others (National Council of Voluntary Organisations, 2016). Formal volunteering takes place within public or private groups, clubs, or organisations, while informal volunteering takes place outside of these frameworks (Stephens et al., 2015). The act of volunteering is a vehicle for the promotion of health and wellbeing (NICE, 2015; O’Donnell et al., 2014) and can make a major contribution to both the life of others and oneself

(Southby & South, 2016). It also can increase community capacity and improve health care services (Paylor, 2011), but also has a strong economic benefit - adding billions to an economy (Haldane, 2014). Engagement with voluntary roles is suggested within the literature as being distinctly valuable to lives of older adults (Tabassum et al., 2016). Undertaking voluntary roles during later life is thought to be an important element of the active ageing agenda (Serrat et al., 2020).

Volunteering one's time promotes a positive effect on wellbeing, with high levels of life satisfaction (Windsor et al., 2008) and contentment (Thoits & Hewitt, 2001). One of the key elements of volunteering is the social relationships one builds due to becoming part of a community (Musick & Wilson, 2003; Okun & Michel, 2006; Rook & Sorkin, 2003). For older adults, volunteering presents an opportunity to reframe the dominant narrative of withdrawal and loss following retirement and continue to be socially productive (Bound & Waidmann, 2007; Moen, 1996). Indeed, volunteer positions which act as a substitute for employment during retirement tend to have a profound impact on wellbeing (Greenfield & Marks, 2007), providing a sense of power, maintenance of social status, improvements to self-esteem (Yeung et al., 2018), and meeting new people (Kahana et al., 2013).

3.9.2 Other forms of leisure activities for older adults

Although research has focused on the benefits of active lifestyles and active leisure pursuits of older adults, sedentary or low physical expenditure leisure activities (e.g., reading, social occasions, computer use, crafts) do have their own benefits for wellbeing (Bygren et al., 1996; Fancourt & Steptoe, 2018; Ku et al., 2016; Wang, 2012). These can reduce the risk of cognitive decline and the onset of dementia (Stern & Munn, 2010; Wang, 2012); however, for older populations, a quandary exists between the pressures of staying active to reduce the risk of mortality and illness and those sedentary activities which the body allows for (Weir et al., 2010). Therefore, leisure activities are those which individuals prefer to engage with during their spare time (Kleiber & Nimrod, 2009; Pressman et al., 2009) and typically provide a high level of intrinsic satisfaction (Kelly, 2006).

As Kelly (1982) posits, leisure activities are undertaken for their own sake and represent a level of freedom of choice. The benefits of engaging with leisure are well understood and include stress management (Pressman et al., 2009), mental health (Sala et al., 2019), maintenance of cognitive and physical functioning, social support (Coleman & Iso-Ahola, 1993), and help to manage feelings surrounding adverse life events (Janke et al., 2008). Although Kelly (1982) equates leisure with freedom of choice, several authors disagree with this simplistic view. Ranzijn (2010), Rojek (2013) and Wearing (1995) all argue that leisure for 'health' excludes many marginalised groups of older adults who cannot live up to a particular ideal and participate in 'healthy' leisure pursuits. Further, freedom of choice may not be quite accurate as the choices one makes are constrained by society, morality, culture, accessibility, and socioeconomic status.

The pressure to remain involved in physical and social leisure activities is evident in the limited number of studies (Maher & Conroy, 2017) which have explored the links between sedentary behaviour, wellbeing, and life satisfaction. Of the few that have conducted research in this area, Beard and Ragheb (1980), Ku et al. (2016), Lu (2011) and Östlund (2010) all reported that watching television, reading, and speaking with friends were associated positively with wellbeing. The explanation offered for this association is that some sedentary leisure activities can fulfil some basic human needs including psychological, social, educational and relaxation (Ku et al., 2016). One such domain to be explored is the value of religion to one's wellbeing; although linked to community, it has been discussed here as a leisure activity because it can be undertaken in a place of worship, it can also be practiced alone in one's own home.

Religion and spirituality

Religion and leisure are proposed to share similar outcomes (e.g., finding a meaning in life, providing a sense of belongingness and wellbeing, and the chance for spiritual growth) and intersecting effects for happiness and wellbeing for those who engage with them (Creighton-Smith et al., 2017, Heintzman, 2016; Liu, Chen & Zhang, 2020). The reason for the inclusion of religion within this literature review is due to both the age of the participants and their involvement with (predominantly) Christian faith practices – such as attending church services, bible study, organising parish activities, and helping with Sunday school.

Several definitions for religion and spirituality exist within the literature (Litalien, 2021) and range according to one's individual practice of faith. For the purposes of this review, the present study aligns with Koenig et al's (2012) definition, whereby religion is a multidimensional and organised system involving beliefs, practices, behaviours, rituals, and ceremonies in private/public settings. They are derived from established traditions within a community; designed to facilitate closeness to the transcendent, and to foster an understanding of one's relationship and responsibility to others in a community. Spirituality, meanwhile, is much more personal to the individual and relates to connectedness, purpose, meaning and transcendence of self (Coyle, 2002; Nelson-Becker et al., 2015).

The role and impact of religion and spirituality on one's health and wellbeing has been acknowledged for centuries (King; 1990; Litalien et al., 2020); with modernisation of medicine, science, and technology, developed countries have opted for these systems to become distanced from religion (Koenig, 2012). For developing countries, the practice of religion and spirituality as medical procedures continue to this day. As Koenig (2012) notes, it is interesting that the first hospitals were built and controlled by religious communities; these were then replaced with state-run hospitals, where inhumane practices became common place.

Religion and spirituality often help people to make sense of reality and their purpose in life, teaches forgiveness, offers structure within everyday life and, importantly, allows one to feel part of a community (Krok, 2014; Manning, 2013; Park, 2005). Moreover, religious communities offer comfort to individuals at a time of stress or suffering (e.g., Al-Ghabeesh et al., 2018; Ferreira-Valente et al., 2019) by offering guidance and significance (Park, 2013). Within the literature, religion and spirituality are regarded as especially important to older adults (Agli et al., 2015); Malone and Dadswell (2018) found that religion provided their older participants with a sense of comfort, hope, and strength when going through ill health or other age-related issues.

An important finding in line with this review is the sense of community religion provides; indeed, these religious/spiritual communities create a sense of belonging, allowing individuals to feel less lonely and isolated through attending services, social events, and other activities (Malone & Dadswell, 2018). This agrees with findings by George et al. (2013) and Ysseldyk et al. (2013); with findings suggesting that the members of religious groups have fewer depressive symptoms and perceive their physical health to be better due to their community membership. Others (e.g., Wilkinson & Coleman, 2010), though, disagree with the importance placed upon religion among older adults; with suggestions that many older people in the UK do not tend to attach themselves to religion in the way their parents and grandparents would have done.

3.10 Chapter summary

Having provided a detailed discussion surrounding military identities, the toll a life in the forces can have, age, ageing and ageism, and the role of community and leisure interventions for health and wellbeing, the next chapter addresses the shortcomings and lack of previous work on the BNTV community by outlining the methodology and research design of the present study.

Chapter Four

METHODOLOGY AND RESEARCH DESIGN

4.1 Chapter introduction

This study makes a substantive contribution to the knowledge, as well as the practical understandings of the BNTV community. Research within this group is in its infancy; the life histories of the individuals who took part in the tests have not been recorded within academia. While the potential health impact of exposure to radiation has dominated the medical discourse, this thesis offers a unique insight into involvement in one of the biggest peace-time activities between 1950-1964. Narrative analysis (NA) and creative nonfiction (CNF) have been used in myriad of qualitative studies, yet their application within this doctoral study is novel. This chapter will critically discuss the methodology, methods, representation, and the research design of this study.

4.2 Journeying through qualitative research

> We are interpretivists, postmodernists, poststructuralists; we are phenomenological, feminist, critical. We choose lenses that are border, racial and ethnic, hybrid, queer, differently abled, indigenous, margin, centre, Other. Fortunately, qualitative research—with or without the signifiers—has been porous, permeable, and highly assimilative. Its practitioners, adherents, and theorists have come from multiple disciplines and have brought to the project of qualitative invention the literatures, philosophies, disciplinary stances, and professional commitments of the social sciences, medicine, nursing, communication studies, social welfare, fisheries, wildlife, tourism, and a dozen other academic specialties. Consequently, we have acquired richness and elaboration that has both added to our confusion and at the same time, been broad and pliant enough to encompass a variety of claimants.
>
> (Lincoln, 2010, p.6)

At its heart, qualitative research's purpose is to explore what makes a difference in the social lives of individuals and communities; with the emphasis on the meanings attached to experiences (Papakitsou, 2020). Qualitative research is an ever-growing community of practice and engagement (Smith & Sparkes, 2016), requiring researchers to invest time, undertake training, and engage with in-depth intellectual immersion (Demuth, 2015). This immersion comes from a deep, critical awareness of the epistemological and ontological understandings of research. Lincoln (2010) posits that the nature of knowledge in qualitative research revolves around how we know what we know, its meaning, and how it will be used. Histories of paradigmatic issues pit the relative virtues and vices of qualitative and quantitative research against each other. This literature is established, and well known, and key authors have provided excellent overviews which do not need repeating here (Brinkmann, Jacobsen, & Kristiansen, 2014; Smith & Caddick, 2012; Sparkes & Smith, 2013, p.7). Rather, by articulating the methodological framework for this study, there is arguably greater benefit in exploring the potentials and pitfalls of the qualitative traditions, and the core principles in which the present study is positioned. This is important because, as is often the case with qualitative research, the final decisions regarding methodology, data collection, and analysis have developed over the course of the project; this occurs as one takes time to understand and make sense of the philosophical underpinnings and positioning of their study.

Initial thoughts about and conversations with the BNTV community, discussions with colleagues working with the same population group, and archival exploration equated to wanting to make a difference for this group of marginalised people. The BNTVs can be considered marginalised due to their age, experiences, and the small number of veterans that are still alive (see section 4.4). Thus, at the beginning of this work, discussions focused on utilising Participatory Action Research (PAR) to develop a programme of support to improve the health and wellbeing of the BNTV community.

PAR is an umbrella term for participatory action, action research, and community-based action approaches (Banks et al., 2013), and is a framework that encapsulates collective action and co-production of knowledge. Participants contribute their experiences and tend to be involved at every stage of the project (Boog, 2003) to benefit their community (Israel et al., 1998; Stringer, 2014) and encourage liberation and involvement (Barbera, 2008). The development of interventions is an iterative and cyclical process (Kim, 2016; Savin-Baden & Wimpenny, 2007); they are developed, situated, and evaluated within the real-life experiences of the participants (Rodríguez & Brown, 2009). Ontologically, PAR researchers believe that multiple realities exist (Reza, 2007), influenced by interactions with others (Freire, 1970), and the historical and social contexts which impact one's understanding of reality (Kim, 2016). The PAR epistemology emphasises shared interaction between the researcher and participants (Heron & Reason, 1997; Kim, 2016; Park, 1993) to critically examine and act on the social issues surrounding their experiences. The philosophical assumptions and some of the core principles of PAR did align with the present study, however PAR is inherently focused on *action*. The academic knowledge of the BNTV community remains, scarce; how could a programme of support be developed without understanding the population first?

As the research developed over the first twelve months (10/2017 – 10/2018), it became clear that the inherent focus needed to be on the stories this community had to tell as opposed to developing a one-size-fits-all intervention based on the researcher's beliefs. The archival exploration undertaken at the National Archives (Kew, London) in November 2017 brought historical and governmental, and redacted top-secret papers to light. In so doing, a story was beginning to formulate, providing a much needed historical and political context for this study. Eight freedom of information requests were made for files relating to the nuclear testing programme which were hastily blocked by the Ministry of Defence and will remain inaccessible until 2050. While sifting through these archival documents, information surrounding the use of 'D-notices' was also discovered. These allowed the UK government to censor the media and stop the sharing of information relating to the nuclear testing programme and national security (Tynan, 2011). The most important discovery was the Official Secrets Act of 1920 which subjected the BNTV community to silence for the thirty years succeeding the tests.

This immersion in the history and politics of the nuclear tests was supplemented by socially constructed information from the CHRC, NCCF, BNTVA, and BNTV community. The initial serendipity and amalgamation of the information gathering methods outlined above highlighted the limited knowledge of BNTVs - with them remaining shrouded in secrecy. It is plausible to suggest that the reticence surrounding this dangerous and revolutionary peacetime mission means today's public are potentially oblivious to the nuclear testing programme and those involved. C Wright Mills (2000) theorises that "neither the life of an individual nor the history of a society can be understood without understanding both" (p.3). Therefore, if learning from others is a fundamental principle of research and is achieved through comprehensive study, how could any intervention or programme of support I wished to develop be effectively implemented without prior knowledge of the community it seeks to help?

To answer this question and learn from this community, the BNTV's life stories would need to be collected, analysed, and interpreted before implementing programmes for their health and wellbeing. Thus, a scholarly realisation ensued; listening, gathering, and immersing oneself in their stories was an extensive task. Designing, implementing, and evaluating programmes for this community therefore fell out of scope for this doctoral research study; the focus, though, remained on understanding and supporting the participants involved. The sociological imagination (C Wright Mills, 2000) allows one to comprehend the wider historical setting and their place in it; the individual can make sense of their own experiences and assess their perception of fate concerning these events. The benefit of this extends to the researcher, as they can locate and evaluate the salient issues that are connected; blending history and biography can allow us to intellectually grasp the broader social relationship (Riessman, 2001).

The other realisation succeeding this was that a biographical narrative methodology, as opposed to PAR at this stage, using life history interviews would be the most appropriate and necessary course of action. Adopting a socio-historical approach would be beneficial for the present study as the BNTV community hold deeply political, personal, and extraordinary stories to tell. Applying a narrative framework would also ensure the influences time, age, experience, and history on one's worldview are acknowledged through the notion of storytelling (Georgakopoulou, 2006). As such, using CNF (see section 4.6) has the potential for impact and laying the foundations for future research to develop programmes of support for this community (see chapter six).

4.3 Adopting a narrative methodology

Over the last forty years, there has been a "narrative turn" within social science research (Denzin & Lincoln, 2005; Goodson & Gill, 2011; Herman, Jahn & Ryan, 2010); a shift in interest towards the life stories of individuals and groups to understand the lived experience, community groups, and modes of cognitive functioning. According to Clandinin (2007), there are four key characteristics of the 'narrative turn': first, people are not considered as research subjects but biographical individuals with different worldviews. Their stories are thought to be co-constructed with the researcher. Second, narrative and constructionist epistemologies challenged the positivist and restrictive scientific research pre-1970s, putting the voice of the individual at the fore. Third, the role of the researcher is reassessed; the narratives people tell contain raw emotion, thought, and interpretation, with these narratives expressing individuality rather than generalisable characteristics (Bruner, 1987). The fourth and final characteristic relates to the researcher needing to check their biases or prejudices before addressing the study; as humans, we develop innovative methods of thinking, learning, and being over our life course, and it is imperative to explore our motivations for undertaking and facilitating the research. The increase in the use of narrative within research is evident from the number of articles published. Polleta et al. (2011) found 587 articles were published between 1970-1990, by 2010 this number had risen ten-fold. This shift transpired as a response to positivism's lack of both self-reflexivity (Giddens, 1991) and the ability to address and solve deeply complex human issues (Polkinghorne, 1988; Papathomas, 2016).

The lived experience has become a popular term within qualitative research, yet it is often used without clarification. The present study aligns with Roberts and Taylor's (1998) definition, in that lived experience is the knowledge one has "of how to live a life in regard to being someone or something unique in everyday situations" (p.273). The BNTV community has experienced a range of unique life experiences, especially involvement in the British nuclear testing programme. The lived experience comprises of the participants' experiences and the researcher's interpretation of them (Boylorn, 2008). Further, it presents an opportunity to understand why some experiences could be considered as more important or unique than others. Dilthey (1985) suggests that one's lived experience is a reflective cyclical process of the events in their life. Capturing these lived experiences within research poses a challenge (McIntosh & Wright, 2019); this is due to only being able to experience our own lives and what our consciousness allows us to comprehend (Bruner, 1986), but also, only being able to uncover the reflective elements that the participants feel able to share rather than the totality of the experience.

With regards to comprehending and sharing our experiences, Bruner (1986) notes that cognitive functioning consists of two modes of thought, the paradigmatic and narrative. The paradigmatic mode recognises elements belonging to categories, it is this mode of thought that, when applied, leads to "good theory, tight analysis, logical proof, sound argument and empirical discovery guided by reasoned hypothesis" (p.13). Narrative joins elements together to create an emplotted story; it is a unique dialectal form which can exhibit human existence as situated action (Polkinghorne, 1995). This mode of thought allows for in-depth analysis into the meanings attached to one's experiences, drawing on events and actions into goal-directed processes (Polkinghorne, 1995). Although narrative's foundations are in literary theory (Abbott, 2002), it has been applied in a range of fields, including history (Cronon, 1992), anthropology (Mattingly & Garro, 2000), sociology (Frank, 1995), sport (Smith & Sparkes, 2006), education (Clandinin & Connelly, 2000), and psychology (Brown, 2017).

Hyvärinen (2010) argues that the term "narrative turn" is misleading, luring us into a false sense of homogeneity due to a lack of distinctive lineage of ideas, text, or debate. This means a well-defined journey of narrative from literature to science cannot be easily mapped (Hyvärinen, 2010). This explains why no collective definition of narrative exists across the different disciplines of research. (Herman, 2007) and, thus, why assigning a single definition is difficult and complex (Phoenix, Smith & Sparkes, 2010; Papathomas, 2016). Narrative is so deeply embedded in human nature that a definition that captures this accurately cannot be found (Papathomas, 2016). Papathomas (2016) compares it to describe the feeling of joy – a feeling so universal that one definition is almost impossible. Suggested definitions of narratives include, "stories people tell about their lives" (Bochner, 1994, p. 30); "human constructs that operate by certain conventions (Kreiswirth, 1992, p.650); and a "mode of reasoning and a mode of representation" (Richardson, 1990, p. 118). This study aligns with Polkinghorne's (1995) definition, in that narrative is a form of discourse wherein events and occurrences are constructed into a chronological plot.

Significant to this study was the method of narrative gerontology. Narrative gerontology is an investigative approach which is specifically about understanding how older members of society story their own life (Bohlmeijer et al., 2011), to explore the ageing process and provide insights for researchers of how best to study it (Kenyon & Randall, 1999). Kenyon and Randall (1999) highlight that narrative gerontology is inherently focused on exploring the metaphor of life as a story, allowing us to be cognisant of ageing from an insider's perspective (de Vries, 2015). The entirety of one's life can be described as a single narrative composed of multiple supplemental stories (Dubovská et al., 2017), narrative allows one to make sense of experiences, whether they are new or unexpected (Bruner, 1990). Emboldening an individual to narrate their own life story can strengthen resilience and highlight their will to live (Bruner, 1999; Randall et al., 2015). Thus, utilising narrative gerontology can allow the BNTVs to come to terms with their own life story and make sense of how the nuclear tests have influenced, to some extent, the experiences that have followed over their life course. As Plummer (1995) states, “for narratives to flourish there must be a community to hear” (p.87), as such, this study is framed by an emphasis on the value and necessity of sharing the stories of the BNTV community to a wider audience. Recognising the value of these stories can be considered as articulating respect and understanding (Kenyon, Randall & Bohlmeijer, 2010) for this unique ageing population. This is especially important given that the prevailing narrative surrounding later life is one of decline, loss, and ageism (Yamasaki, 2020). The present study privileges the voices of those considered to be the oldest old (aged 80 years and over; Lara et al., 2019), instead of the usual discourse of youth (Ohs & Yamasaki, 2017).

The gear change within the social sciences towards using narrative and storytelling has not been immediate for all disciplines. Key pioneers within the realm of sport, health, and exercise, Smith, and Sparkes, have demonstrated the value narrative has through a corpus of work exploring spinal cord injury (SCI) versus the narratives of health, identity, and disability. They have demonstrated that men with SCI have more of a narrative to share than just that of injury and illness (Sparkes & Smith, 2002). Using narrative, participants have voice and ownership of their story, rather than being solely constructed by the researcher. Narrative, though, has been criticised for researchers’ failure to offer explanations as to how their work is narrative (Chase, 2018). Riessman (2008) agrees, as without this explanation, the research becomes futile.

Employing a narrative methodology within disability research has resulted in the definition of health to be challenged. The 1948 WHO definition of health, “a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity” (2006, p.1) is out of date and not fit for purpose. Indeed, Huber et al. (2011) asserts, the conclusive use of *complete* medicalises society, excludes those experiencing long-term health conditions and disability, and fails to account for the individual’s ability to cope and function. The common discourse regarding ‘healthy’ human development does not allow for differences, vulnerabilities, or disability (Garland-Thomson, 2007). Undeniably, narrative can offer deeper insights into impairment as a social phenomenon which can be storied and constructed in myriad of ways (Goodley & Tregaskis, 2006). What is more, those who identify as disabled have little representation within wider culture, often only presented figuratively within literature (Garden, 2010). In Garland-Thomson’s (2007) words: the story of disability is traditionally told as “despair, catastrophe, loss, excess, suffering, and relentless cure-seeking” (p.114). Instead, through the use of narrative, flourishing, sexuality, and community from a disabled perspective can be explored; such reframing offers counter-narratives of hope, resilience, and creativity (Andrews, 2014). This is also seen within ageing research; when narratives are embodied, one’s body becomes the cause, subject, and vehicle for the story they tell (Phoenix & Sparkes, 2009). Taking this into account, one of the aims of this study is to understand the complexities surrounding BNTV identity from the community’s perspective (see section 4.7 for all aims). To understand these complexities involves recognising the embodied experience of what it feels like to witness a nuclear explosion, exploring the potential physical and mental health consequences of this involvement, and being cognisant of the political climate surrounding this community.

Despite narrative’s recent popularity, it should not be considered a “new methodological fad” (Papathomas, 2016, p. 39), but one of the most ancient and basic means of communication and understanding. As Hardy (1968) writes, “we dream in narrative, daydream in narrative, remember, anticipate, hope, despair, believe, doubt…gossip, learn, hate and love in narrative” (p. 5). The telling of stories has been crucial to the survival of humankind, with cave paintings documented to date back 40,000 years (Dobrez, 2012). It is the very essence of human nature to engage in storytelling; through sharing of experience, we give meaning to our lives and to those of whose stories we share (Wong & Breheny, 2018). Civilisation has depended on the telling of stories that have been passed down from one generation to the following generation. Storytelling is common in everyday life, professional settings, and the media; allowing one to present themselves differently depending on the audience.

4.3.1 Narrative Analysis

The analysis process employed in the present study has been outlined in section 4.10, however, the decision to use thematic analysis (TA) for the initial round of interviews should be explained. TA is a method of analysis that involves identifying, analysing, and interpreting codes, themes, and patterns within the data (Braun & Clarke, 2019). The appeal of TA is its ability to be used across research paradigms and theoretical frameworks (Braun & Clarke, 2019). TA is flexible and not restricted by ontology (nature of reality) or epistemology (relationship between the knower and what can be known) (Guba & Lincoln, 1994; Maguire &

Delahunt, 2017). The codes, themes and patterns identified often appear important or interesting to the researcher. A common mistake is for themes to reflect the interview questions - suggesting the data has undergone organisation rather than analysis (Clarke & Braun, 2013; Maguire & Delahunt, 2017). TA's flexibility and assumed atheoretical approach could also be considered a disadvantage - especially in relation to other methods of analysis.

Flexibility can equate to incoherent and inconsistent themes (Holloway & Todres, 2003), rendering the findings too broad and not beyond simple description (Braun & Clarke, 2006). Although TA does come under the umbrella of narrative, the emphasis tends to be on *what* is in the text rather than *how* or *why* (Riessman, 2005). As Riessman (2005) argues, failing to analyse the language and utterances in an interview could appear as objectivist; the themes, often described as *emerging*, appear unmediated by the researcher's questions and theoretical standpoint. The assumption is often that all interviewees responded with similar answers; so, what happens to the responses that fall outside of the consensus? (Riessman, 2005). This inability to garner deeper meaning from the findings using TA meant it necessary to employ a method of analysis which could capture raw emotion and voice.

To promote cohesion and consistency, clarity regarding the philosophical underpinnings of the study and the researcher's ontology, epistemology, and positionality (see section 4.5.2) is necessary. This allows for understanding surrounding the methodological decisions of the research and interpretation of the findings (Jackson, 2013). The present study rejects the positivist standpoint that truth is objective, static, and value-free (Snape & Spencer, 2003); as such, this work is qualitative and situated within the constructivism paradigm. Ontologically speaking, reality is multiple and meaning comes from the sense we make out of 'things' in the world (Hall, 1997). Further, knowledge is produced through the process of co-constituted exploration, reflection and understanding (Ormston et al., 2014), with more than one way of representing these realities (Bruce, 2019). NA was therefore employed for the analysis of the second-round life-history interview transcripts, with CNF as the method of representation. CNF goes together with narrative inquiry (Levine-Rasky, 2019); they are both established and novel methods which look to scrutinise biographical experiences as told by those who have lived them (Chase, 2005).

NA originates from literature and media/cultural studies but has grown in popularity within the sciences as a means of understanding the social world (Earthy & Cronin, 2008).

Different approaches to data collection (e.g., biography, life history, autoethnography) use NA to examine how different individuals engage in storytelling when exploring their experiences, history, and relationships. This shift in interest from empiricism to constructivism reflects a mistrust in consigning one absolute truth in the pursuit of knowledge production (Rosenwald & Ochburg, 1992); acknowledging the researcher's influence and involvement in the co-construction of this knowledge is achieved through engaging with reflexivity (Earthy & Cronin, 2008) (see 4.5.2 for the reflexive account in the present study).

NA is a focus on the stories people share (Riessman, 2008) and can be viewed from two perspectives: the story analyst and the storyteller (Bochner & Riggs, 2014; Smith & Sparkes, 2006). A researcher does not need to pledge a commitment to being one or the other, but instead should acknowledge the benefits each perspective brings (Sparkes, 2015). For this study, the processes used could considered as an amalgamation of the two; personal NA (a focus on the evolving life story) was used to analyse the interview transcripts (story analyst) and CNF to represent the data (storyteller). Unlike TA, NA allows the story to be kept whole rather than breaking transcripts down and over-coding (Sparkes, 2015).

Despite NA's popularity, a lack of single heritage, methodology, or guidelines is apparent (Priest et al., 2002; Rissman, 1993), meaning researchers often need to adapt a procedure to analyse the data (Chase, 2011; McLeod & Balamoutsou, 2001). Indeed, searching for a combined NA and CNF framework with clear processes proved difficult; therefore, a framework has been developed to address this shortcoming (for the framework, see section 4.11).

4.4 Life History: Exploring the Worlds of Exceptional Individuals

In a similar way to narrative, life history methods have been utilised in research since the beginning of the 20th century (Goodson, 2001). Originating from anthropology, the focus is on understanding a particular culture as told by an individual from that culture, with a conscious acknowledgment to temporality and the life course (De Chesnay, 2014). Thomas and Znaniecki's seminal publication, The Polish Peasant in Europe and America (1918-1920, 1958), is credited as being the foundation for the emergence of life history (Plummer, 1990). This work centred around the importance of the individual ruminating and reflecting on their lives and relationships using biographical methods (e.g., written life histories, letters to/from significant others) – the perfect kind of sociological material (Plummer, 1983). A sociological perspective of social life involves interaction, understanding and reflection (Thomas & Znaniecki, 1958; Stanley, 2010). The blending of narrative and life history can offer academia more exciting alternatives to research, allowing for a deeper understanding of specific populations and phenomena (Bloom & Munroe, 1995).

Clark and Warren (2007) believe life history to be an ambiguous term, appearing simple yet is vague and complex in meaning and execution. Additionally, it is an umbrella term for research which explores personal experience. Life history can be defined in a number of ways; as "more than a recital of events. It is an organisation of experience" (Rosnwald & Ochberg, 1992, p. 8); as an epistemological concept bringing connection between human experience and social milieu to light (Cole & Knowles, 2001); "a culturally produced artifact in one light and an interpretive document in another" (Tierney, 2000, p.539); and, "a means by which we can see how a person makes sense of their experience within social, cultural and historical contexts, as well as what impact social structures have on a person's life" (Clark & Warren, 2007, p.1). The present study aligns itself with Clark and Warren's (2007) definition, as it encompasses the impact of historical events. The British nuclear testing programme itself was an exceptional series of events that a minority experienced; knowledge of the BNTV community is limited, and greater insight into the potential physical and mental consequences of their involvement is needed before interventions can be designed, implemented, and evaluated.

Within this thesis, the participants are described as unique, but what makes a population unique? According to Dearing et al. (1996), it is the degree to which a group of similar individuals is different from the wider social system they are part of. The BNTVs are unique because of their involvement in the largest tri-service event since the D-Day landings (MoD, 2020). Approximately 22,000 individuals were involved in the tests (from 1952-1964) out of a population of 50,000,000 – 54,000,000 (ONS, 2015), or, 0.04%. They were then subject to silence and have experienced fear of potential health consequences due to radiation. The BNTVA estimate that only 1500 BNTVs are still alive today – rendering their life stories even more valuable and necessary to tell. Accordingly, the life history interview was the most appropriate method as it would permit symbiotic interactions to occur between their memories and memories within the wider community (collective memory) to be revealed and discussed (Basu, 2011). These nuanced understandings of an event, which change over time in response to several factors (personal, political, cultural, and social), permits the researcher to identify what the individual understands, remembers and has forgotten about their lived experience (Jessee, 2019).

According to Bruner (1984, p.7), “a life lived is what actually happens; a life experienced consists of the images, feelings, sentiments, desires, thoughts, and meanings known to a person whose life it is. A life as told, a life history, is a narrative, influenced by the cultural conventions of telling, by the audience, and by the social context.” Consequently, life history acknowledges the interactive relationship between events experienced and one’s world view (Goodson & Sikes, 2001). As can be seen from Bruner’s (1984) quotation, life history methods dovetail with a narrative methodology, since the narrative texts (Plummer, 2011) produced within life history work are in the form of life stories. Importantly, while all life histories are narratives, not all narratives are life histories (Hatch & Wisniewski, 1995). The term life history could be misconstrued, giving the impression that it is about a lifetime when it is focused on a specific life event (Kouritzin, 2000); the researcher will have a particular event in mind to ensure it is a focused biography (Smith, 1994). For the present study, the life history interviews with the BNTVs were focused on life before, during and after their involvement in the nuclear tests. In so doing, the impact of involvement could be evaluated over their life course.

Life stories can take different forms, including the naturalistic, researched, and reflexive-recursive (Plummer, 2011). Researched life stories, such as in the present study, are collected under purposeful circumstances (Plummer, 2011). The life history interview, the key method used within life history research involves the collation of one’s story. Events are broken down and told through the narrative of the participants (Plummer, 1995). It is a collaborative process, involving sustained mutual interpretation and exchange, with interpretations of the data grounded within the dialogue (Goodson & Gill, 2011) to explore the idiosyncratic meanings (Plummer, 1995). A life story links individual human actions and incidents into a composite which can be easily read and understood (Polkinghorne, 1988); reconstructed through the strong relationship that has been developed between the interviewer and interviewee (Etter-Lewis, 1993) or - a “listener-interpreter-questioner” (p.10) and the narrator. One of the noted benefits of this approach is that it allows the voices of those deemed less powerful (Goodson, 2001) to come to the fore, while also educating the wider public about key historical, political, and social events (Söderström, 2020).

The use of life history is common within veteran research as it allows the researcher to gather the complex stories regarding how one has lived their life and delve deeper, when necessary, to fill the gaps (Caddick, Smith & Phoenix, 2015). Caddick et al. (2018) comment on the lack of research on ageing veterans despite most veterans being over the age of 65 years old. This is interesting considering the legacy the military has on one's identity, health, and wellbeing (Setterson, 2006). Military experience is not homogenous but heterogenous – some veterans may recall events as traumatic, while others may believe them to be acts of gallantry (Lomsky-Feder, 2004). Using life history interviews (involving breaking their lives down into before, during and after military service), Caddick et al. (2018) highlighted those ageing veterans who had experienced limb loss were struggling to get on with their lives. However, by using narrative and life history, the participants' stories revealed a sense of agency and resilience in response to the threat of ageing had on their independence. Banks and Albertson (2018) also used life history to develop a chronological understanding of the significant events that had occurred in the lives of veterans who had engaged in criminal behaviour post-service. An implication for using biographical/life history methods is that the findings can lead to more effective support services and interventions as a greater level of understand can be acquired (Banks & Albertson, 2018).

Life history methods have also been employed within gerontology (Hannan et al., 2019). Understanding the lived experience of ageing has become an important element of gerontological and sociological research (Carney & Gray, 2015; Gilleard, 2018). A key example of this is work is by Bernard et al. (2020), who examined the changing nature of gerontological research in the UK between 1971-2017. The authors note that academic knowledge of the ageing process is futile if it lacks a personal understanding of what it means to age. This personal understanding, with gerontologists themselves now experiencing ageing and retirement, is long overdue when life expectancy in Western countries is at its highest (Hannan et al., 2019). The nuances surrounding healthy ageing mean that research needs to address the discrepancy between the lived experiences of growing older and the attitudes of the wider public (Hannan et al., 2019). Life history methods are seen to be a direct and less jargon-inducing way of representing an individual within society (Whittemore et al., 1986). As Goodley (1996) so aptly puts it, the participants' stories not only reveal the subjective meaning of a particular situation, but the constraints placed upon them by society.

Life history research is not without critique; critics often argue it is too subjective, open to bias, and difficult to generalise (Bryman, 2008; Dhunpath, 2000) – yet these criticisms are typical of qualitative research. Indeed, generalising findings is not what qualitative researchers would consider a strength (Firestone, 1993). In response to the criticism of sample sizes, Dhunpath (2000) argues that narrative and life history does not need large samples of participants as it acquires a level of depth and understanding that positivist research would not be able to yield. One prevailing criticism of life history is the notion of 'truth' in an individual's biographical account. Narrative and life history challenge this, whereby there is no one truth but a collection of subjective interpretations (Dhunpath, 2000). The truth value in the findings of this study comes from the words of the participants and their lived experiences.

4.5 Relationships, Representation and Reflexivity: Doing research with integrity

How to judge research has been an ever-raging debate within the social sciences (Ronkainen & Wiltshire, 2019). Qualitative research does not adhere to the traditional positivist measures of objectivity, validity, reliability, and generalisability; this is because social life cannot be measured in such ways (Greenwood & Levin, 2000). This may appear, to some, as a nonchalant attitude to quality, yet this is simply untrue (Mirhosseini, 2020). Instead, as Mirhosseini (2020) argues, taking an epistemological rather than methodological approach to judging quality allows the researcher to focus on good practice during the data collection and analysis process, developing meaningful relationships with participants and, most importantly, the researcher's agency and integrity. Lincoln (1995) and Juroš (2011) both argue that rigour should be evaluated from an ethical perspective as the relationship between the researcher and participant is more dynamic and involved compared to quantitative research. Other academics advocate for the rejection of positivist criteria due to the stark differences between the philosophical underpinnings of the qualitative and quantitative paradigms (Cohen & Crabtree, 2008).

Methodological rigour represents the level of competency and integrity within research; a high level of rigor allows it to become established and contribute to knowledge (Erciyes, 2020). When a particular phenomenon has not been examined before, qualitative research provides an essential foundation on which to build (Carnevale, 2002). A common tale is that it is harder for qualitative studies to be published, with reviewers not knowing how to assess a qualitative study as trustworthy (Lemon & Hayes, 2020; Rolfe, 2006). The consequences of judging quality include influencing what and where studies are published, the contributions made to knowledge and the provision of funding (Ronkainen & Wilshire, 2019).

It is often the case that qualitative research faces the same level of evaluation by using criteria more appropriate to quantitative research. Not only this but using the same criteria for all qualitative research can also prove to be problematic; as Sparkes and Smith (2009) argue, qualitative researchers operating within different paradigms need different criteria. Working from a criteriologist standpoint smothers creativity and limits novel exploration of phenomena (Sparkes & Smith, 2009). Instead, a relativist approach is recommended (Smith & McGannon, 2018) as the criteria is not predetermined, but can change depending on the methods, context, and purpose of the research.

In line with the relativist approach, this study should be judged against the following: worthiness and substantive contribution, meaningful coherence, expression of reality, aesthetic merit, and evocation (Smith et al., 2015; Smith & McGannon, 2018; Tracey, 2010). The first criterion, worthiness, and substantive contribution, asks the reader to question whether the topic is relevant, timely, significant, and interesting; this research should provide a substantive contribution with regards to theory, methodology, and practical application to the understanding of social life (Tracey, 2010). The key question to ask is, does this work provide the reader with new knowledge? (Smith et al., 2015). The second criterion, meaningful coherence, considers whether the research has achieved what it claims to be about using methods that suits its objectives. Crucially, there should be a clear connection between the literature, the research objectives, findings, and interpretations (Smith et al., 2015). Next, expression of reality, is concerned with whether the work showcases an embodied sent of lived experience. Importantly, does it seem ‘true’? There needs to be a credible account of a psychological/cultural/social/shared or individual sense of this truth (Smith et al., 2015). For aesthetic merit, the findings should be presented in a way that is aesthetically pleasing through the artistic crafting of language. The text should be satisfying to read, complex, enjoyable, and not boring to read. Further, the stories should ‘open up’ and invite wider interpretation (Smith et al., 2015). Finally, evocation is concerned with how the research illuminates the individual or group and/or theory in an emotional and/or intellectual way. This criterion asks if the reader feels the meanings within the story that is being portrayed.

4.5.1 Relationships and Representation

Utilising a narrative methodology affords opportunities to interact with individuals in a deeply personal manner, consequentially bringing issues of research integrity to the fore in debates. Key authors (e.g., Cheney, 1989; Ellos, 1998; Richardson, 1990; White, 1980) have noted that narrative provides tools to craft and share stories that embody value and morality. As such, it is the moral responsibility of the researcher to be respectful of their relationships with participants during the research (Adams, 2008). Academics should be mindful that the participants are still living their stories; these stories do not start on the day of interview, nor do they end when the recording stops (Clandinin & Connelly, 2000).

The ‘meaning of life’ has been demoted to neoliberal versions of success – autonomy, productivity, independence, mediated by one’s own agency (Pickard, 2018). This neoliberal governance appears to offer freedom of choice but is not without accountability (Williams, 2017). As Frank (1995) and Widdershoven and Smits (1996) propose, the purpose of narrative inquiry is to bring the idea of the “good life” (p.276) into view and understand how to cope with difficult situations through the stories we tell. Essentially, narrative representation consists of acts which garner approval or disapproval; as the reader, we are forced to decide if they have achieved the ‘good life’ or have wasted it (Kemp & Dilworth, 1988). Instead, one’s life should be conceived as a unity rather than individual components of time; research should look to protect against the repressing of a community/society whose grand narrative is being publicly discussed (Kemp & Dilworth, 1988).

Consequently, another representational issue within the narrative methodology is the concept of narrative privilege. Who has this privilege? Is it the storyteller or listener? (Adams, 2008) As Adams (2008) writes, when acknowledging this, the researcher should reflect on who may feel hurt or silenced through the re-telling of their stories. As difficult as it may be for the narrator to share their life story, it is also difficult for the researcher to accurately retell it (Clandinin & Connelly, 2000). Narrative interviews have been compared to pandora’s box (Leiblich, 1996); several authors (e.g., Elliot, 2005; Holloway and Jefferson, 2000; Proctor & Padfield, 1998) disagree, arguing that they provide a safe space and reassurance. However, the representation of experiences is where the potential for harm lies. Clandinin and Connelly (2000) explain that writing a research text is a tension-filled experience for the researcher. This tension arises when data collection is complete and decisions over analysis are made; it develops when deciding how best to speak to the reader and it occurs when reflecting on whether the participants have been represented accurately and morally.

A prevailing narrative in the BNTV community is seeing the bones in one's hands during the blast. The following quotations were taken from online newspaper articles; the descriptions are almost identical despite being accounts from different BNTVs: "it was so bright I could see the bones in my hands with my eyes closed. It was like an X-ray" (BBC, 2018); "when the bombs went off…you could see the bones in your hands" (Corker, 2018); "we could see the flash from the first bomb, you could see straight through your hands" (Johnson, 2018); and "the flash was so bright that I could see the bones in my hands" (Boniface, 2015). Positivist scientists would simply refute these claims as x-rays cannot be seen by the naked eye (NHS, 2018). Despite the participants' truth differing from scientific truth (achieved through objective validation), it should not detract from the fact that it had a profound impact on their life (Measor & Sikes, 1992). Kouritzin (2000) argues that there is no real incentive for individuals to lie when participation is voluntary; if they should lie about their experiences, perhaps we should consider why they feel it necessary to be deceitful in their retelling. As a final point, we live amid an unfinished story; the events that transpire are often told through multiple lenses or 'selves' depending on the listener/audience. As such, one truth cannot be represented, and it would be suspicious if that were the case (Kouritzin, 2000).

4.5.2 Reflexivity and positioning

Conducting qualitative research can be an untidy and fickle process (Taylor & Patterson, 2010; p.5) rather than being linear, sanitised, and predictable (Sinkovics & Alfodi, 2012). There is a perceived pressure for some doctoral researchers to conceal the messiness of their projects, yet there is strength in recognising and embracing this non-linearity (Donnelly, Gabriel & Pan, 2013) through reflexivity. Reflexivity is defined as "thoughtful, conscious self-awareness" (Finlay, 2002, p. 532) and is an important research skill (Brackenridge, 1999; Sparkes, 1995). According to Strauss (1956), reflexiveness is essential for the development of the mind, involving the researcher to look inward and note their thoughts, feelings, and level of involvement (Erciyes, 2020).

The researcher is the key to influencing the data collection and analysis process; their behaviour and attitude towards the participants will affect responses and the findings (Finlay, 2002; Jen, Zhou & Jeong, 2020). Indeed, the level of trust and rapport that had been built up during each phase of this study (see section 4.9.1) will have directly contributed to what the participants shared with me. To be reflexive allows that data to become more than just information, as it is co-constituted between the interviewer and interviewee (Finlay, 2002). There is clear distinction, though, between reflexivity and reflection: "to be reflective does not demand an 'Other', while to be reflexive demands both an 'other' and self-conscious awareness of the process of self-scrutiny" (Chiseri-Strater, 1996; p.130). In so doing, the focus turns to the reciprocity between the researcher and the participants (Mansfield, 2016; Pillow, 2003) through active listening and attempting to make the relationship mutually beneficial. One way to do this is to encourage doing research *with* rather than *on* the individuals taking part (Pillow, 2003). Further, as Mansfield (2016) notes, articulating this position of reciprocity allows participants to know the value of their involvement in producing new knowledge.

It is salient to acknowledge the positionality of the researcher within the data collection process. Positionality is "aspects of identity in terms of race, gender, caste, sexuality, and other attributes that are markers of relational positions in society" (Chacko, 2004; p. 52). Positioning oneself within the research involves asking *who I am as the researcher* and *who are you as the participant?* (Deppermann, 2013; Jen et al., 2020) Acknowledging my position within this doctoral study provides context for the design and execution of the research. The findings presented within this thesis offer a partial picture of the impact of the British nuclear testing programme (Stewart-Withers et al., 2014), and I acknowledge that my positionality and position of privilege will have contributed to these findings. To answer the *who am I* question, I am a 20-something, female, single, white, working-class, funded doctoral researcher with an undergraduate degree and master's degree. I, nor my family members, had not been subjected to military service; I had not experienced any traumatic events over my life course, and I was able-bodied with no limiting health conditions. Taking these points into account, I was coming from a position of privilege but one that relied on engaging with this minority group to produce this thesis.

The researcher must acknowledge how their subjectivity may have influenced the analysis and findings if claims of trustworthiness and integrity are to be upheld. Employing reflexivity is a method which allows subjectivity to be reframed from quandary to opportunity

(Finlay, 2002). As Finlay (2002) notes, though, there does need to be an equipoise between self-awareness and navel gazing to avoid the emotions of the researcher skewing the data. Within social science research, participants tend to be from disenfranchised groups of society; with research providing these individuals with a platform (Brackenridge, 1999; Jen et al., 2020; Richardson, 1990). Yet it is the researcher's interpretation that is retold (Brackenridge, 1999); this brings the issue of power to the fore - to claim one's research is unequivocally true is one such practice of power (Rhodes & Brown, 2005). In so doing, the researcher is claiming to have the ability to acquire and represent reality (Rhodes & Brown, 2005). As Brackenridge (1999) states, "I quote selectively from their words…and through my writing, I lobby on their behalves" (p. 6). Reflexivity can be considered an important vehicle for addressing power in knowledge production (Alvesson & Sköldberg, 2017). Like Brackenridge, I carefully selected the verbatim from 29 individuals to craft the CNF stories but were not returned to them for validation. I believe that my deep immersion into their stories was enough to accurately represent this population. While it is self-storying from the perspective of the researcher, this is not a biography of one individual, but rather a collection of BNTV voices consisting of shared and exceptional stories.

Prior to the commencement of this project, I had no knowledge of the nuclear testing programme or the community until undertaking archival exploration (discussed in section 4.2). When it came to the interviews, I was conscious of whether the participants would feel comfortable to open up to me and speak in depth about marriage, death of children, spousal loss, illness, loneliness, and the ageing process. Although I can appreciate the many ways in which I differ from the participants (see section 4.7.1 for characteristics), I was capable of being empathic and could position myself to understand their feelings. This is also reflected in the trust and rapport that was instilled throughout this study (see section 4.9.1). The effort that had been put into building this rapport provided me with the means of engaging the participants in conversation, but I wanted them to feel at ease when meeting me in person - especially as I had been invited into their homes. I made purposeful dress choices, wore my Brunel University London lanyard and student card, ensured I was always 10 minutes early to the face-to-face interviews (exactly on time for the telephone interviews), and presented each participant with a cake. While researcher training does not acknowledge what one should wear, Mazzei and O'Brien (2009) argue that for the female researcher it is an unconscious process. Selecting what to wear, the careful use of body language, behaviour and speech are attempts to appear acceptable and qualified for the role (Mazzei & O'Brien, 2005) and to create a positive first impression (Poulton, 2012).

During the face-to-face interviews, the age difference between myself and the participants was often highlighted; in a similar way to Jen et al (2020), comments such as, "oh, you do look young, don't you", "I suppose that was before your time", and "you're probably too young to understand" were common. I do not believe these comments were meant maliciously but highlighted their age more than my youth. Questions were frequently asked about my relationship status, such as "are you married?" Or "do you have a man? You'll understand this better if you do". At the time, I did wonder if these questions would have been asked of me if I were male (Tarzia et al., 2013), or if the participants were aware of my orientation. I did not take offence to these questions, I answered them with a simple "no", laughed and then went back to the interview questions.

Although I had no personal experience of the issues outlined above, I made a particular effort to exude kindness, empathy, and active listening; I did not rush them or stick solely to the interview schedule. However, there were conversations that became difficult to process, these included caring and subsequent death of their ill partner and domestic abuse. I remained empathetic during the interview, but upon leaving their house or putting down the phone, I needed to reflect on how that made me feel as both a researcher and member of society. To do this, I would use the drive home from the interview location and speak to my academic peers. I also made notes of how I felt in the notebook I carried with me during the interviews.

Being present during the interview, re-listening and transcribing them caused me to feel emotionally connected with the participants - just as any human being would. It was this which led to the decision to use CNF to represent the actual voices of the participants, with real verbatim to evoke emotion and empathy in the reader. Further, it allows the reader to question why society appears to lack support and understanding for the BNTV community. This level of representation could not have been achieved through thematic themes and quotations alone; it was felt that these conversations needed to be heard and lived rather than just described.

The use of CNF allows for reflection on both the complexity of conducting biographical narrative research and the authentic representation of the participants. To represent the voices of those involved, the findings of this thesis are offered in the form of three CNF stories which use the BNTVs own voices rather than through the common use of a realist tale. Each story addresses all the research objectives and revolves around ‘big’ stories, ‘small’ stories, shared experiences, and exceptional experiences. The techniques that were employed to create these stories is detailed later in section 4.10.

4.6 Representing BNTV voice: Creative nonfiction

According to Papathomas (2016), few scholars have attempted to push the boundaries when presenting their findings. The norm in qualitative research is using a realist tale; the closely analysed findings are usually represented by quotes, themes, and theoretical underpinning (Smith, McGannon & Williams, 2015). After a period of extensive immersion in the data (listening and relistening, transcribing, reading and then re-reading), it felt incongruous to represent the findings this way. This is not to discredit excellent qualitative studies which have done so, but it felt too sanitised for this study (as explained in section 4.2). Considering that narratives are representative of experiences and identity, how we see ourselves, others, the world, and provide an opportunity for the storyteller to negotiate their own identity (Giaxoglou & Georgakopoulou, 2020; Papathomas, 2016; Smith, 2016), it became obvious to me that the words of the BNTV community had to be shared through storytelling. Therefore, I have responded to Papathomas’ (2016) call for researcher’s to be brave and challenge the “post-positivist status quo” (p.44) by using NA and CNF.

Using these methods would allow this marginalised group to share their deeply personal life histories beyond family and friends. Importantly, I did not want to isolate the participants who took part, nor the community they were part of, by using unnecessary complex academic language that would conceal and mystify the findings (Goodley, 1996; Orr et al., 2020). Using NA, the participants’ life stories were scrutinised, set within a temporal framework, and were transformed from an interview transcript to an emplotted whole narrative (see section 4.10).

Although traditional methods of representation remain the most popular form of qualitative reporting, they have been described as uninspiring, boring (Richardson, 1994), arbitrary (Coffey & Atkinson, 1996) and homogenised (Badley, 2009). In recognition of this shortcoming, creative academic practices (CAP) have emerged as a genre that blurs the boundaries between fact and fiction (Barone, 2007), and offer qualitative researchers a range of exciting and alternative methods of representation (Denzin, 1997) and dissemination. CAP allows social issues or phenomena to be showcased within critical studies (Wright, 2018); it also permits the depiction of multiple aspects of life and experience (Vickers, 2010). Examples of CAP include ethnodrama, poetry, art, autoethnography, autobiography, poetry, fiction, and CNF (Smith, 2013; Vickers, 2010).

Using these alternate forms of representation are encouraging researchers to challenge the concept of truth and understand lived experiences of various population groups (Hopper et al., 2008) while also casting a wider net on their readership. The use of CAP within qualitative research is becoming increasingly popular - particularly within health, exercise, ageing and veteran research. The following studies are examples of those which have employed CNF as their chosen method of representation: exploration into the organisational culture of elite youth footballers (Champ et al., 2018); to intersect the identity of elite female boxers (Blodgett et al., 2017); mental illness (Carless & Sparkes, 2008); PTSD and veterans (Peacock, Carless & McKenna, 2018); injured veterans (Evans et al., 2020); spinal cord injury (Smith, 2013); and, active ageing (Griffin & Phoenix, 2014; Wright, 2018). The rationales for using CNF in these studies include alignment to the philosophical standpoints of the researcher, meaningful representation of the lived experience, and for its emotional and linguistic vibrancy (Ellis & Bochner, 2006). As Ellis and Bochner (2006) explain, the differences between traditional methods of representation and CAP are monologue versus dialogue, being open to reader interpretation and sharing the political platform it creates.

As noted in section 4.3, narrative challenges the concept of truth - rather, truth is not absolute but is a compilation of different understanding. In this way, research reports should be considered as narrative performances rather than privileged claims to the truth (Chia, 1996; Rhodes, 2001; Rhodes & Brown, 2005). Social science researchers employing narrative tend to wrestle with the notion of truth versus connection to the story; CAP provides researchers with a solution to this battle between truth and readability (Bruce, 2019). Winter (2002) suggests that as readers, we can typically distinguish between fact and invention; while it is interesting to know if books/dramas/films are derived from verifiable events, it does not dictate whether they are influential on our emotions. The idea of truth is complex and should be re-examined; if fiction is the shaping of narrative, the question should not be ‘is it true’ but, has the writer moulded the narrative to effectively convince me that it is trustworthy? (Winter, 2002).

Denzin (1989) has argued that truth can be either historical (based on experiential data), aesthetic (how well the story fits into a particular genre), or fictional (creation of a story which has been crafted to convince the reader that it is believable). The application of fiction as a method of representation is one way that challenges the concept of truth and has been explored by several authors (see Bruce, 2019; Ketelle, 2004; Tullis Owen et al., 2009; Rhodes & Brown, 2005; Vickers 2010; Winter, 2002; Yoo, 2017). The concept of power within knowledge production was noted in section 4.5.2, however power within the realms of academia warrants discussion. Foucault (1980) argues that the general politics of truth determine which discourses will be accepted as being true (e.g., mechanisms for distinguishing and acquiring truth, and individuals with status whom we automatically believe). This regime of truth (Foucault, 1980) constrains knowledge production by having a preferred form of writing within institutional settings; scientific texts are considered absolute truth and of greater importance compared to those using fictious, literary conventions (Rhodes & Brown, 2005).

Bruce (2019) states that the research methodology and findings can be used to inform either fact, faction (another term used interchangeably with CNF), and fiction; however, the difference between them is what the writer does with the evidence they have gathered, the issues highlighted, and the literary style chosen to communicate the findings. Moreover, it is the writer's declaration of where their work sits on the fact and fiction spectrum which should determine how their claims to the truth are evaluated (Richardson & St. Pierre, 2005). Bruce's (2016) novel, Terra Ludus, is one such example of academic writing which has been conceptualised to be fictional but draws on over twenty-five years of research. In this way, the usual requirements to uphold this regime of truth within research (e.g., ethical considerations surrounding the participants and claims to the truth) need not apply. Instead, the writer needs to ensure the work meets literary criteria (Bruce, 2019) to allow the reader to emotionally engage with the marginalisation of women in sport. While fiction writing may sit uncomfortably within the sciences, it allows for the understanding of minority groups, alternate realities, truths, and worldviews (Vickers, 2010).

Sitting between the fact and fiction continuum is CNF (other terms include faction, literary nonfiction, ethnographic fiction, or narrative nonfiction), the method of representation in the present study. No agreed definition of CNF exists (Levine-Rasky, 2019); however, it is described as inherently based on real people and capturing the real events which occur in their lives during data collection (Bruce, 2019; Conolly & Haydar, 2008). As Cheney (2001) notes, CNF "tells a story using facts, but uses many of the techniques of fiction for its compelling qualities and emotional vibrancy" (p.1), to allow readers to gain a stronger grasp on the topic being investigated. Within the social sciences, CNF is a new species of ethnography, blending literary techniques with factual reporting (Conolly & Haydar, 2008; Richardson & St. Pierre, 2005). These techniques include similes, metaphors, allusions, flashbacks, point of view, imagery, and character creation (Hackley, 2007; Smith, 2013).

CNF originates from the 'new journalism' of the 1960s/1970s (Caulley, 2008) and provided an imaginative approach to reporting as the writer could inject themselves into the narrative if they wished (Cheney, 2001). Although CNF has proved to be a popular means of writing within publishing and academic spheres from 1990 onwards (Caulley, 2008), the first use of the term is unknown (Gutkind, 2005). Popular forms of CNF include essays, life writing, autobiography, memoirs, and journalism (Silverman, 2008). Opponents of this new form of journalism questioned *how* the writer could know what the characters were thinking. The CNF writer can know, to an extent, what the person is thinking as they undergone complete immersion in their story (Caulley, 2008). As in the present study, the immersion process began during the first round of interview transcription and continued until the final story had been written. As a researcher and writer, I knew every participant's life story and verbatim without hesitation – it was this that signalled to me that I had achieved full immersion and understanding. Indeed, I became attached to the life stories of the participants rather than being over-involved with the participants themselves (Mansfield, 2007).

The traditional qualitative report is a realist tale built on facts and quotations in the name of rigour and accuracy (Caulley, 2008); in employing CNF as method of representation, I was stepping out of the safety net of a realist tale and into a method that is steeped in controversy. CNF is considered to be paradoxical: how can *truth* really be relayed if it uses fictitious constructs? (Caulley, 2008). It is this and a lack of clear distinction between fiction and fact which makes which makes the relationship between CNF and academia volatile (Barone, 2007; Bruce, 2019; Vickers, 2010). Differentiating between fact and fiction is based on the truth claims the author makes for the effect on the reader (Richardson & St Pierre, 2005). Yet, as Bruce (2019) notes, using CNF allows verbalisation of the participants' experiences and the deeper meanings they have attached to them; whereby *showing* the reader the meaning of these experiences rather than just *telling* them. By doing this, the researcher assumes the role of the storyteller instead of the story-analyst (Papathomas, 2016; Smith & Sparkes, 2006).

While the CNF writer believes that facts and interview quotes are important (in this study, verbatim was used for dialogue), the foundations of CNF stories are scenes (Caulley, 2008). Effectively conveying scenes allows the reader to feel part of the action through conversation and sensual description (Caulley, 2008). Creating a scene which evokes the senses allows the past to become the present (Cheney, 2001). An example of a scene in this study conveys the struggle a BNTV felt at being unable to walk and relying on his wife to survive; he shifts in his chair, contorts his face in agony at the pain in his back, and tells his wife that he feels abandoned by the health service. Another scene involved a flashback of a BNTV who had lost his wife to cancer; through NA, temporal ordering of the interview transcript, I had retold an event which occurred during one of the interviews by re-creating it in a new setting for the reader (Miller & Paola, 2004).

The organisation and content of stories allow one to make sense of the events they have experienced (Bamberg, 2012). Ultimately, stories are thematically organised plots (Polkinghorn, 1995; Randall, 2007) which have a beginning, middle, and end (Denzin, 1989). Further, stories have two defining features: internal structure (Labov, 1982) and ordered transformation (Polkinghorne, 1995). An internal structure refers to a temporal order (Labov, 1982), consisting of an abstract (what the story was about), orientation (characters and settings), complicating action (what happened), evaluation (meaning of the event), and conclusion (how the story ended). Ordered transformation is the narrator making sense of the event/problem that has occurred (Polkinghorne, 1995). It is these events which are characterised by sequence and consequence, often discussed by the narrator based on impact (Riessman & Speedy, 2007).

The sociological imagination (noted in section 4.2) comes into consideration here. To make sense of life from a sociological standpoint (Laslett, 1999), it is important to include the historical, political, and cultural context within the construction of the CNF story (Levine-Rasky, 2019). Further, the stories must be situated within a broader framework which comments on wider issues. The CNF stories presented in this thesis revolve around the historical and cultural impact of the British nuclear testing programme, while discussing the salient issues of ageing, loneliness, and identity.

The retelling of the story by the researcher creates a new context, with ownership of the story becoming confounded (Shuman, 2017). This is especially true when the retold story reaches a wider audience, such as the public (Bamberg, 2010). CNF writers devise stories which encapsulate the ‘truth about reality as they find it” (Caulley, 2008, p. 444); which normal realist tales simply cannot do (Tierney, 2002). A significant benefit of CNF is the communicative power it has for dissemination (Holloway & Brown, 2016). Using CNF means it does not only make sense to academic audiences (Smith, 2013), but to *any* and *every* reader; they should resonate with the story due to reminders that these are real accounts from real people (Todres & Holloway, 2006). Other strengths of CNF include its ability to communicate theory and research findings (Ellis, 2004); uphold confidentiality and anonymity (Smith et al., 2015); encourage multiple understandings of human life and lived experience (Carless et al., 2014; Clayton, 2010; Frank, 2010); and encompass narrative’s desire to offer a deeply embodied experience for the reader through vivid and sensual description (Sparkes & Smith, 2012).

Despite these benefits, CNF has faced critique for several reasons. Frank (2010) notes that because it rejects the pursuit of absolute truth/one single reality and invites readers to form their own understandings, researchers need to be aware that the desired impact (e.g., raising awareness, providing a platform for the marginalised group) may be lost. To address this potential limitation, the present study has provided a comprehensive historical, political, and scientific introduction, explored key areas of literature (ageing, loneliness, veteran identity, physical, leisure and community activities for health and wellbeing), critically discussed the methodological and ethical issues, outlined the research design, and provided a preface before the CNF stories.

As discussed above, CNF stories are developed using methodically collected data and meticulous analysis, yet representation using fiction can equal rejection from traditional scientific communities and journals due to the belief that it is simply ‘made up’ (Sparkes, 2002). Therefore, one limitation of using this as a method is the risk of being disregarded on the premise of traditional criteria of validity, reliability, and truth (Smith & McGannon, 2018). As Burroway (2003) argues, truth is subjective and impossible to determine using words alone; word choice is based on experience, cultural and personal influences.

Despite making research findings more accessible, CNF has been criticised in a similar way to autoethnography (a method which encompasses researcher experience while conducting the research; Ellis & Bochner, 2000). Using a method which acknowledges researcher influence is sometimes misconstrued as exhibitionism (Wolcott, 1997). Yet, this view is misinformed, as any academic writing can be difficult to do well (Smith, McGannon & Williams, 2015); employing CNF because it is fashionable would be a mistake, researcher should always methods of representation which best serve their purpose (Smith et al., 2015).

As this study represents the findings using CNF, the rigour and quality should be judged accordingly, as there is a delicate balance to be struck between integrity of the data and creativity (Sandelowski, 1998). In line with suggestions by Whittemore, Chase and Mandle (2001), both the nature and meaning of the participants' narratives have not been altered to preserve the integrity and credibility of the CNF stories. As discussed in section 4.5, the present study should be against the following criteria: worthiness and substantive contribution, meaningful coherence, expression of reality, aesthetic merit, and evocation (Richardson, 1999; Richardson & St. Pierre, 2005; Smith et al., 2015; Smith & McGannon, 2018). Witnessing a nuclear explosion and fearing potential health consequences are experiences that are unique to the BNTV community. The ageing process, suffering with loneliness or isolation, and loss of a loved one, meanwhile, are presented in ways that confront the audience into acknowledging issues that are commonplace but may be uncomfortable to read. Using literary techniques within the CNF stories creates the emotional atmosphere to intellectually and emotionally portray the BNTVs (Tracy, 2010), while also creating an incitement to act outside of the context of this study. As noted in section 4.2, there is potential for this study to lay the foundations for future research and development of a programme to support this community.

4.7 Research Design

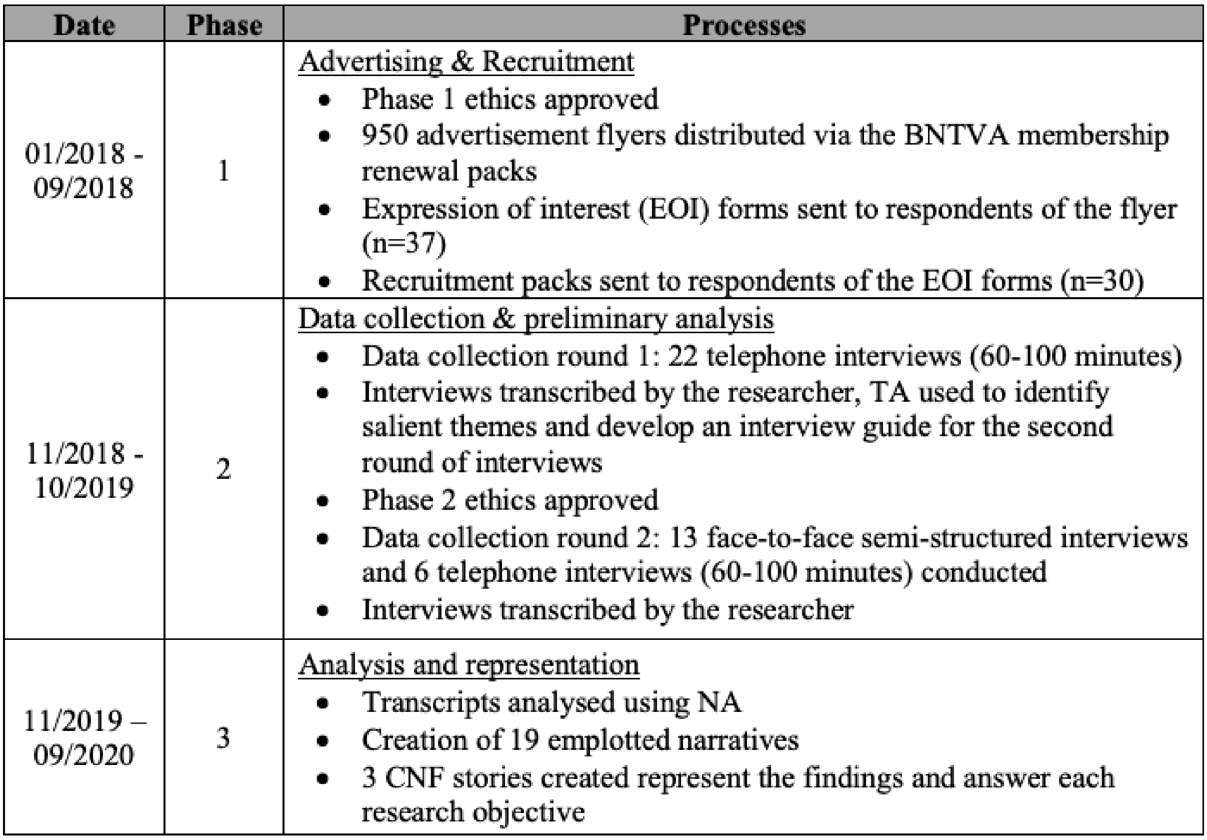
Having presented a critical and detailed discussion of the methodological underpinnings of the present study, the research design will now be outlined. The primary aim of this research is to understand the possible processes by which cultural, physical and/or leisure activities may help and contribute to improving the health and wellbeing of the ageing BNTV community. The objectives are as follows:

i. To understand the complexities of BNTV identity within the community
ii. To critically explore health and wellbeing issues within the BNTV community

iii. To identify and analyse types of leisure activities that can enhance wellbeing and the reasons for engagement within this unique ageing population

To meet these research objectives, this biographical narrative study employed a three-phase strategy (see table 1). The precise content of each phase was developed iteratively and from the findings from the previous phases. Two rounds of life history interviews were conducted between November 2018 – October 2019. Data analysis was conducted using NA, and CNF was used to create three stories to represent the experiences and voices of the participants (see section 4.10).

Table 1. The biographical narrative strategy of the study



Date	Phase	Processes
01/2018 - 09/2018	1	<u>Advertising & Recruitment</u> • Phase 1 ethics approved • 950 advertisement flyers distributed via the BNTVA membership renewal packs • Expression of interest (EOI) forms sent to respondents of the flyer (n=37) • Recruitment packs sent to respondents of the EOI forms (n=30)
11/2018 - 10/2019	2	<u>Data collection & preliminary analysis</u> • Data collection round 1: 22 telephone interviews (60-100 minutes) • Interviews transcribed by the researcher, TA used to identify salient themes and develop an interview guide for the second round of interviews • Phase 2 ethics approved • Data collection round 2: 13 face-to-face semi-structured interviews and 6 telephone interviews (60-100 minutes) conducted • Interviews transcribed by the researcher
11/2019 – 09/2020	3	<u>Analysis and representation</u> • Transcripts analysed using NA • Creation of 19 emplotted narratives • 3 CNF stories created represent the findings and answer each research objective

4.7.1 Participants

The participants for this study were recruited using the following criteria:

a. a former member of the Armed Forces OR be a direct descendent of a Veteran (aged 18 years and above) OR be related through marriage (e.g., wife)
b. formerly stationed in at least one of the nuclear testing sites if they are a veteran
c. a current or former member of the BNTVA
d. born between 1933-1940 if they are a BNTV
e. a witness to at least one nuclear test/involved in the clean-up operation if they are a BNTV

23 participants were recruited in phase 1 (19 males, 4 females) with an average age of 80.4 years old. 26 participants were interviewed for round 2 (16 males, 10 females) with 3 male veterans self-withdrawing from the study. The number of female participants during round two increased as the wives of veterans were recruited to take part in the face-to-face interviews alongside their husbands. An interesting point to note is that this study recruited a majority of male participants (n=19 or 65.5%) compared to female (n=10 or 34.5%). As pointed out by Anderson et al (2016) and Leontowitsch (2012), engagement of older male participants within research is lacking. The characteristics of the participants (pseudonym, age, marital status, armed forces engagement, serve length and nuclear test involvement) are presented in table 2.

The present study used the following strategy to build rapport with the participants: recruitment flyer in BNTVA renewal pack (see appendix 3), EOI form (see appendix 4), invitation letter for each stage of data collection (see appendix 5), thank you cards, and life history interviews. These phases are discussed in greater detail in sections 4.9 and 4.10.

Table 2. Sample characteristics of the participants in this study. (Not known (NK), Non-applicable (NA)).

Pseudonym	No. of Interviews	Age	Marital status	Armed Forces	Regular/ conscript	Serve length (yrs)	Test location
Mandy	2	83	Widow	Husband in RAF	N/A	N/A	N/A
Sam	2	87	Widower	Army	Regular	8	Montebello
Gladys	2	76	Widow	Husband in RAF	N/A	N/A	N/A
Phil	2	75	Widower	Royal Navy	Regular	37	Christmas Island
Jeremy	2	83	Married to Myra	RAF	Conscript	2	Maralinga
Myra	1	NK	Married	N/A	N/A	N/A	N/A
Percy	2	86	Married to Judy	RAF	Regular	18	Christmas Island
Judy	2	NK	Married	N/A	N/A	N/A	N/A
Jim	2	80	Married to Beatrice	Army	Regular	12	Maralinga
Beatrice	1	NK	Married	N/A	N/A	N/A	N/A
Matthew	2	81	Widower	Army	Conscript	3	Christmas Island
Bernard	2	81	Married to Moira	RAF	Regular	30	Christmas Island
Moira	1	NK	Married	N/A	N/A	N/A	N/A
Jerry	2	83	Married to Dawn	RAF	Conscript	2	Christmas Island
Dawn	1	NK	Married	N/A	N/A	N/A	N/A
Muriel	2	72	Widow	Husband in Royal Navy	N/A	N/A	N/A
Paul	2	80	Married to Alice	RAF	Regular	22	Christmas Island
Alice	1	NK	Married	N/A	N/A	N/A	N/A
Ike	2	76	Married to Fern	Royal Navy	Regular	9	Christmas Island
Fern	1	NK	Married	N/A	N/A	N/A	N/A
Malcolm	2	83	Married	RAF	Conscript	3	Christmas Island
Phillip	2	79	Married	RAF	Conscript	2	Christmas Island
David	2	80	Cohabiting	Royal Navy	Conscript	2	Christmas Island
Marvin	2	83	Married	RAF	Conscript	3	Christmas Island
Henry	2	82	Married	Army	Conscript	2	Christmas Island
Earl	2	76	Divorced	RAF	Regular	15	Christmas Island
Roderick	1	83	Married	Army	Conscript	2	Christmas Island
Eric	1	86	Married	Army	Regular	22	Montebello
Roy	1	80	Married	Army	Regular	22	Maralinga

4.7.2 Ethical procedures when working with a vulnerable population

Ethical approval for this study was granted from the Brunel University London Research Ethics Committee (ref no. 8921-LR-Feb/2018- 11695-2 and 11536-MHR-Aug/2018-14031-4) to advertise, recruit and interview participants using telephone and face-to-face interviews. The key ethical considerations of the present study outlined to the Ethics Committee were recruiting an older population, informed consent, and the right to withdraw, participant burden, psychological distress, health and safety, confidentiality, and storage of personal data. Potential perceived participant burden has been addressed using multiple ethics phases over the course of this project. Phase 1 allowed for initial contact and evaluating capacity for involvement. This initial contact revealed a high level of commitment of the participants to all phases of the research.

An information sheet was provided during both rounds of interviews, outlining the purpose of the study, their right to withdraw without providing an explanation and how their data would be used. Written and verbal consent was obtained from each participant prior to each interview taking place; they were reminded, verbally, of the purpose of the study and their right to withdraw. Although the topics discussed had the potential to be emotionally difficult, the interviews gave participants the opportunity to narrate their own life stories and engage in self-reflection (Frohmann, 2005). During the interviews, breaks were offered, and the topic was changed to a less sensitive issue if cues of discomfort were noticed by the interviewer (Cowles, 1988).

A new culture of safety and risk prevention has been developed within research communities (Pronovost & Sexton, 2005). It is now mandatory for researchers to contemplate, calculate, and cope with any adverse incidents during the research process (Shaw & Barrett, 2006). Lone working was necessary due to the face-to-face nature of the interviews (Pyer & Campbell, 2012); as such, safety protocols were discussed with the supervisory team. A lone working policy was applied (Pyer & Campbell, 2012), with the first supervisor and centre manager for the CHRC monitoring the whereabouts of the researcher.

Researchers should be aware of the potential for the emotional and mental impact of working with ‘real’ people (Parker & O’Reilly, 2013); interviews can be demanding and stressful to an individual whether they are new to the research role or experienced (Johnson &

McLeod-Clark, 2003; Coles & Mudlay, 2010). The researcher debriefed with supervisors and colleagues when necessary.

Asking an individual to share their life storied necessitates the need to discuss ethics revolving around trust. The life history process revolves around this relationship, yet no rules or guidelines exist for developing trust and rapport in research (Guba & Lincoln, 1994). How rapport was developed with the BNTVs is detailed in section 4.9.1, but these relationships were built on mutual respect and trust (Hatch & Wisniewski, 1995). This was particularly paramount as obtaining these life stories is an intimate experience between the researcher and participant (Goodley, 1996).

During interviews, participants reveal intimate and private elements of their lives through skilful interview questions, in return for, sometimes, flimsy assurances of confidentiality (Finch, 1984). By focusing on a social/cultural/historical phenomenon, and especially if the members of that community are relatively unknown, preserving confidentiality can be difficult (Elliot, 2005). The participants' unique nature makes individuals recognisable to those who know them - despite not disclosing locations and using pseudonyms (Elliot, 2005). One way to overcome this is to preserve anonymity through fictional characters within a fictional setting (Elliot, 2005). The present study utilised CNF to represent the lived experience while also ensuring confidentiality and anonymity. Pseudonyms were used and specific dates/locations were changed. The EOI forms, consent forms and transcripts of the interviews are kept securely in a locked office on campus at Brunel University London. All interviews were recorded using an Olympus WS-852 Digital Voice Recorder and were then transferred onto a password protected computer.

4.8 Phase 1: Advertising & Recruitment of BNTVs

A relationship with the BNTVA was instigated prior to participant recruitment. Members of the committee and the chairman of the BNTVA were invited to the Centre for Health Effects of Radiological and Chemical Agents (CHRC) at Brunel University London on several occasions. In so doing, the chairman could offer insights directly from the community. Following this, the first phase of the study (advertise and recruit) involved sending 950 flyers (see appendix 3) were placed in the renewal pack of the BNTVA's membership in January 2018.

Other recruitment activities included the principal supervisor presenting the research objectives at the CHRC open day at Brunel University London on 08/02/2018. This event received press attention, resulting in a segment on BBC Breakfast with Dr. Rhona Anderson (CHRC Director). In May 2018, the CHRC was invited to attend the BNTVA's Annual General Meeting in Weston-Super-Mare. The researcher's presence at this event allowed for face-to-face interaction and recruitment.

All individuals who contacted the CHRC based on the flyer and press attention received a phone call from the researcher to provide information about the study and address any queries. In June 2018, 37 individuals were sent an EOI form. The EOI form (appendix 4) was created using demographic questions and allowed the researcher to determine average age, location, if the individual was a BNTV, direct descendent or partner, their opinion of the nuclear testing programme and health problems.

Of the 37 EOI forms distributed, 30 EOI forms were returned. All 30 individuals were deemed to be in keeping with the inclusion criteria and were sent a 'recruitment pack' (invitation letter, participant information sheet and a consent form). One veteran passed away and six participants decided to withdraw prior to the interviews commencing. Those remaining were requested to return the consent form along with suitable times/dates for a telephone interview. Between data collection round 1 and 2, the participants were sent a personalised letter, another consent form and information sheet for the second round of interviews in June 2019. This was to ensure that they did not feel bound to each stage of the research and could withdraw at any time. Additionally, it allowed an audit trail of written consent to be kept and to continue developing rapport.

The participants had an average age of 80 years old and lived-in various locations in the UK and abroad; all had varying levels of independence, mobility, financial wellbeing, and cognitive competency (Schröder-Butterfill & Marianti, 2006). Participants of this age group are unlikely to engage with research if they are required to independently travel for it (Davies et al., 2010). Thus, all face-to-face interviews were conducted in the participants' homes with their consent.

4.9 Phase 2: Recording life histories

Two rounds of life history interviews were employed to capture the lived experiences of the BNTV community (Kvale, 2007). For the first round, unstructured telephone interviews were used to initially understand their biography in a conversational but meaningful way; it allowed the participants to speak freely with little input from the researcher (Bertaux & Kohli, 1984). Instead of questions, broad topics were used to steer the interview (informed by archival analysis, and discussions with the supervisory team), and included armed forces history, nuclear testing experience, current health and wellbeing, politics of the BNTVA, family life and daily activities (see appendix 8). The researcher initiated the interview using open questions such as, "can you tell me about your experience of…" Subsequent questions were then formulated depending on the participant's responses (Holloway & Wheeler, 2010). These interviews permitted conversations to begin while planning the second immersive interview. Having an open and iterative approach to interviewing allows participants to feel comfortable, especially when talking to an interviewer for the first time (Gadamer, 2013).

The second life history interview employed purposeful questioning (Bertaux & Kohil, 1984; Kelly & Howie, 2007) by adopting a semi-structured interview guide (see appendix 9) and embedding tailored questions for each participant. Tailoring the questions and having an interview style that actively engages the participant (Riessman, 1993) ensured topics/experiences or events that needed more depth and clarity were given greater attention. This was also to ensure that all participants felt the researcher had engaged with the previous interview and had a genuine interest for the intimate stories they were sharing. A combination of descriptive (e.g., what is daily life like?), structural (e.g., can you describe how being a nuclear test veteran has shaped your life?) and contrasting questions (e.g., how do you think being a nuclear test veteran makes you different to other people of a similar age?) were used. These questions encourage the participant to speak frankly about their experiences and the meanings they have attached to them.

Notes were taken during interviews for reflection (see section 4.5.2 regarding reflexivity). Riessman (1993) suggests that the researcher needs a high level of attention to detail when conducting narrative interviews; however, this also applies to the immersion of the data. Becoming immersed creates a connection with the stories and specific details within them; immersion in each participants' narrative then formed the foundations for developing the CNF stories (see section 4.10).

4.9.1 Building trust and rapport

Rapport is a "harmonious, sympathetic connection to another" (Newberry & Stubbs, 1990; p. 14); however, training for how to develop trust and rapport is not offered to researchers. Therefore, interpretations of what it entails, and how to implement it differ (Abbe & Brandon, 2014). Developing strong relationships with the participants is crucial to the success of a life history study (Hagemaster, 1992). It requires the researcher to create an environment of trust and respect for the interviewee and the information they are sharing (DiCicco-Bloom & Crabtree, 2006). Consequentially, building trust and rapport for this study and was embedded during each phase.

Having only networked with the organisations prior to data collection, I had not met any of the participants. Following flyer distribution, the process of building trust began through ensuring that every query received a reply; allowing individuals to ask questions that they felt were important. I was then able to answer them and explain the purpose of the study and what their involvement would entail. Once the EOI forms (n=30) were returned, I sent back a personalised and hand-signed letter outlining my gratitude and inviting them to participate in a telephone interview. The participants were also sent an information sheet, consent form and a calendar for the month with their availability for the interview. This gave them autonomy in choosing when and if they would like to proceed with the study.

Following completion of the telephone interviews, the participants received another personalised and hand-signed letter of thanks and to inform them of the next stages of the study. I explained what I would be doing in the months following their interview (transcription and analysis). During the analysis, the participants were sent a holding letter informing them they would receive a phone call and an invitation for a second interview within three months. The purpose of these letters was to ensure they did not feel abandoned and continue to earn their trust by staying in communication with them.

True to my word, I contacted each participant by telephone within three months of the holding letters being sent. The phone call was conversational, friendly, and open rather than formal. For those invited to a face-to-face interview (n=20), availability for May and June 2019 was discussed. Each participant was asked where they would like their interview to take place; all responded by saying they would feel comfortable for me to conduct it in their home. This was a clear sign that the effort put into gaining the trust of the participants had been successful (Wittels & Mansfield, 2021). Not all participants (n=6) were invited for a face-to-face interview due to geographical location (e.g., one veteran lived in Canada) and financial constrictions (e.g., the budget only covered the hiring of a car for four weeks with two overnight stays). To ensure all participants remained engaged, six individuals took part in a second telephone interview. As the personalised letters proved to be welcomed by the participants, a letter of confirmation of our conversation with the chosen day and time for the face-to-face or telephone interview was then sent.

On the day of the face-to-face interviews, I provided a cake to say thank you for their time and to ensure they did not feel as though I was there purely for their own gain. During many of the interviews, we shared this cake over a cup of coffee; this allowed the individual to engage in everyday topics of conversation. In a similar way to Wiles et al. (2019), the sharing of food was considered a powerful cultural dimension of exchange, recognition, hospitality, and care. The tailored questions during these interviews also contributed to building rapport. This was evident from the responses given, whereby many would begin their answer with, “oh yes, we briefly touched on that last time,” or, “you remembered!”

The face-to-face interviews allowed the participants to share personal photographs, military memorabilia, medals, and their pets with me. Like Wittels and Mansfield (2019), I felt welcome in the homes of the participants and as though I was someone that they could confide in and trust – with one participant commenting ‘you’re beginning to feel like a friend!’ Four weeks after the final interview, every participant was sent a handwritten ‘thank you’ card. The analysis process occurred in December 2019 and this immersion in their stories had created a feeling of deep involvement. Knowing that some individuals may have been alone over the Christmas holidays, every participant was also sent a Christmas card; I wanted the BNTVs to know that their involvement in the study was still appreciated four months after speaking to them.

4.10 A framework for NA and CNF

A large amount of data was collected, consisting of the EOI forms (n=39), total audio recording time (n=56.45 hours), interview transcripts (n=639 pages), photographs/leaflets from the participants, and the reflexive notes of the researcher. TA was employed in this study for the analysis of round one transcripts and the development of the round two interview guide only. For round two analysis, TA would have limited the data by sanitised and systematic themes (see section 4.3.1), therefore, NA was employed.

Many scholars have noted the lack of common procedure when using NA (e.g., Emden, 1998; Priest et al., 2002). Several models and frameworks exist (e.g., Dollard, 1949; Emden, 1998; Kelly & Howie, 2007; Orr et al., 2020; Polkinghorne, 1995; Riessman, 1993; Seidman, 1991), but tend to fail to account for NA's nonlinearity and need for complete researcher immersion. Therefore, in line with Priest et al.'s (2002) recommendation, the present study has developed a framework (see figure 2), consisting of a series of overlapping, reflexive, and iterative processes. This novel approach to NA and CNF story creation offers researchers both a scrupulous method of NA and creative representation - dovetailing the narrative principles of storytelling. A detailed discussion regarding this representation method is in section 4.6; the foundations of these stories are the significant events, explanations surrounding why these took place and the effect these have had on their lives (Smith, 2016). The methods used to bring these stories to life is of importance for the purposes of researcher transparency, evaluation of the methods used and reliability of the findings.

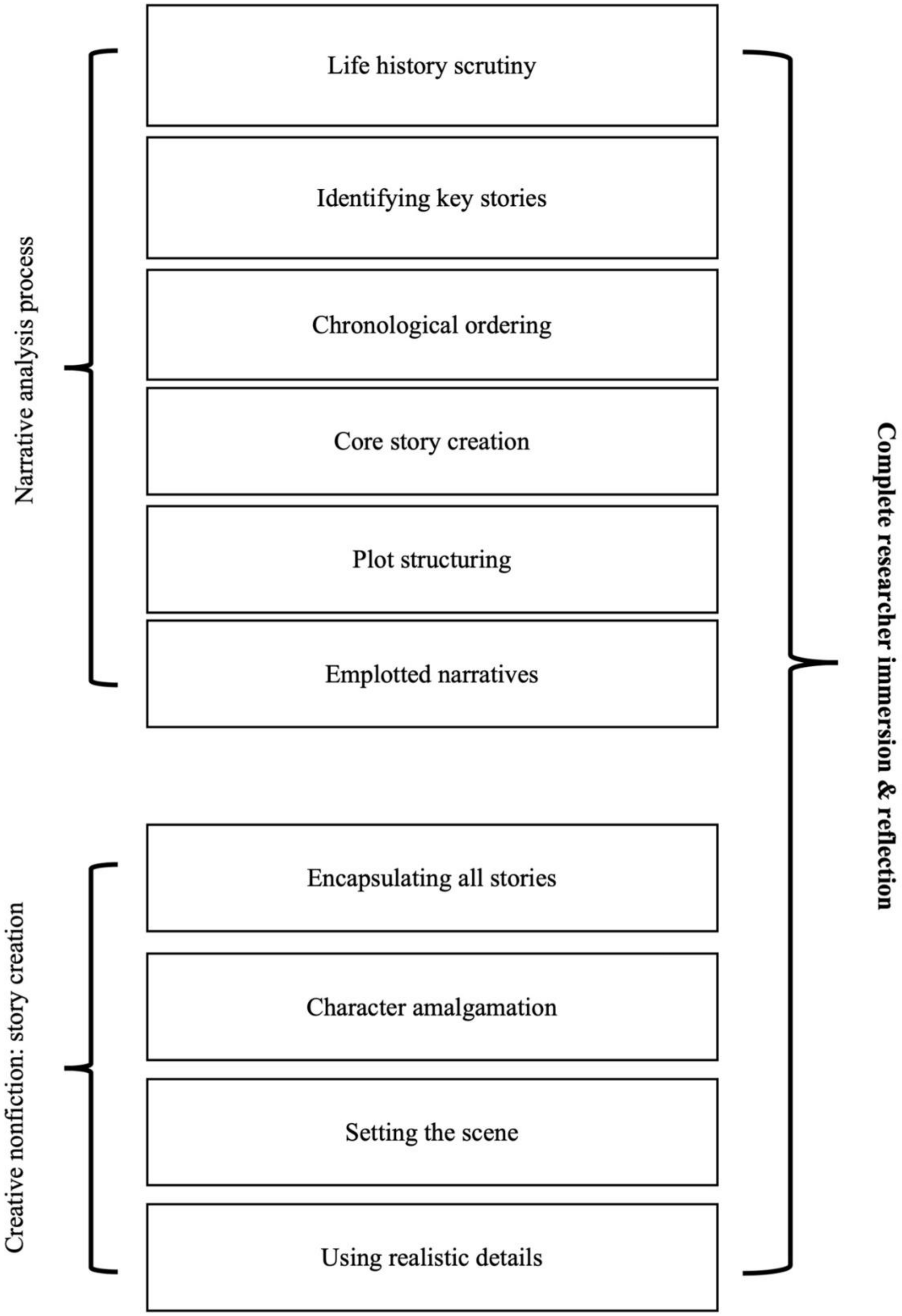


Figure 2. The combined NA and CNF framework developed and employed in the present study

In a similar way to other NA models, the NA process begins by connecting with the participants' story. This immersion began with transcription (± 10-12 hours per audio file) and continued throughout the story creation process. The researcher must be immersed within the world of the participants; this involves relistening to the interviews and rereading the transcripts multiple times. Other models (e.g., Kelly & Howie, 2007) have detailed the steps of scrutinising the life history (contextual features, embodied nature, influence of significant others, choices and actions and historical continuity), identifying the key stories and placing these in chronological order (Polkinghorne 1995; Riessman 1993; Seidman 1991). In so doing, the researcher can craft the core story of each participant (Emden, 1998) and create an emplotted whole narrative (a process of disclosing the significance of the story through identifying connections between cause and influence).

In practice, this culminated in the following steps for each of the 19 transcripts: (i) removing the input of the researcher within the transcript, as well as repetition or sentence fillers (e.g., 'umms' and 'errs'); (ii) identifying elements/events which appeared significant to the individual; (iii) creating a chronological framework (e.g., life before, during and after involvement in the nuclear tests) and placing these events in a temporal order; (iv) stitching these events together to create a core story; (v) editing the core story to ensure a clear plot was forming; (vi) and finally, checking the narrative to ensure it makes sense, is concise, and conveys the feeling of being told someone's life story. Indeed, these steps of analysis provide the foundations for then creating a story using CNF. It is important to note, the creation of the CNF stories depends on producing these emplotted narratives and the researcher's level of immersion.

Recommendations on how to craft CNF stories are described by Caulley (2008), however, a set of processes for social scientists is lacking. Therefore, this NA and CNF framework offers researchers the opportunity to represent their participants in a rigorous but creative way by following the four key steps as outlined in figure 2. In so doing, the researcher can turn the emplotted narratives into engaging and evocative stories. To encapsulate the stories, the 'big' stories, 'small' stories, shared experiences, and exceptional experiences from all the participants need to be included (Phoenix & Sparkes, 2009). The mundane, everyday interactions are as important as the more impactful life events (e.g., favourite type of cake/hot drink, lack of social connections, and flashbacks to memories of loved ones). To overlook these interactions are a shame, as 'small' stories are extremely insightful into identity, providing the ‘how’ of narrative (Bamberg, 2006; Gubrium, 2006). In practice, this involved referring to the temporal framework for each participant during the NA process, grouping these experiences according to whether they were shared/exceptional/big and small, and identifying the overarching issue to be discussed (e.g., loneliness, health consequences, ageing; highlighted in figure 3).

Due to having 19 narratives from 26 individuals (six were crafted as a husband-and-wife conversation), participants needed to be clustered into categories. As such, they were put into the following categories: national servicemen or regulars, married, single or widowed, and those who were actively engaging in life activities and those who were not. Creating categories like this then allowed for the encapsulation of participants’ stories and the amalgamation of characters to represent similar defining qualities. As an example, in ‘An Unlikely Meeting’, the character of Harry speaks on behalf of those who were conscripted in the forces (eight participants), while Sam depicts those who willingly joined (nine participants). This allowed for rich detail and description to be included from all the participants regarding life in the forces from two different perspectives. As can be seen in figure 3, each story (An Unlikely Meeting, In Sickness and in Health, and Age is Just a Number) are linked by a particular narrative thread: BNTV identity and feeling like an outsider. The shared experiences for each story are similar (e.g., loneliness and ageing). Through the art of weaving these common threads into each story, every participant was included and represented as an amalgamation using encapsulation and character amalgamation.

When writing the story, the scene needs to be set for the reader. To do this, a location needs to be chosen, characters need to be designed (e.g., describing their appearance/clothing) and a back story needs to be created for them (e.g., family members, hobbies, or careers). To ensure these are grounded within the data, the researcher should use information from the emplotted narratives and interview notes. Importantly, the characters should be relatable and easy to imagine. In this study, the settings for each story were a high street café, a family home, a doctor’s surgery, and a church hall. These were all places that would be familiar to any reader regardless of age or life experience but were also places that were key within the participants’ lives. The café for ‘An Unlikely Meeting’ was chosen on the basis that many of the BNTVs considered ‘going for a coffee’ a key part of their weekly routine – be it alone or meeting friends. The doctor’s surgery for ‘In Sickness and Health’ was chosen due to the significance health and social care has many older adults, but particularly due to the BNTVs reluctance to seek help when they desperately need it. Finally, the church hall/community centre in ‘Age is Just a Number’ was a natural choice due to the BNTVs involvement in church, community activities and volunteering.

The characters were designed to have similar physical characteristics as the participants; this description came from the experience of meeting them face-to-face, the photographs that were shown during the interviews or images that had been seen during archival exploration. For example, “Sam could see him better now. He had a ring of grey hair around his head, bushy grey eyebrows, and the lines of age on his forehead and around his eyes. He was smartly dressed in a white shirt, navy tie and a black blazer jacket” (from An Unlikely Meeting). For the character back stories, this information came from the transcripts and included their childhood and upbringing, how they came to join the armed forces, careers outside of the military, personal relationships, family dynamics, caring for family, the feelings of loss following the death of a significant other, and their current circumstances. For example, “to be honest, I had no life while I was looking after him. Kevin’s MS was progressive, so really, I have been a widow since the 1970s. Just living, existing, not knowing who to speak to, not knowing who to talk to about it” (from In Sickness and Health).

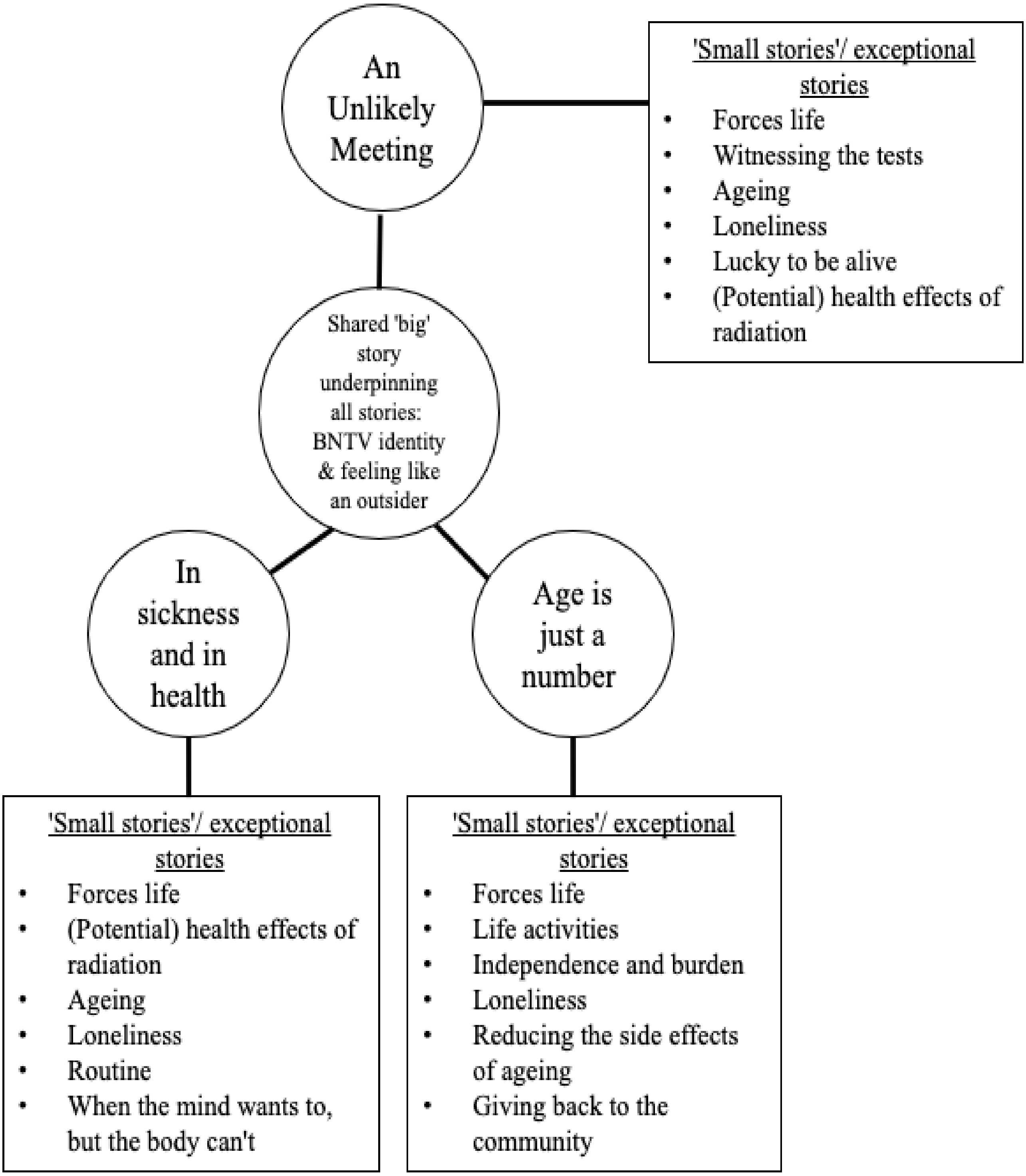


Figure 3. Salient ‘stories’ used in the process of creating the CNF stories

The final aspect to this framework involves the writer acknowledging the absolute necessity for realistic details within their story and the use of literary conventions to portray them. Within a realist tale, the findings are relayed without the need for imagination; CNF requires findings to be recreated as scenes using metaphors, similes, flashbacks, perspective, onomatopoeia, and/or hyperbole. Using the emplotted narratives provides the writer with, sometimes, ready-made scenes that can be modified to suit the story being created. The verbatim from the emplotted narratives should be used to create speech between characters or to describe events in the participants' own words. During the writing process (see appendix 10 for an example of creating a CNF story), the writer should ensure they are critically reflecting on the characters, scenes, and issues they are portraying. For example, "I think it's Navy culture to drink and block out the memories. He would have very dark moods; if he had a problem, he would put it in a drawer and forget about it for a little while" (from Age is Just a Number). The stories should be an accurate representation of the participants that have trusted the researcher and shared their life experiences; being reflexive on one's narrative privilege (section 4.5.1) here is essential. Overall, using the steps proposed by this framework to create a CNF story highlights that the entire process is rigorous, systematic, and grounded within the data.

It should be noted that during the NA process, the emplotted narratives were not returned to the participants for verification. While this may be considered a limitation to have not used member checking, there are several reasons for this. By having a cohort of 29 participants, the time to collect and analyse the data was limited and would not have allowed for months of member checking. Emden (1998) recommends returning the full text to check for truthfulness; however, a selection of these were instead given to a non-academic reader to check for understanding and flow. Additionally, returning transcripts to participants can cause feelings of embarrassment/distress when intimate details are shared with the researcher (Carlson, 2010). While it can offer therapeutic benefits (Harper & Cole, 2012) this brings questions to fore about the role of the researcher and the process of interviewing (Birt et al., 2016). Indeed, the aim and objectives of this study were not designed to offer any form of transformation or therapy (Cho & Trent, 2006).

4.11 Strengths and limitations

It is important to acknowledge some of the strengths and limitations of this work – as all research has its strengths and weaknesses. The major strength, which has been discussed in section 4.9.1, is the rich data that was acquired through the time take to build the strong relationships I had with the participants. This includes the hand signed and timely letters, the time made available to them if they had questions, keeping promises, taking cake to interviews, and sending Christmas cards. The information that was provided through the rapport that was built proved to be deeply personal, thought-provoking, and honest. Not all the participants took part in the second round of life-history interviews, this is a reality of working with an ageing population, as some sadly, passed away before they could be interviewed again. This was not a detriment to the research; instead, the decision was made to recruit the wives of the veterans who were present during the interviews with their husbands. These female participants added another level of richness to the interviews, offering different perspectives of the impact of the nuclear testing and their day-to-day lives.

The deep analysis process (see section 4.10) was rigorous, and I became completely immersed in the transcripts and life histories of my participants. The key stories that came to the fore came out of continuous reading and discussion. Moreover, these life histories represented a subject that has been largely hidden from public discourse; through the use of CNF these experiences are, now, being brought to life and confront the reader with the potential consequences of being part of the biggest peace time operation since D-Day. One of the greatest strengths of this work, is that it provides a marginalised and unique community with a vehicle to speak their truths before it is too late, and they are lost forever.

While I understand that other researchers might have interpreted this data differently, and this data cannot be generalised to other veteran groups that is not the yardstick qualitative research claims to hold itself to (as discussed in this chapter). The methods of data collection and analysis could be repeated with the same participants, however, that is not to say the same data would be collected; I believe this based on the quality relationships I had built with the BNTVs and their families.

To have 29 individuals take part was an achievement, especially since they were older male veterans (a hard-to-reach demographic within research); yet a limitation of this work could arguably be that it is not representative of the entire BNTV community. That is a (perceived) weakness of all qualitative research studies, but it would have been impossible to apply the same level of analysis to a much bigger sample of participants. This is due to several factors: time for data collection and analysis, funding constraints to reach more participants face-to-face, and the age of the participants. Further, the recruitment of the participants relied on flyers sent at the same time as their BNTVA membership renewal letters and word of mouth; without being able to directly recruit using online platforms (e.g., social media), the process is somewhat more difficult. On this basis, the participant group were self-selecting and wanted to take part because they felt it was their responsibility to educate others on the impact of the nuclear testing, that it may further their political agenda, or because it was simply of interest to share their stories.

4.12 Chapter summary

Having presented a critical discussion of the methodological position of the present study, the research design and the methods that were used to collect, analyse, and represent the data, the next chapter of this thesis presents the findings of this research in the form of a CNF 'book' of British Nuclear Testing Experience - as told by the 41 individuals who took part in this study.

Chapter Five

Beyond Nuclear Testing: Unheard Voices of the Affected

Preface

Whilst discussions around the race to develop, test, and use nuclear weapons should be framed within the context of the 1950s and 1960s, we must also remember that the use of nuclear weapons continues to be a topic of public debate and global controversy today. The battle for nuclear disarmament has been raging since 1957, with the founding of the Campaign for Nuclear Disarmament in response to the fear of nuclear conflict and potential effects of radiation. In November 1957, the New Statesman magazine published an article by J. B. Priestly in which he stated:

"Now that Britain has told the world she has the H-bomb, she should announce, as early as possible, what she has done with it, that she proposes to reject, in all circumstances, nuclear warfare. What should be abandoned is the idea of deterrence by the threat of retaliation. There is no real security in it, no faith, hope, nor charity."

Sixty-four years on from this article we are still questioning whether nuclear weapons are required for international deterrence, or if the incredible cost and risk overshadow the perceived benefits. Humankind is at a junction, with the latest science, technology and innovation in weaponry challenging the traditional paradigm of national security. To the wider public, it seems nonsensical to continue funding weapons which would ultimately result in mutual assured destruction, everlasting environmental damage, and untold pain to those exposed to the radiation. There will never be a true victor in the event of nuclear war.

The nuclear weapon legacy, a product of the Second World War, has culminated in these dogmas that still prevent complete nuclear disarmament in 2021. The Comprehensive Nuclear-Test Ban Treaty, signed in 1996, has yet to become international law. In optimistic news, on 22nd January 2021, The Treaty on the Prohibition of nuclear weapons (TPNW) was entered into force. This signaled the first step into a new nuclear world order and banned the development and possession of nuclear weapons. Despite this, the use of these destructive weapons remains a very real and looming threat. Despite no deployment of nuclear weapons since 1945, the three original nuclear superpowers (USA, UK, and Russia) continuously embark on new nuclear weapons programmes and pump more money into defence systems. One underlying problem is the narrative surrounding war and defence. If *they* are building a bigger weapon, *we* must do the same.

Perhaps even more concerning is their resolve on deploying nuclear warheads if deemed necessary. Not too long ago (in 2017), Donald Trump's presidency was littered with threats to start nuclear war; in particular, to bring *"fire and fury"* on North Korea. Using defence as the narrative, he tweeted vehemently, *"I too have a Nuclear Button, but it is a much bigger & more powerful one than his, and my button works!"* It is remarkable that threats to life can be made in such a juvenile fashion using social media.

What we tend to forget is that behind the science and innovation of nuclear weapons are human beings. Human lives. **People** built and tested these weapons.

The UK recruited ~22,000 members of the British Armed Forces to conduct 21 atmospheric nuclear tests (1952-1958) in Australia and the South Pacific. Many were conscripted as national servicemen, aged 18-21, and were uninformed of their objectives, nor the potential consequences of witnessing a nuclear explosion, until arrival. Being posted abroad would have been worlds away from their lives at home in the UK; they were sent to build airstrips, they lived in tents in 80-100% humidity, and importantly, were instructed to witness the bombs as they were detonated. In advance of their return, they were forced to sign the Official Secrets Act which prohibited them from speaking of their experiences of the tests to anyone. Silenced.

The lived experience of being part of the British nuclear testing programme, therefore, has not been discussed within research. Ultimately, this is because information relating to a country's nuclear capabilities are important state secrets; from conception to creation, the fear of unimaginable consequences is what has caused such an iron-clad level of control.

During the 1950s and 1960s, the potentially harmful effects of exposure and environmental damage were not yet understood nor made public knowledge. Aside from allowing Britain to become a nuclear superpower, the tests caused untold environmental damage, potential physical and mental health issues (e.g., cancer, miscarriage, stillborn births, cognitive worry), and potential genetic damage which will remain for hundreds of years. Seventy years on from the tests, the official position of the UK government in relation to the health effects of the tests remains: *"almost all the British servicemen involved in the UK nuclear tests received little or no additional radiation exposure as a result of participation."*

Such a position has culminated in the BNTVs to have a long-standing distrust of the government and MoD.

Readers of this thesis may have expected to find this chapter strewn with heavy in-text citations, yet CNF jettisons academic convention, and favours creativity. These stories were crafted to represent the experiences and interactions of the veterans and their families. They should be thought of as a narrative out of fact, like an autobiography. The characters in these stories are fictional but the dialogue between the characters has been taken from the interview transcripts. This means that these conversations are created using the words of the participants. You will read and feel the human experience of being part of the British nuclear testing programme, as well as the perceived impact it has had on them over sixty years later. Everything here is based on true events.

This work highlights the nuances of ageing and the ambivalence between serving one's country, being legally unable to disclose one's experiences and the lack of government recognition that has since followed. It is hoped that presenting the findings in this way will allow many more individuals, not solely those in academia, to understand them. I would like to thank all the participants who kindly took the time to speak to me at great length and have allowed me to share their stories – without them this would never have been possible. I hope that I have represented your words and experiences accurately, with the respect and care they deserved.

An Unlikely Meeting

On most days, usually around midday, Henry ventures into a café on a busy high street to read the newspaper, have a cup of tea, and eat a slice of lemon cake – his favourite. Today is the day that he decides to wear his blazer with the BNTVA emblem sewn on. He's never worn it there before. The café's owner, John, spots this and immediately recognises it. John informs Henry that every day at 1 o'clock, another British nuclear test veteran, Sam, comes into the café for a coffee and a piece of cake. In this story, two strangers meet by chance and engage in hours of conversation about their experiences of being part of the nuclear testing programme sixty years ago and life in the forces, love and loss, their ageing bodies, loneliness and feeling like outsiders. Over tea and cake, one national serviceman and one naval officer put the world to rights.

****

'Alright Henry? How's things?' the man behind the coffee counter asked.

Henry looked down at his shoes, thought for a moment, then replied, 'Not too bad John, not too bad. I'll have a cup of tea and a slice of your lemon cake please.'

He glanced at the cake stand, breathed a heavy sigh, and then made his way to his usual spot. Henry always chose to sit at the table by the window overlooking the busy high street. He liked to see people come and go, seeing them talking to one another, and laughing. He pulled out the chair and began his careful descent. He felt his knees click and crunch as he bent them, and the chair creak as he landed with force, 'these bones,' he tutted. While looking at the people in the café, Henry wondered about how much the world seemed to have changed. In the corner of his eye, he spotted a young couple. They were sat opposite one another, but they weren't looking or talking to each other, they were staring down at their phones, *romance, eh? Wasn't like that in my day*, Henry thought. There was a copy of The Times on the table, it had a few coffee spills on it but otherwise it was perfect for a midday meander through the current affairs.

'Brexit, Brexit, Brexit,' he groaned, 'Country's gone mad.'

His reading was interrupted, 'One cup of tea, and the *biggest* wedge of lemon cake for you, Henry!' John announced, proudly.

He placed the tea on the table, spilling it slightly, and creating a moat of tea around the cup.

‘Thank you, John, that’s great.’

Henry looked up and saw John staring at him rather oddly. He seemed fascinated by something. John bent down, level with Henry's lapel, squinting his bright blue eyes to focus clearly.

‘Sorry Henry, but what’s that on your jacket?’

Henry looked down at his blazer, baffled. Then he saw what John was referring to,

‘Oh, don’t worry about that John, it’s nothing,’ he said, throwing his hands up dismissively. He wasn’t in the mood to explain it. John carried on staring, and then, to Henry’s horror, slowly started reading it out loud,

‘British…Nuclear…Test…Veterans…Association…’ Henry raised his hand to his forehead, closed his eyes, and wished he had put on a different jacket this morning.

‘I’ve seen this before. Another chap comes in here every afternoon - he has the same emblem on his tie.’ Henry opened his eyes. He couldn’t believe it; did he hear him correctly?

‘Are you sure?’ he had never met another nuclear test veteran in over sixty years.

‘Trust me, one o’clock every day, I could set my watch to him.’

Henry looked down at his scratched watch face, it was 12.45pm. He took a sip of tea and moved the cake plate towards him. He could feel himself getting excited, the feeling of butterflies bouncing around in his stomach.

Henry lightly pressed his fork into the yellow, soft sponge. He tore a chunk off and brought it up to his mouth. Lemon cake was Henry’s favourite, Betty used to make it for him all the time. With each bite he took, things began to come back to him. He closed his eyes tightly, he could almost see Betty in front of him, s*he was so beautiful,* he thought. He remembered when his son was born, the wailing of a new-born baby entered his mind. His baby. The café was getting busier now, and the chatter was getting louder. The fancy coffee machine whirred continuously. The steam pipe screamed as it frothed the milk and yet, Henry still felt a sense of peacefulness sitting in the middle of it all. It was much better, to him, to be amongst the humdrum than sitting at home alone, waiting for the phone to ring – not that it ever really did these days.

******

‘Alright Sam? How’s things?’ John asked.

‘I can’t lie John, they could be better, but that’s life for you ain’t it! We all get older eventually.’ Sam replied.

‘We do Sam, we do.’

‘I’ve parked my scooter up outside, is that ok?’

John waved his hand in the air, ‘Of course! What can I get you today? The usual?’ John chirped.

‘Oh yes! Not one of these fancy mocha-choca-chino things. Normal black coffee, splash of milk, and I think today I will have...’ Sam scanned the array of cakes on the counter until his hawk-like eyes fell onto the Victoria sponge, ‘...a piece of this please!’

John signalled for Sam to take a seat and he would bring it over.

As it was now one o’clock on a cold Wednesday, most of the tables and chairs were occupied. Sam didn’t mind too much, he liked to see the café busy and doing well. He noticed a man of a similar age sitting on his own; he was poring over the newspaper and drinking a cup of tea.

‘Sorry to disturb you, would you mind if I sit here?’ Sam asked.

The man looked up at him and straightened. Sam could see him better now. He had a ring of grey hair around his head, bushy grey eyebrows, and the lines of age on his forehead and around his eyes. He was smartly dressed in a white shirt, navy tie and a black blazer jacket.

‘Not at all, be my guest.’

Sam pulled out the wooden chair and sat down. His eyes went back to the stranger opposite him. He was very intricate in his movements, he placed things down with precision and purpose. Then he saw it, he couldn’t believe it.

Sam leaned in closer, ‘Oh my goodness, you’re a…’

‘I’m a what?’ Henry said. Confused and slightly defensive.

Sam whispered, ‘A nuclear test veteran,’ as if it were offensive. He held out his tie in solidarity, ‘I am too.’

Time stood still. The noise of the café disappeared as the two men looked at each other. It felt like the meeting of two souls, even if that did seem dramatic for two old men sitting in a coffee shop.

They looked each other in the eyes, it was a feeling that transcended language.

‘One good old-fashioned coffee with a splash of milk and a piece of Vicky sponge,’ John interrupted, ‘Ahh, I see you two have met! I told you he’d be in at one o’clock!’

He placed the coffee and cake next to Sam, careful to not spill it this time, ‘Sam, this is Henry, Henry, this is Sam.’

They shook hands, *a strong firm grip, a real man’s handshake,* Henry thought. He felt like he had stepped back in time. For so long, Henry had felt like an outsider, as if he were carrying a terrific secret around with him. Now, he was meeting someone who might just understand what that was like. Henry had always felt as though he had passed through the veil, as it were, and felt lucky to still be here.

‘Naval Party 5555,*’* Sam announced.

‘Number 71, Atomic Squadron,’ Henry replied. Both raised their hand to their head and gestured a salute.

Henry looked at Sam carefully. He was quite short, bald, and had tattoos over his knuckles. He was wearing jeans, a white, short-sleeved shirt, a navy tie with the BNTVA emblem on it and a cardigan. As he arranged himself in the chair, Sam attempted to balance his walking stick against the table. Henry saw it starting to slip but Sam managed to catch it in time.

‘Bloody thing! I’ve been in and out of hospital. I was in this Sunday for a few days but last year I was in for nearly 6 months! They can’t seem to find what’s wrong with me. They give you the impression that you’re trying to pull their leg! Getting out and about is difficult too, I’ve just had to park the Bentley…sorry mobility scooter outside. I’m having an argument with the housing association now. I said, “provide me with a garage”. But that costs money! Apparently, it’s a fire hazard. There are worse things though; how many washing machines have gone up in flames just lately? Sorry I’m waffling!’

If anything, Henry felt grateful not to need a stick or a mobility scooter to get about, he had always kept himself active – Betty had told him to.

‘Don’t sit down for too long, Henry, if you don’t move it, you lose it!’ he heard her say, a smile flashed across his face.

‘My hip tends to come out too, it’s a painful nuisance! I have to carry the stick with me because I never know when it’s going to happen.’ Now that he was satisfied with his seating arrangement and his walking stick was propped up, Sam took a sip of his coffee and was ready to begin talking about their shared, hidden history.

‘Conscript or regular?’ Sam asked, taking a bite of his cake.

‘Conscripted into the Army. How about you?’

‘Joined the Navy of my own free will, me, I loved being at sea. I was made for the Navy, and the Navy was made for blokes like me,’ Sam said. ‘I was in the Navy for over 15 years. I enjoyed parts of it, like the travel and things like that, but there were certain things I didn't enjoy. When I look back now, I'm glad I went in because I saw the world and it enlightened me a lot.'

Henry looked closer at Sam's tattoos; he couldn't help it. Tattoos had always intrigued him but not so much to get some of his own. Betty hated them.

'They're not *that* awful, are they?' Sam laughed.

'Oh no, no, sorry,' Henry stuttered, 'I didn't mean any offense by staring, the wife never let me get any tattoos. Are they sentimental?'

Sam chuckled again, he wished he had a better answer to give, 'In some ways, Henry, in some ways. You see this here? That's a swallow – or at least it's supposed to be! This one is an anchor, pretty obvious really, and this one here, well, that's a hula girl.' Sam took another sip of his coffee and went in for more cake.

'Hula girl – you went to Hawaii?'

'That's right, we stopped there before going onto Christmas Island. I spent my 20th birthday there. Where were you?'

'I was at Monte Bello in Australia, 3rd October 1952, I remember the date as if it were yesterday. This was the first British nuclear test – they called it Operation Hurricane.'

He sucked the air into his chest, 'We hadn't been told where we were going until we were two days out from our destination. We wondered why they hadn't told us sooner, maybe it was so we couldn't jump ship.'

Sam nodded his head, 'None of us knew, pal. What happened on the day of your test?'

Henry took a sip of his tea, which was now disappointing and cold. Knowing the discussion was going to take a while, he looked to catch the eye of John – who at this point was rearranging the biscuits in the jar.

'Could I get another when you're ready? Thanks John…Well, on countdown day I was tasked with starting up the generators in the Land Rover – luckily for me, they all started! I got back to the Zeebrugge, and we were told that we weren't allowed to put anything on. So, we all just had on a pair of shorts, a hat, socks and working boots.' Henry sighed, 'I would have thought that we should have had some sort of protection, given that we were working with atomics. We all had to be above deck as well, no one was allowed in the lower decks. Then came the countdown.' Henry put his elbows on the table, and covered his eyes with his hands, 'We had to face away, and all of a sudden, there was an immense flash. I could see the bones of the bloke in front of me. It was like looking at an x-ray. I thought, no Henry, you're seeing things, but everyone said it.’ Sam nodded, Henry continued, ‘Everyone was talking about the end of the world when it detonated. Obviously, it wasn’t, but Sam, when you’ve seen a bomb like that go off, it stays in your mind forever. You can’t get rid of it.’

Henry paused his story as he had noticed John hovering by the table holding a tray with the tea on it, he was standing there with his mouth agape and his eyes wide. He didn’t say a word, he just placed the tea on the table and slowly backed away – leaving Henry and Sam to continue their conversation.

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The time was now half-past one and the café was starting to quieten down as people made their way back to work. Henry leaned back in his chair and took a sip of his tea, ‘Ahh that’s much better, nice and hot!’

He felt the delicious heat of the cup warm his hands, he seemed to feel the effect of the cold weather more these days, ‘Oh Henry, make sure you put your scarf on, you’ll catch your death!’ He missed Betty’s nagging, but he missed Betty more.

‘What did you think of national service? Are you glad that you had to do it?’ Sam asked.

‘I suppose it was quite interesting. We went somewhere exciting and travelled abroad to somewhere you probably wouldn’t have been able to have done if you’d not been part of national service.’ Sam took another forkful of his cake, his eyes not shifting from Henry’s, ‘I learned many things in the first few months in the Army during my national service; it taught me self-respect, how to sew, how to wash and iron clothes, you know, things like that. The only positive thing about national service is that it makes you independent. I don’t know why that is because you’re obeying orders.’ Henry paused, scraped the chair backwards, put his hands on the table and pushed himself up, ‘I’m just going to pop to the loo, Sam, excuse me a moment.’

As he made his way to the toilet, this brief interval gave both men the chance to reflect on the significance of their meeting. Sam was a strong believer in God; he and Myra were always in church on a Sunday morning. He oversaw the church electoral roll and security and were both in the church choir; the singing had helped them to learn to breathe deeply. Sam also believed that he had a guardian angel. He hadn’t really told anyone this, but he had been exposed to so much in his life – including his time on Christmas Island, how could he have lived to be 76 years old and still going? Sam's rationale for this encounter was fate – it had to be. He always believed that everything happened for a reason, his mouth curled into a smile, and he shook his head, *blimey, what a small world this is,* he thought.

Henry landing back in his chair with a thud brought Sam back into the room, ‘Sorry, where were we, Sam? My memory isn’t what it used to be!’

‘National service and what you thought of it.’ Sam reminded him.

‘Ah yes, of course.’

‘I have to ask Henry; would you bring it back? Would you like to see the youngsters today conscripted into the forces?’

Henry thought long and hard about this. A lot of people his age whinged on about bringing back national service and the good it would do, but he wasn’t completely sure of how he felt about it. ‘I think on one hand I would definitely bring it back,’ he lifted his left hand up, paused for a second, then continued, ‘Think about it this way, it would give people more jobs, wouldn’t it?’ Sam nodded, ‘It would teach them discipline and maybe we would have fewer murders every weekend.’ Sam agreed with Henry there. Henry brought his right hand up to make his opposing argument, ‘But, I don’t want to see it hurt anyone’s career. I’ve got two grandsons and if you take them out of what they’re doing I don’t think it would do them any good. I don’t see them bringing national service back but maybe some form of community service wouldn’t go amiss.’

‘I personally think national service is unnecessary. They do say the number of people signing up is dwindling, but it’s a different kind of life I suppose. I think in the days when we had it, people just accepted it, but the way you would be treated was nothing short of barbaric when you think about it.’ Sam said, then took another forkful of his cake.

‘You’re with so many people. Every day you had to get up at some ungodly hour and were summoned for square-bashing. You had to make your bed the way you were told, and if it were slightly wrong, it would be turned upside down. Everything was thrown onto the ground, and you were told to do it again. I guess it gave you discipline.’

Sam brushed the crumbs from the side of his mouth with the back of his hand, Myra always said it was bad manners of him, but he took no notice. Taking a sip of his coffee and shrugging his shoulders, Sam said simply, ‘I think, Henry, the world has moved on.’

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The two men took a break from talking and looked out of the window. It had started raining heavily; the people on the street were scrambling to find somewhere to hide.

'Nice weather for the ducks! Typical, I've left my umbrella at home,' Sam chortled. Henry took his gaze away from the window, 'Tell me about you, Sam. Give me a break from talking, my wife used to say I could talk the hind leg off a donkey!'

Sam looked at Henry and saw sadness in his eyes, even though he could see that he was trying to disguise it with laughter. He barely knew this man, but he could sense his loss and loneliness.

'Well, I joined the Navy when I was 16 - I had come from a bad council estate and didn't have a very good upbringing, not by today's standards anyway. In 1962, I was 18 and was shipped off to Christmas Island; did you know, Henry, that's the world's largest atoll?' Henry nodded, 'it was beautiful, it was paradise for an 18-year-old boy from a council estate. I learned how to dive and everything! It was palm trees and sandy beaches! While I was there, I saw eleven hydrogen bombs. Eleven!' Henry's mouth fell open. 'After the first couple, it just became like anything else, normal almost. We used to have to sit with our backs to the bomb, cover your eyes, and then you would hear it go: 5, 4, 3, 2, 1, detonation. Like you Henry, I was dressed in shorts, sandals, and a shirt – sometimes not even that. The whole sky would be vivid daylight, even though you had covered your eyes and you had big black glasses on. The guy sitting in front of you, you could see his spine. So no, chap, you weren't imagining it.'

Henry could feel his eyes prickling, no one had ever believed him before.

'It was just for an instant, a tenth of a second or less, then it was gone. We were told to wait, then turn around. You know on a hot day when the sky is clear, and you look at the sun and it's shimmering? That's exactly what you saw when you looked at the sky. Then it turned into this blood-red ball, beautifully round. Suddenly, it erupted like a volcano, in the sky. The mushroom cloud appeared, then shockwave and the heat, they were quick, then it just vanished. The actual shockwave was really powerful – it felt like an earthquake.'

Henry took a gulp of tea, 'Be honest with me Sam, were you scared?'

Sam looked to the ceiling, 'I wasn't scared because I was young, right? Knowing what I know now, of course, I would've been scared. That bomb was supposedly a thousand times more powerful than the Hiroshima bomb. I don't know, Henry, no one usually believes me when I tell them about it.'

This was something Henry knew all too well, ‘I do feel at times that people look at you with a blank stare. They haven’t got a clue what you’re talking about. Until today, I’d never spoken to any other nuclear veterans since the day we left Monte Bello.’

Sam felt a little confused by Henry’s admission, ‘But you’re a member of the BNTVA – why haven’t you been to any of the reunions?’

Henry had been a member of the BNTVA since it began in the 1980s, but in some ways, he only joined to track the political side of things, not to attend socials. ‘I just think it has lost its bite. Initially it was very active in protest. There were lobbies, there were pickets, but it just seems too slick these days. The BNTVA reunions, they’re alien to me. All people want to do is talk about medals. I just hate the feeling of being lied to and cheated all these years. You hear the stories, but I actually saw the bones in my hands!’

Sam understood the feeling of betrayal. ‘I know Henry, I never really thought about us being exploited but I suppose in a way we were. It’s nice to know that the BNTVA is still going because there aren’t many of us left. I guess we’re some of the lucky ones. There’s a lot of veterans who suffered that have passed on and the government think they can just forget them - that’s my opinion anyway. It’s upsetting, I think they could have done a lot more for us.’

Henry leaned in closer and gestured for Sam to move his head closer to him, ‘Can I tell you something I’ve always thought was little...out of sorts?’

Sam nodded for Henry to continue.

‘Well, I had four lads that I was with from the start of national service, the whole time we were on Monte Bello and when we came back. They stayed with me through the army; none of us smoked, we were all single, and we were all completely fit because we played football. When we were told we were going to Australia, the officer came and said, you've got a posting that other troops would die for, if any words stood out, they did.’

Sam scoffed.

‘We did our 12 months, came back and went on leave. The next day I get a telegram to report down south again, lo and behold, just the same four lads and I. It was to be a demonstration squadron. We did the last six months together and then finished. We were good mates but when you’ve finished doing your two years of national service, you start a new life. You’re looking for jobs, going your own way and getting married, and so you lose track. I believe they picked certain people to follow them through the army and see the impact of the tests. I just hate to think that I’ve been lied to, that’s what gets me.’

‘Would you like a medal – you know, as acknowledgement?’

Henry looked positively disgusted at the thought, ‘I don’t recognise medals because it means I recognise the powers that be. Shove it where the monkey puts his nuts– that’s what I say. I’m not interested. It means nothing to me, a medal. No. I’ve accepted it now.’

The café was now empty, except for Henry, Sam, and John. Henry noticed a couple outside holding hands, he sighed, then turned to his new friend, ‘Tell me, how did you meet your wife, Sam?’

Sam smiled; he hadn’t been asked this in a long time. ‘Do you believe in fate, Henry?’ Henry nodded, ‘Well, I was on duty at the time and my mate came in said, “D’you want a pen friend?” He had three envelopes in his hand, so I took the middle one. When I opened it later that evening, it was actually a really interesting letter. So, I replied and sent her a photo of myself. A week later a reply came, another interesting letter! Nine months after the first letter, I came home, and met her in Hyde Park. We got on like a house on fire! I thought, yes, I really like this girl. Three months after meeting her I proposed, and six months after that, Myra and I were married. It will be 56 years in June.’

Henry loved stories about how people met, ‘Any children?’

‘We didn’t have children. My wife miscarried a couple of times, but I didn’t realise it at the time that maybe it was because of me. We would have loved a family but in the end, it didn’t happen. In those days, you didn’t go for tests like they do now. I don’t know if it was a blessing or not. I’ve seen a lot of the descendants who were affected, so maybe it was a good thing. If they’d suffered with their health that would have been horrendous to see. I’m of the philosophy that what is God given, is God given. When we were trying for a family, I used to be quite upset that one never arrived but, after a while, I just accepted it wasn’t going to happen.’ Sam saw a ring on Henry’s finger, ‘I take it you’re married, Henry?’

He looked down at his hand, he hadn’t noticed that he had been twisting his wedding band while Sam was talking. ‘Yes. Well, was.’ Henry could feel a lump forming in his throat, he tried his best to ignore it. ‘My wife, Betty, she was the greatest thing ever. I can vividly remember the day I met her. I had two friends who said they were going dancing. I can’t dance but they insisted I went with them. There were two girls there and I just took one look at my missus, went up to her and said, “Hello, I can’t dance but I’d love to buy you a coffee.” I know, it’s cringy isn’t it!’

Sam laughed, ‘Then what happened?’

Wiping his eyes, Henry continued, ‘The next day, I thought, I’m going to take her out and impress her. But when I got to her house, I couldn’t remember her bloody name!’

Sam giggled, 'No! You forgot her name!'

Henry covered his eyes, 'I know, Sam, I know. I knocked on the door and her dad answered, and I said, "Is she ready?" He shouted up the stairs, "BETTY!" Am I lucky or am I lucky? In the end we were married for 43 years.'

'You see, it's all about fate, isn't it?'

John came over with a jug of water, which had things floating in it. As he placed it down, the two men peered in closer.

'John…I think you dropped your fruit salad in the water jug,' Sam said.

John laughed, 'It's infused water, chaps, gives it a nice flavour – try it! It's the '*thing*' these days.' He poured the water into two tiny glasses and encouraged them to take a sip.

'Oh yes, very fruity.' Henry rolled his eyes.

'I'll be back with some biscuits – all-butter shortbreads okay for you both?' walking away before they could answer.

'Henry, how did Betty pass away?'

Henry sipped his water and took a deep breath, 'She had cancer. In the end she had to go into a hospice, she knew she was going to die. I was there with her and my son; the nurse came in and said, "How are you feeling, Betty?" She said, "I'm feeling great, I've got my husband with me, I've got my son with me, I'm so happy." The nurse looked at her, and asked, "Betty, are you afraid to die?" Without hesitation, she said, "No, I'm not afraid to die, I'm looking forward to meeting God." I just didn't know what to do.' Henry brought his hand up to his eyes, 'Anyway, you just keep putting one foot in front of the other. I guess I just don't feel needed anymore.'

Sam found a handkerchief in his pocket, 'Here.'

Henry took it and dabbed his eyes, 'I'm sorry to cry,'

Sam looked on sympathetically, 'We can't always be macho and maintain this "men don't cry" façade. We all cry.'

Henry moved his lips from side to side, his blue eyes looked sore. 'How has it been, becoming a widower?'

'I was absolutely devastated. My wife was a wonderful partner. Before she died, I was seventeen stone, now I'm eleven stone. I was left here alone. That's when the loneliness started. What the hell do I do? How do I cook this? How does this work? How do I use the washing machine? That brings on loneliness or at least helps to. We were married for so long, of course I miss her. Can I tell you the greatest lie I've ever been told?'

'Please do.'

'It's that time is a great healer. No, it's not. That's nonsense. People say it, but no, not in my case. I miss Betty all the time. It's been the same every day and it doesn't get easier. I could be listening to the radio, and one of her favourite songs will come on and then I'm crying. When she died there were many things I had never been involved in because that was her side of things. She used to buy my clothing because she said my choice was appalling.'

Sam laughed, 'All women say that!'

Henry straightened his collar, 'It did leave me gasping a bit, I had to learn how to cook. I can look after myself, but my son does pop in now and again. People ask me, "How do you manage?" And I say, "Her physical presence has gone but the mental presence doesn't go." I can be washing up and putting the cutlery in and I'll hear her say, "You're putting them the wrong way up again!" Maybe I'm being daft but no, I feel that some of my wife is in me and will always be there. I will be married to her until the day I die.'

'It's not daft. What about your son? Would you like to live with him?'

'I had this feeling in my head, when Betty was poorly, "Yes he can look after his mother, but he doesn't want to be with me." He's told me why, and I guess there is a legitimate reason: I would struggle with the stairs.' Henry looked down into his cup of tea.

'I'm sorry,' Sam said, putting his hand on his arm.

'Apparently it's also because he and his wife at work all day. I said, "Yes, but I could do things in your house that I would in my flat. I can peel the vegetables for dinner, I can do the hoovering, I can chuck the washing into the machine," – you know, little jobs, but he hasn't got an answer for that. I just wanted to spend more time with the grandchildren. I haven't really seen them grow up.'

John appeared with a plate of biscuits, 'These free?' Sam joked.

'Of course!' John sat down next to Henry and picked up a biscuit. He took a bite and then spoke, spraying crumbs on the table, 'It's curious to me that you've never met before.'

They looked at each other, *'I guess so.'* Henry smiled, then looked at his watch –Betty always told him it was rude. 'Doesn't time fly! I came in at midday and it's nearly four o'clock!'

Sam took a bite of shortbread, 'Is it really! No wonder I was feeling peckish.' He winked at John then pushed himself up off the chair. 'I should probably be off though chaps, Myra will be pulling her hair out wondering where I've got to! Henry, same time tomorrow? We can carry on putting the world to rights?'

Henry smiled and stood up, 'Yes, Sam, same time tomorrow.'

He walked around to Sam's side of the table and put his hand out. Sam pushed it away and gave him a hug, strong and secure. Henry hadn't felt that level of connection for a while, he breathed in Sam's aftershave. The two men pulled away from their embrace, smiled, and Sam made his way to the door. He hopped on his scooter, gave Henry and John a wave and drove off.

Henry sat back down, 'Do you mind if I just sit here a bit longer, John? I'm not quite ready to go home just yet.'

John squeezed his arm, 'Of course not, would you like another cup of tea?'

He beamed, 'That would be lovely, thank you.'

In sickness and in health

Life for Bernard and Gladys is difficult. Four years ago, Bernard lost his ability to walk, drive, and enjoy his retirement. He lost his independence. Every day he feels like a burden on his wife for having to taking care of him. *In sickness and health,* that's what Gladys reminds him. He, at this point, feels as though he just existing. He blames the radiation he was exposed to while being part of the nuclear tests, yet government are not interested in helping. Gladys too, is struggling. Not having any help is isolating and the constant lifting and pushing causes her body to ache. *Enough is enough,* she thinks. Gladys makes an appointment for Bernard to see the local doctor, *not that the NHS care,* he says. At the same time, in the same GP surgery, Muriel, visits her doctor for a routine check-up. The conversation quickly turns to the passing of her veteran husband, causing the doctor to ask her, *have you ever felt lonely?* Muriel does feel lonely, but how will having a hobby help?

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Bernard shifted in his chair, 'Gladys, that pain is back again.' Gladys came in from the kitchen holding two cups of tea and a bacon sandwich.

'Oh Bernard, the pain in your back?' She handed him the plate with the sandwich and placed the cup on the side-table. He nodded and scrunched his face in agony. 'I will call the doctor at eight o'clock tomorrow, we need to get this seen to.'

He looked his wife, 'What's the point? They are never interested.'

She could see his face change to sadness.

'I don't know why I can't walk, and the doctors don't seem to know what they're doing either. One said I've got Parkinson's; another says I haven't. They don't do anything, it's a waste of time. I haven't been able to walk for four years.'

Gladys looked up at their wedding photo on the wall, then back to Bernard.

'It makes me feel terrible, Gladys, there's really no point in being alive. It's awful, I can't do anything, I have to ask everybody else to do it for me.'

She hated when he spoke like this, it broke her heart each time he said he wanted to die. As the years had gone by, Bernard's health had deteriorated, but it had also had a profound impact on Gladys. She had to have a hysterectomy at 36 years old, causing her to become very ill; it also meant there would never be any more children. Earlier this year, the doctor thought she had cancer, but it came back all clear. How would they have coped if it were cancer? Looking after him, lifting him, pushing wheelchairs, all of those things had caused her body to ache. Nurses came to help, in the beginning, but she didn't have them there all the time. One night she had gone up to see to the bedroom window and he was calling her; she ran down the stairs and slipped, hit the post, and smashed her shoulder. The doctors and the hospital knew how bad Bernard's health had been, but Gladys always felt alone - no sympathy and no help from anyone.

She sat in the armchair next to Bernard, placed her hand on his and said, 'God never gives you more than you can handle.'

He wiped his eyes, 'I think this time he has.'

The home phone started to ring, 'Hello?'

'Hello there, is that Mrs. Hardy? My name is Sandra and I'm calling from Age U.K. I believe your home help, Bev, should have been in touch already?' The voice on the phone said.

'No, we haven't heard from Bev. Has something happened?'

'I'm really sorry, Mrs. Hardy, but she has hurt her back and won't be able to come out to you today.'

'I see. That is disappointing. Is there anyone else that can come out and help us today?'

'I'm afraid not, we will call you by the end of the day tomorrow to arrange another visit. Is that okay?'

'We haven't got much choice it seems. Give our best wishes to Bev, we hope she has a speedy recovery. Thank you for letting us know. Goodbye.' Gladys put the phone down and looked at Bernard.

'I take it they're not coming today then?' Bernard asked.

'Not today, no.'

Bernard took a sip of his tea, placed the cup down and picked up the plate with the bacon sandwich on it; he sighed and took a bite. He stared at the TV, the football was on, and the commentators were arguing about one of the players being offside. Bernard loved football but today he couldn't concentrate on it. Gladys had just got herself comfortable in her chair when the doorbell rang, *typical,* she thought. She edged herself forward and then lifted herself up, her knees and back ached terribly.

She opened the door to find the postman standing there with a bundle of letters and a parcel in his hand, 'Good morning!' he chimed.

It wasn't often that someone knocked on their door; she beamed at him, 'Good morning!'

He handed her the letters and gave her a wave goodbye. Gladys closed the door and walked back into the room, 'The post has arrived, bit late today!'

Bernard took the letters from her and flicked through them with limited interest, until he saw the BNTVA magazine amongst the bills and junk mail. His eyes lit up, 'Ah, brilliant!'

He always thought it was interesting to hear how his comrades were progressing and how it was affecting them. He absorbed the latest news, reading every word on the page. He looked up at Gladys, 'It's very important to me, being a member.'

'I know it is darling, we like going to the reunions, don't we?'

'I like speaking to people in a similar position to me. It wasn't the tests that were the problem so much, it was the island itself, the crabs, I hated them.' He turned the page, 'I suppose it had to be done, didn't it? I agree with the BNTVA about the medal though, I'd like one.'

'It would be nice to see you all finally acknowledged.'

The next morning, before Bernard was awake, Gladys crept downstairs to call the doctor's surgery. It was 7.30am so she had thirty minutes until the lines opened. He normally woke up at 8.30am, which was when the day's endless list of jobs would begin. She made herself a cup of tea, sat in her armchair and took in the peace. With the silence though, thoughts crept into her mind. Gladys was born in an air raid shelter during the war, her mother was left on her own as her father was in his spitfire fighting the Germans. She was twenty-one when she and Bernard got married. They were so opposite but were so alike, it was very strange. On the night of the wedding, they had to call the doctor out because he was seeing flashbacks of the bombs; she didn't know if was the emotion of the day that set him off or because he had been drinking the night before. She would never know because he refused to talk about it. Bernard had been a very poor boy; he came from a very poor mining family and so he always wanted to elevate himself higher and higher. He went in as a boy entrant and left as an officer.

The sound of the clock chiming meant that it was time to try and book Bernard's appointment. She dialled the number and a voice answered, 'Thank you for calling Oak Tree GP surgery, your call will be answered shortly, you are number twenty-nine in the queue.'

Gladys huffed, it was 8.01am, how was that possible! Nevertheless, she waited patiently in the queue until the receptionist answered.

‘Good morning, how can I help you today?’

‘Good morning, I need to book an appointment for my husband, please.’

She could hear the receptionist tapping on her keyboard, ‘I’m not sure if we have any appointments left for today, I’m afraid.’

Gladys felt herself becoming hot with anger, ‘How can that be so? I rang dead on eight o’clock! This is really important; he needs to be seen.’

There was a brief silence apart from the sound of the lady’s nails on the keyboard, ‘Okay, give me a moment and I will see what I can do.’ The hold music began to play, and she gave a heavy sigh.

‘I have managed to find you an appointment for two forty-five this afternoon – would that do?’

Gladys thanked the receptionist and gave her Bernard’s details. With the appointment confirmed for this afternoon, she heaved herself off of the chair and went upstairs to see if he was awake.

‘Okay darling, I need you to try and keep steady and not put all of your weight onto me – I’m not as strong as I used to be,’ Gladys said, breathlessly.

This was the daily struggle, lifting Bernard from the wheelchair to the car and out again when they reached their destination. It put an enormous amount of strain on her body, she could feel the pain in her muscles as he held onto her for support.

‘That’s it, slowly down.’

Gladys shut the passenger door and took to the next task of folding down the wheelchair and placing it in the boot of the car. The GP surgery was only a 5-minute drive, but it would take too long to push Bernard in the wheelchair if they were to walk.

‘We go out quite regularly in the car, don’t we? I get so fed up with being stuck inside all the time watching the TV – there’s nothing on.’

‘You like watching the sports channels.’

‘I only watch it because there’s nothing else to do. I can’t walk, I can’t do any gardening,’ he sighed. ‘I can’t do anything; if I get up, I fall. I can’t even really read for long because I get double vision. I can’t do anything but sit in my chair.’ He looked out of the window solemnly.

Gladys parked the car outside of the GP surgery and placed the Blue Badge on the dashboard. After struggling to get Bernard back into the wheelchair, she pushed him up the ramp and to the door. Getting the wheelchair into these places has always proved difficult; the dentist is the same, it used to be a bungalow. You must go through one door, then turn right and then left straight away, it was a great effort getting him in there. The places just weren't wide enough for those in wheelchairs or mobility aids. Once inside, they took the lift to the first floor, and arrived at reception to check Bernard in. Instead of a person, a screen was on the desk for patients to sign in.

'Once again a computer taking the place of a human's job,' Bernard said despairingly.

Gladys looked at the screen, *technology can be so daunting and isolating when you can't use it,* she thought. She looked around desperately to see if anyone could help them but there were only people waiting to see the doctor. She looked closer at the screen, *please select birth year, then month, then day;* Gladys moved closer and saw Bernard's year. She tapped *1936,* then the months appeared. She selected *June,* and the months vanished to be replaced with numbers; she tapped on *16* and Bernard's name appeared. After pressing it, it informed them to take a seat.

'How can that be easier than speaking to a person?'

'Let's go and sit down over there, we are twenty minutes early,' Gladys motioned.

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'Mrs. Jones to room five, Dr. Green will see you now,' the speaker announced, interrupting the silence in the waiting room.

Muriel stood up slowly from her seat, she felt her back crunch as she straightened. She looked around the waiting room, it was still busy – even at two-thirty in the afternoon. As she made her way to room five, she walked past an elderly couple trying to check themselves in using the screen. The woman looked flustered, but she seemed to be getting the knack of it; the man was in a wheelchair, she could hear him tutting.

As she got nearer, she heard him say, 'How can that be easier than speaking to a person?' She agreed with him, she much preferred the human contact; Muriel gave them a sympathetic smile as she shuffled past.

She knocked on the door three times, and waited for the approval to open it, 'Come in, Mrs. Jones, take a seat.' She made her way to the chair opposite the doctor, 'What can I do for you today?'

Muriel was conscious that her medical niggles were not worthy of the NHS's time or money, she just put it down to age and got on with it. Kevin had always said, "We have paid our National Insurance, Muriel, phone the doctor if you need to,*"* but she always felt like a burden.

'Well, this is just a check up on my medication, I believe?'

Dr. Green shifted his eyes from Muriel to look at his computer screen, tapped on the keyboard a few times and then smiled back at her.

'Yes, you're absolutely right. It's booked as a double appointment though, so we have plenty of time to chat.'

Muriel played with her wedding ring.

'It says here that you've been struggling with the Myasthenia?'

'I think it's probably easier to find a high building and jump.'

'Oh Muriel, you mustn't talk like that.'

'What do I have left? It's taken me about five weeks to get myself signed on with this clinic. The last doctor I saw didn't examine me; she asked me a few questions, then said, "Fine okay, your ten minutes is up."' Dr. Green tutted. 'I've also got asthma and COPD which means that I've got about 50% of my breathing capacity. Some days I'm so tired that I don't want to do anything at all, I don't even want to eat because the steroids make me so tired.'

He moved his eyes to Muriel's medical notes, 'You were prescribed sleeping tablets – have they helped?'

She shifted in her chair, 'I can go to bed and drift off to sleep using the tablets, but I will be awake again at 2am. Two or three days will run like that and I'm so exhausted that I just sit in my armchair and literally sleep all day long. I've got a good brain – just a lousy body, I need a new one!' She joked. 'The thing that's quoted at us most is, "Well, it's your age," but what are we supposed to do? I've also fought cancer three times. When somebody says, "You have cancer," you don't know what to say. I just sat there and looked at him, and I thought that can't be true, that can't be me.' Dr. Green nodded. 'Then the second time, I said, "I knew the bloody thing would come back." The third time…well, I never said anything either. I just thought *my God, why, why me?* It's these sorts of things that happen to you and you've got to pick up and run with and that's all you can do. When I had to have radiotherapy, I used to see the little children carrying the bottles with cancer, and when I saw them, I thought - *what right have you got to worry*? Sorry I'm rambling, you only asked about the sleeping tablets!'

'It says in my notes that your husband passed away 18 months ago, is that right?'

'Yes, 2nd July 2017.' It was a date that would be etched on her memory forever.

‘I was wondering how you were getting on since… ’ he asked while frantically scanning the notes on the screen for his name.

‘Kevin…’

‘Yes, sorry, since Kevin’s passing?’

‘Well, to be honest, I had no life while I was looking after him. Kevin’s MS was progressive, so really, I have been a widow since the 1970s. Just living, existing, not knowing who to speak to, not knowing who to talk to about it.’ Her eyes welled with tears. ‘Don’t take this personally, but I would keep trying to speak to different doctors, but they just weren’t interested. Life hasn’t really changed, there just isn’t the work to do,’ Muriel’s voice wavered, ‘I’m just not needed anymore, that’s all.’

The doctor handed her a tissue. ‘We were soul mates’ She sniffed, ‘I’m sorry to cry.’

He smiled at her, ‘Please don’t apologise, Muriel. He was in the services, is that right?’

‘Yes, I met him in 1953 – can you imagine that? A lifetime ago, yet it feels like yesterday.’ She paused for a second, ‘I wish it were. My brothers were all guardsmen, and they all used to say to me, “Why did you marry an RAF man?” and I told them, “He was the one I wanted. He loved the Royal Air Force, he loved the travel and meeting different people.’

‘You mentioned that the doctors weren’t interested, what did you mean?’

‘You know what he did during his time in the forces, don’t you?’

The doctor shook his head, to which Muriel rolled her eyes, ‘It should all be there in front of you, his service record and where he was posted.’

He scrolled the wheel of the mouse with urgency, he saw that Kevin was in the RAF from 1955-1962 but could see one posting location for 1956 was blank, ‘I’m sorry Muriel, but his 1956 posting is missing.’

‘I’m not surprised, I’ve read recently that all the medical records have been lost for the nuclear test veterans,’ Dr. Green’s eyes widened, ‘If you tell anyone about the nuclear tests, they don’t seem to have a clue about what happened. They look at you and think, who’s this silly old woman? I don’t know how to put it really, but you know, you sound like you’re imagining it, they’ve got no idea.’

‘Why don’t you tell me about them, Muriel?’

She sat up in her chair, astounded that he was interested, ‘Well, between 1952-1958, Britain started doing nuclear tests in Australia and the South Pacific – and they used over 22,000 young men to do it.’ Muriel had to be careful to not let herself get too cross, ‘Kevin went off to Maralinga in Australia during 1956 and we wrote every day to each other. He would tell me about being asleep in the day in the sun and working during the night to guard all sorts of different aircraft. Sometimes they were sent on different missions, like collecting flowers to see the reaction to the radiation.' Dr. Green was listening intently to every word coming out of her mouth; sensing this, she continued. 'They were never told anything about where they were going or what they were going to do until they actually arrived. By then, of course, it's too late and you can't escape. I don't think he understood the ramifications of what radiation can do, I don't think any of those young men that went out really understood what could happen to them, and I feel they were tricked.'

The doctor shuffled in his chair, he looked uncomfortable, 'Did he actually see the, you know…bombs go off? Did he ever say what it was like?'

'Kevin told me that it had such a force that it knocked them over onto their faces. He said that he could see the bones through his hands. No one believed him when he said that. I truly think it had an impact on those men. When Kevin came back, I noticed a clumsiness about him. He had been to an optician because his eyes were affected, the optician said that there was nothing wrong with his eyes, nothing wrong with his sinuses…but one of the first places MS starts is the eyesight. It might have been the contact he made with the soil, nobody knows, and nobody tells you. When he came home, he was not the same person I had married. He would sit and talk to me for hours about it and I could understand and agree but I couldn't change it for him, I couldn't make it any better. I am of the opinion that my husband died because of his exposure to radiation. I think the promise of all this travel was a lure to get them there. It's the lack of honesty that really gets me. I can't bring him back now to ask him if he knew what was going on. It was just another detachment and I think the RAF, MoD and UK Government were dishonest.'

There was silence in the room, the doctor couldn't find the right words.

'What was Kevin like a person?'

'Kevin was in the Freemasons for over 45 years; he was an Almoner which means he would look after the widows of the masons who had passed away. He would try to see them once every two months but would always be on the phone to them. Being a mason was important to Kevin; it's not a religion but it would try and encourage them to be better men. You need to believe in three things: brotherly love, relief and truth.' She stroked her left hand with her right. 'We had a spare room in the house that he used for his model planes. Kevin was proud of his modelling room; he would spend hours crafting RAF models, painting them, and dusting his collection.'

‘Have you been feeling lonely, Muriel?’

She hated that word, it had such a stigma attached to it, ‘Have I been feeling lonely? Well, loneliness…there’s so much time and emptiness, it’s difficult to express into words but it’s what adds to the making of feeling like you’re no longer wanted,’ she paused. ‘How to explain loneliness, I don’t know? I read, I knit, I do what I can. It feels like you’re coming to the end of your days, and you’re no longer required. I think as humans, we’re not very good at being on our own.’

Dr. Green felt a pang of sadness for her, ‘Do you have family that live nearby?’

‘My daughter takes me shopping but I could do with more time to go and find things; I would love to be able to go out to M&S to find some new underwear or a new tunic, but I don’t have the ability to say to her, “Will you take me here or there?” I just can’t do that.’

‘Why not?’

‘She doesn’t have the time; she is overloaded as it is, so I can’t put any more pressure on her. Her daughters and grandchildren take up a lot of her time and so I don’t want to be an added burden. She probably wouldn’t mind, but on the other hand, she’s still got the washing, the ironing, everything else to do. My grandchildren don’t get too much spare time so I don’t see them as much as I’d like but I could never ever tell them that.’

Dr. Green went back to his computer screen, Muriel could hear the wheel of the mouse as he scrolled. ‘Do you have a routine? Regular things that fill the week up?’

She had always been a stickler for routine, to-do lists and planning, ‘Well, yes doctor, I do as it happens. Monday is washing day, Tuesday I try to hoover upstairs and downstairs, and Wednesday my daughter takes me shopping. Every Sunday I buy a newspaper and call my brother for a catch up. When Kevin was alive, we would always have a roast dinner on a Sunday; it used to drive my daughter mad!’ Muriel smiled fondly. ‘Always roast beef and Yorkshire pudding. Routine is important, but I miss the little things like that.’

Dr. Green sat back on his office chair, ‘Do you still have a roast on a Sunday?’

She twisted her wedding ring, ‘Sometimes my daughter has me over for Sunday lunch but there’s no point making all of that if it’s just for me.’

Opposite Muriel was a table with leaflets on it, she only noticed this as he wheeled his chair over to pick one up for her.

‘Muriel, have you considered going to a weekly group or activity nearby?’

Her daughter had encouraged her to get involved with these before, ‘I’m not the sort of person who wants to go to the club every week and sit there and talk, I just couldn’t. I don’t think I would fit in. My life has been from here, there, and everywhere, and I haven’t just lived in one place; I haven't gone on holiday to the same place. I'm afraid it would show on my face, or I would speak out and then regret it; their life has been different to mine, this is my 45th move and I'm still not very good at it am I!'

'Do you have any hobbies or past times?'

'I've always loved books, grim mysteries and crime novels. I love to read and learn. In the old days I used to make all of our clothes because the materials were cheaper. You can make anything if you've got the imagination. I enjoy embroidery too.' She tapped her hands on her knees, 'I do jigsaw puzzles because I can sit down and do them easily. I do try to not sit down and watch TV all day; I've got to be doing things. Although I can't stand up for long periods of time, I want to keep my mind and body active, I don't want to stagnate. Have you been in a care home? They all sit in a circle, watching the TV like zombies.'

'I think we will schedule another appointment for a month's time, shall we? I'm going to keep your medication the same for now and see how we go. I want you to take the sleeping tablet later in the evening to try and improve the length of time you're asleep. I've also increased the dosage slightly as perhaps it's not strong enough for you. As for the myasthenia, I'm going to write a referral letter for the specialist at the local hospital. I'd like this seen to. Also, Muriel, I would really encourage you to try and go along to one of these local groups; there are so many, just like you, who are bereaved and a bit lonely. You might find it a bit easier to engage with people in a similar boat to you.' He shifted his eyes to look at his patient, 'How does that sound?'

Muriel could feel her eyes welling with tears again, 'Thank you, I can't tell you how much this appointment has helped. I've not been able to talk to someone in so long.'

The printer spat out her prescription, which he then signed and handed to her. 'It's what we are here for Muriel. Don't forget to arrange your next appointment with the receptionist on the way out. Please take good care of yourself and I look forward to seeing you again soon.'

Muriel rose from her seat and made her way out of the door.

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'Mr. Hardy to room three please, Dr. Steele will see you now.'

Gladys put down her magazine, which was nine months out of date, and stood up. She pushed Bernard towards the corridor of consultation rooms. Just as they got to room three, the door to room five opened; a tall elderly lady emerged, wiping her eyes with a tissue. The corridor was too narrow for the woman to squeeze past, so she had to step back inside the room.

‘I’m so sorry,’ Gladys said, embarrassed to make a fuss.

‘Oh, don’t worry, these places are so narrow, I used to have the same problem with my husband.’

Gladys pushed Bernard past the kind woman and opened the door to room three.

‘Hello Mr. & Mrs. Hardy, come in,’ a voice inside said, the door closing loudly behind them. Gladys arranged Bernard’s wheelchair. ‘How can I help you today?’

Gladys looked at Bernard who had his eyes fixated on his feet, ‘Well, I am concerned about the pain he is getting in his back. He had a brain scan years ago and there was a slight trace of Parkinson’s detected. He was then transferred to see a neurologist, then he was transferred to another doctor who put him on medication. We couldn’t see what difference the tablets were making so the dose was doubled.’

Dr. Steele looked at his computer screen, ‘I can see this made his made his balance worse? Apparently, you were supposed to be transferred to a Parkinson’s nurse?’

‘It took six months for that referral, and we didn’t hear anything after the initial letter. We feel so let down; you’re just ignored, as though you’re making it all up. Bernard also struggles with his speech; people can’t understand him. If he gets stressed, his voice seems to go, and I have to speak on his behalf.’ Dr. Steele nodded. ‘This hasn’t just affected my husband, doctor, it has impacted me too. I had to retire and give up everything I enjoyed and stay at home. Looking after Bernard, lifting him, manoeuvring wheelchairs, all of those things have almost broken my back. I did have nurses who came to help me, but they rarely come now. I used to be able to leave him in the car while I did the shopping, but he gets so frightened about me not coming back, and he gets in such a state.’

‘Damn atomic bombs, we were guinea pigs! They didn’t have to have us there; they could have dropped it in the middle of the ocean.’ Bernard muttered.

The doctor looked at Bernard, ‘I’m sorry, Mr. Hardy, what did you say?’

‘I said, damn bombs – I am a British nuclear test veteran. I was at Christmas Island.’

Dr. Steele looked at him, he knew of the tests but had never met someone who was actually there. Bernard sensed his interest, ‘The nuclear tests were a one-off thing to see, not many people can say they have seen them and survived. It was a phenomenal sight,’ he took a deep breath and then continued. ‘It was terribly fast; it was done extremely quickly because the government knew it had to get a bomb going off before the Russians and Americans. Our government wanted to be in the nuclear club, so it had to go off. It was just so lax; we were in shorts – we didn't even have to wear berets. We walked around in just our shorts and flip flops.'

Gladys tutted, it made her so angry to think of all those men working with no form of protective clothing. 'We had been married for some years before he even told me about the tests – they were sworn to secrecy, you know?' She put her hand on his arm, 'You just came out with it one day, didn't you?'

Dr. Steele was fascinated, 'What was your role?'

'I worked on the radar site; our job was to track the Valiant and the Canberra. If it were designated to take a sample from the cloud it would have to be at 30,000 feet. In those days, that wasn't a regular height, so the radar had to be modified. The bomb made you think that you may not be here today. They just didn't know what was going to happen, it was the biggest bomb to have detonated at the time, the ones before had been four megatons.'

The doctor couldn't believe what he was hearing, it seemed like fiction. 'Do you think being at the tests has impacted your health?'

'Yes. Although I suppose I do feel lucky. I also feel guilty for all those comrades that died far too early. You think, why me? Physically, since those explosions I've shaken slightly; I thought it would just go away and resolve itself but that shock to the system started from inside out.'

'He finds it very difficult to do simple tasks; he is having terrible trouble with his back again and he's still unable to walk.' Gladys added.

'It's bloody important to be independent as an older person! Number one in my book! Ageing well was always so important to me, and now look at me. We do think our son, Anthony, was affected by it. He had a very premature birth and has learning disabilities. Our eldest daughter blames me for Anthony's health issues, maybe she's right.'

The sadness behind Bernard and Gladys' eyes was clear to see, 'Blames you? It sounds like you had no real choice in the matter.'

'We didn't know anything until the 80's that being at the tests could have caused health problems for me and my family. I've never been worried for me, only for my children and grandchildren. If I had known, I would never have had a family; I wouldn't have even got married.'

'We never see our daughter; it's been about two years since we last spoke. We've rung and rung but she doesn't acknowledge our calls.'

The doctor went back to looking at the medical notes on the computer, ‘Have you ever had counselling for what you witnessed?’

Bernard scoffed, ‘Do you mean post-traumatic stress? In my day you just got on with it, and that’s the way it has always been. Talking about the bombs won’t help with me being able to walk. Nobody has a clue about what happened have they? If you say to the NHS, we’ve been to the bomb testing, they look at you and think, who’s this silly old git?’

Gladys didn’t like how dismissive he was sometimes, ‘I don’t see the harm in speaking about it, Bernard. If he gets stressed, he’s got a bit of a temper. Whenever he saw the mushroom cloud on the TV, he would cover his eyes. I’ve noticed other veterans don’t do that, but he does, he can’t stand to see the mushroom cloud. He can’t remember the second test at all, it’s as if he has blacked it out.’ She looked at Bernard, ‘I wonder if your temper is anything to do with it.’

Dr. Steele began to type frantically at his keyboard, tutting at himself whenever he made an error.

Bernard hadn’t said a word on the way home; he just stared out of the window, glumly. Once they were back inside the house, and back into his armchair, he switched on the TV. Gladys left him to it and started on the dinner; she thought she would make his favourite to cheer him up – sausages, mashed potato, peas, and lashings of gravy.

As she placed the plate in front of him, she said, ‘Things will get better, Bernard. The doctor sent another referral request, you’ve got stronger medication for your back, he’s made a note to try and get some more home help and he’s started the process for getting an appointment for some counselling.’

He put a fork-full of mash in his mouth, ‘I’ve come out of this a lot worse than I ever thought possible; I don’t know whether to feel lucky for living this long or guilty for sticking around.’

Gladys sat down next to him, ‘You must try to think of other things; we will do what we can, Bernard. For tonight, let’s have our dinner and find something to watch, what do you think? Tomorrow is another day, and we will face it together – just like we have always done.’

Age is just a number

In Little Hamwell, a quaint countryside village, Percy and Dawn are key members of the community. For thirty years, they owned and run the post office – Percy was also the village postman. They then decided to sell it, retire, and spend more time together. That was the plan anyway. Instead, they have both never been busier; they do village transport for the older members of the village, set up and organize church events, visit people in care homes…their list of jobs is endless! As Dawn would say, why sit indoors, watch TV and moan at each other? Just as they are setting up the church hall for the Monday group exercise, bingo, and gardening club, they meet Jean. Jean has only lived in Little Hamwell for a month; she had moved there to be closer to her daughter after her husband died last year. Although her daughter wanted her to move so she wouldn't be alone, Jean now has no one in the village she knows. Percy and Dawn can't wait to show her that keeping busy and making new acquaintances will be more important than ever.

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Although just outside of the M25, Little Hamwell felt like a world away from the hustle and bustle of London. Surrounded by green space, sleepy cottages and cobbled streets, the village offered commuters the countryside experience. This small village, not far from the bank of the Thames, was home to Little Hamwell Farm, two small public houses, a post office with a shop, and a church. St. Mary's church had always been at the very heart of the community; it had beautiful stained-glass windows depicting saints from the Bible and a churchyard boasting an array of wildflowers. The bells at St. Mary's were still rung regularly by the local campanologists, a tradition which was held in high regard. The post office was located a short walk from the church, nestled between a row of thatched cottages. It was a lifeline to many in the village, selling locally produced milk, cheese, bread, and other essentials. For thirty years, Percy and Dawn had owned and run the post office; Percy was the village postman and Dawn managed the shop. They lived in a small cottage a few streets away, having moved to Little Hamwell in 1979. They had met in 1957, a year after Percy had returned from Australia, in a little coffee bar in London.

In 2017, they made the difficult decision to sell the post office - a decision that they had been dreading.

‘Since we bought it, I’ve hardly ever had a day off; we have a commitment and responsibility to the village. We have looked out for everybody, and I think we need a little more time for ourselves.’ Dawn said.

‘I know, but I love this village. It gives me a sense of pride to help those who need it. I have always been community and service-minded because of being in the RAF.’

‘That doesn’t mean we stop being community-minded. There are things I want to do, things that I’ve always put on the back-burner for the sake of the shop.’

Percy looked at her, ‘What things?’

‘I want to swim again; I want to go to the gym and keep fit. I want to be able to go for a walk when I fancy it; if I want to do a six-mile stroll, I want to feel able to do so. You must stay active as you get older, Percy. It’s like anything, if you don’t use your brain, it disappears. I’ve noticed quite a few of the older ladies when they’ve come into the shop, they have been dominated by the men in their lives. They haven’t thought for themselves for years, “Yes dear, no dear, three bags full dear.”’

He nodded; he knew that she was right.

‘Health wise, we are both good, aren’t we?’ She said, gently.

He put his hand on hers, ‘We have our health, bits fall off here and there but internally we are pretty good! Maybe I could do with losing an inch or two round the waist, my hair still grows, I’ve got my hearing aids now and I wear glasses. I feel pretty fortunate really, I appreciate that a lot of people our age and younger have been wracked with illness.’

‘I think the key is to carry on as if we’re not ageing. I think that’s what ageing well is. If I think of age as just a number, it’s fine and I can deal with it. The thing I fear about ageing is dementia setting in or losing my functions. I don’t want to lay anything on our kids, I don’t want to be a burden on anyone.’

Percy gave her a kiss on the cheek, ‘I think, Dawn, we need to think about getting older as - I will enjoy my life as much as I can, for as long as I can, and that’s it. We have each other, our family, our health, and God. We are still here causing trouble!’

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‘We’ll have this cup of tea and then get moving. We need to set up the church hall for the Monday club and get the bingo cards ready.’

Percy put his hand to his head and saluted her, ‘Aye, aye ma’am.’

Dawn rolled her eyes, ‘We need to collect James and Linda on the way too. Sue was telling me that his dementia is getting worse.’

‘Poor chap, I can’t believe he’s 101.’ He paused, ‘Have you eaten?’

‘I don’t really want anything, stop fussing.’

‘Dawn, come on, we both need to eat something. We will be busy all day.’ He looked at the timetable on the fridge – Dawn printed a new one each week, so they always knew where to be and when. It always astonished Percy how Dawn was so much better than him at using technology. ‘Retirement was supposed to mean we would have more time for ourselves.’

‘It’s good to do this Percy, you know for yourself that the sense of wellbeing is huge, the satisfaction that comes from helping others. Why sit indoors, watch TV and moan at each other? Life’s too short.’

‘I know, I just mean that we gave up the shop so that you could do the things you wanted.’ Percy buttered some toast and placed it in front of Dawn, ‘You need this, please eat it.’

Dawn knew he was only looking after her. She took a bite of the hot buttery toast, ‘Any jam?’ she said, winking.

‘Cheeky!’ He opened the cupboard and passed her the jar of blackcurrant jam.

She spread the sweet, purple jam on her toast, ‘Well, that is much better I must say!’

‘Remind me, what’s the plan for today?’

‘I did tell you already!’ She said, pretending to get cross with him. She took a sip of her tea, ‘First of all, we need to collect James and Linda on the way to the church. We need to set up the hall for the Monday Club exercises, the bingo, and then the gardening club in the afternoon.’

‘Are we visiting Sally after?’

‘Yes. I know it’s a lot in one day, but I hate to think of her in that care home with no one visiting her.’

‘It is the most appalling place.’

‘It’s such a tiny room that she’s in, with just a bed and an armchair. Sometimes they don’t bother to get her up in the morning so she’s laying in that bed all day. They ask if she wants to go to the activities; but then they put her into a wheelchair and take her to a small room with four others – put the TV on and leave them for ages.’

Percy stood up and put the plates and cups in the sink, ‘The home Alice is in, that’s not as bad.’

‘It’s not as bad because it costs £1000 a week or something silly!

‘Right, I better go and get the car ready.’ Shaking the car keys in his hand as he walked out of the front door.

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‘I’ll just get out and get the wheelchair out of the boot, then you can open the door and help Linda out.’ Percy instructed.

Dawn opened the car door, and eased Linda out of the car and into the wheelchair.

‘Thank you,’ Linda said.

‘No trouble. Right, James, are you ok getting out of the car?’ Percy asked.

‘I can manage.’

They walked over to the door of the church hall. ‘Hang on a minute, let me just get the key out.’ Dawn said, rummaging in her handbag. ‘Ah-ha! Found it!’

She unlocked the door and they walked in, with Percy pushing Linda’s wheelchair behind them. ‘If it weren’t for you, I’d never get to come to these things. You’re an angel!’

‘Where are my wings? I don’t seem to have them yet! It’s a pleasure to do it, Linda. Gosh, isn’t it chilly in here?’ Percy said. ‘I’ll go and get the heating on then make a start on arranging the chairs. It’s a bit of a mess! Would anyone like a cup of coffee?’

‘Yes please,’ they all chimed.

‘No sugar though, I’m sweet enough!’ James giggled.

Percy went off to make the coffee while Dawn started setting up the activities.

‘Hello?’ a voice said, quietly.

Dawn turned around to see an older lady standing, looking around nervously. ‘Hi! How can I help?’

‘I have just moved to the village, and I had a leaflet put through the door about the activities going on at the church. I thought I’d come and see for myself – am I interrupting anything?’ She said, moving closer towards Dawn.

‘Not at all! My name is Dawn and I run the activities with my husband, Percy. He’s just in the kitchen making the coffees. What’s your name?’

‘I’m Jean, I only moved to the village a month ago to be closer to my daughter. My husband died last year so she thought it would be good for me to live nearby. Trouble is, I don’t know anyone here.’

Dawn gave Jean a half smile, ‘Well, there are plenty of people to get to know by coming along to our events!’

Percy came walking into the hall with four cups of hot, steaming coffee and a plate of biscuits on a tray. His face was full of concentration as he carried it. He had been concentrating so hard on his movements that he hadn’t noticed Jean. He put the tray on the table proudly and handed out the cups.

‘Darling, this is Jean, she’s just moved to Little Hamwell.’

‘Oh! I’m so sorry, I had my attention on not making a mess – Dawn says I’m like a bull in a china shop!’ Dawn rolled her eyes. ‘Welcome to the village, would you like to stay for today’s activities?’

‘What’s happening today?’

‘Percy, why don’t you show Jean the timetable while I finish getting the chairs ready for the Monday club exercises?’

‘Yes, yes of course. Okay, follow me oppo!’

‘Oppo?’ Jean said, confused.

‘Sorry, RAF slang, it means friend. You can take the boy out of the forces, but you can’t take the forces out of the boy.’ They walked over to the other side of the hall, where the notice board had a large, printed schedule for the month. ‘Today we have Monday Club which involves coffee, tea and chair-based exercise; after that we have bingo. Later, in the afternoon, we have gardening club – do you like gardening, Jean?’

‘I used to garden with the church in my old village. Gardening is something I really do love; by doing the gardening, you’re getting fresh air. I couldn’t imagine life without green space. These sorts of things are enriching, your brain switches off; it allows you to leave your problems behind – temporarily of course.’

‘I think a lot of people don’t realise how much your soul needs open and green spaces; it gives you so much when you’re out in the countryside and just walking.’

‘I agree, nature is a beautiful thing. What other activities are on in the week?’

‘Tomorrow afternoon we have the Ladies Club and quiz, followed by bible study in the evening. Wednesday and Thursday, we have Lunch Club for the elderly. Friday, we have Rummikub Club; Saturday we have a coffee morning, and Sunday of course the day is taken up with church-related activities.’

‘Wow, there was virtually nothing for older people where I used to live.’

‘Dawn and I organize these activities; we’ve been doing it for 18 months so far.’ He said proudly, while looking at his wife who was now faffing with the microphone. ‘Oh, Jean, we are busy every day of the week now. We also do some transporting for the older members of the community and visit the local care homes. We like doing it and we've got a car. It's not our car, God's allowed us to have a car, so we use it to help people.'

Members of the village were now coming in ready to start the Monday Club chair exercises. Each one signed in with Dawn, then took their seat; the instructor, Shelley, had also arrived and began fiddling with the Hi-Fi on the wall. The hall was now buzzing with chat and upbeat music.

'THANK YOU EVERYONE! THE CLASS IS NOW READY TO BEGIN!' Shelley announced.

Percy and Jean remained by the notice board while the class got underway. 'Did you enjoy your time in the RAF, Percy?'

'Overall, I would say my armed forces experience positively shaped my life. I'm proud of the fact I was in the RAF. Best outfit in the world!' Percy said, winking and nudging her arm.

'Do you *really* believe that?'

'I do! We should bring back national service too. They called it instilling discipline.'

'Interesting. I really don't see the benefit; my husband told me about the way the boys were treated. Reggie said, on many occasions, if you did something wrong while marching, you were told to run with a rifle over your head until you were told to stop – a lot of them would collapse on the way.' Jean spat.

'That life forces you to grow up. I was just nineteen years old when I joined and stayed in the RAF for twenty-two years. Originally, I thought I'd sign up for three years! It was a life you got used to, I was happy doing it. Of course, I was also sent off to assist in the testing of nuclear weapons.' He began fiddling with his blazer button.

Jean looked at him in amazement, 'Where were you posted for the tests?'

His eyes met hers, 'Maralinga, Australia. Why? You've heard of the tests?'

'I know all about them. Reggie was at Maralinga too.'

There was silence between them, they seemed to have forgot about Shelley encouraging the group to lift themselves up.

'What did he tell you about them?' Percy asked.

‘Very, very little. When I first met him, he had just come out of the navy; he said he had to sign the Official Secrets Act and couldn’t talk about it. He would say that he went to Australia and spent a year in the desert.’

‘Mmm, it was a strange experience but, in some ways, it was very interesting.’

‘I feel so angry about it all.’

Percy was surprised, ‘Why?’

‘The MoD, the government, the public – they have the same attitude; they don’t care about you all. The other nations that were testing nuclear weapons, like France and America, they recognise the situation of their veterans, and they help them. You were all guinea pigs, no protection, no protective clothing but I guess it was a big adventure.’ She snarled. ‘Surely you’ve seen that they’ve lost the medical records of test veterans – coincidentally when people started making claims.’

Percy tutted, ‘You’re right about the protective clothing; we didn’t have anything except for a pair of high-density goggles. That was the only protection we had. We would just stand there in shorts and watch the explosion. I always turned my back on it because of the glare, even through the goggles. You couldn’t see the sun through them in daylight, but when the bomb went off it dazzled you. Some people say they could see the bones in their fingers, but I can’t remember seeing that. At the time, Jean, we didn’t see any exploitation, it was only years later when we heard these stories about people dying.’

They were both so absorbed in their conversation that they had also failed to notice Dawn standing next to them. ‘Everything okay here?’ She asked.

‘Oh, yes, all fine here. Jean was just telling me her husband was a nuclear test veteran!’

‘Wow! What a small world. Nasty business, all of that, the MoD exploited you all by sending you to those places.’

‘I think you’re forgetting that as young men we were excited by the prospect of going to places like Australia or Christmas Island. We went somewhere exciting and travelled abroad to somewhere you wouldn’t have been able to. We could enjoy ourselves together, we played football, cricket, we had a scout movement and a yachting club. These things mitigated the effects of the daily work because we could relax.’ Percy said, defensively. ‘To me, the nuclear tests were a waste of time and expense – it costs a lot of money to drop a bomb. But, ladies, when you’re in the forces you do as you’re told. No one would necessarily volunteer to go and be part of that. The forces give you the mentality of whatever happens we are in this together; you get a level of camaraderie that you just don’t get in civil life.’ The three of them stood looking at each other, not knowing what to say.

Feeling a little awkward, Dawn interrupted the silence, ‘I’m just going to start setting up the bingo, I will leave you to it.’

Percy noticed a small pin badge on Jean’s coat. ‘Member of the BNTVA I take it?’

Jean looked down at her badge and ran her finger over it, she made sure it was on every jacket, cardigan, jumper and coat she wore. ‘That’s right, they’re like family to me now.’

Percy huffed.

‘What’s your problem with them?’ She asked, confused by his reaction.

'I’m just not impressed with the results; the MP that’s supposed to represent us has done very little. I know they have been promoting to get us recognised, but I don’t think they’ve done that job vigorously enough. I don’t know any other veterans, but I would like to speak to someone with similar experiences. Have you been to the reunions?’

‘I went in May, and I’ll be going again in September to Weston-Super-Mare. It does get expensive though; £160 for the hotel, £40 for the conference and dinner, £40 for the rail ticket…it adds up.

‘Blimey, I’m only a pensioner! That must stop lots of veterans attending.’

‘Well, they’re now trying to introduce a phone service for the veterans.’.

‘Why would anyone need a phone service? I’ve got nothing against them, but I just don’t like it. I can’t be doing with it anymore; let’s talk about the same things we spoke about last time, let’s have some awful tea and cake in a hotel somewhere. I’m just a bit cynical I guess.’ He paused. ‘I think get away from it, live your life, forget it, it wasn’t a good thing and yes, people had a much worse experience than I had, but you need to forget it happened; that year or two of your life wasn’t the end of the world, just forget it.’

‘I think you need to be a little more sensitive to the potential effects of the tests; not everybody was as lucky as you have been.’

‘Arguably, I have got away with it. I don’t know, I worry that speaking to another veteran could bring it all back. I don’t know if it’s a good or bad thing where you just talk about the same things each time. It does get depressing. I don’t mind talking about the old days to a degree, but I want to move forward, even if I am ageing. At the end of day, Jean, we are all the master of our own destiny, I’ve shaped my own life, and you carry whatever luggage you get given. It’s a frame of mind and I’m a bloody-minded individual! We never give in, and we never surrender.’

‘How can you brush this off so easily?’

‘Jean, that’s not how I have intended to come across. Don’t presume to know how I feel though. We had to bury a comrade at sea while we were there; I still think about him, poor soul.’ Percy’s voice broke with emotion, ‘That had such a profound impact on me, even after all this time.’

‘GOOD WORK EVERYONE! SAME TIME NEXT WEEK!’ Shelley shouted. She stopped the music, and everyone got up to get a cup of tea. The 1 o’clock bingo was now due to start in ten minutes.

‘I just miss Reggie, that’s all,’ Jean said, sadly. ‘It must be wonderful to still be married. How long have you been together?’

He gave her a smile, ‘63 years.’

‘You’re lucky to not be alone when you’re older. The loneliness can be so dark.’

‘I have experienced loneliness too, Jean. My brother and I were put in an orphanage at five years old. I’ve no idea why my mother did it. At that age you learn what loneliness is, when you don’t even have a toy to play with. It was very tough; we were there for about a year before my father found us and brought us back. By that time, a lot of damage was done to me already.’

Sensing that Jean was lost for words, he changed the subject, ‘You said you like gardening, what other things do you like to do?’

‘I have a lot of hobbies really; I play bridge, I read books, and I belong to the University of 3rd Age. I like to keep myself educated; I read the news online – I don’t know what I would do without my iPad! Are you a “silver surfer” as they say?’

‘I’m a bit of a luddite with technology because I don’t understand it. I panic when my phone runs out of storage, so I delete loads of things by accident. Dawn is very good with the computer; she prints out the schedules, looks for recipes, online shopping, online banking…but me? I’m just not very good at it, and I can imagine it is very isolating for older people when they can’t use it.’

The hall was buzzing with chatter, common phrases being, ‘Gosh, that’s knackering isn’t it!’ and ‘You need to do what you can, but don’t try and do too much otherwise you’ll knock yourself out!’

Now that everyone had their cups of tea, Dawn announced, ‘WELCOME EVERYONE! YOU WILL FIND EVERYTHING NEEDED FOR TODAY’S GAME OF BINGO ON THE TABLES. GRAB A CUPPA IF YOU HAVEN’T ALREADY AND WE WILL BEGIN.’

Dawn doesn't need a microphone – that's for sure, Percy thought. 'Fancy a go, Jean?' He asked, keen to change the subject. He pulled out a chair for her to sit on.

'That would be lovely, thank you Percy. It's been years since I played bingo.'

'HERE WE GO EVERYONE! HAS EVERYONE GOT THEIR DABBERS! LET'S CRACK ON! TWO AND EIGHT, TWENTY-EIGHT! ALL THE THREES, THIRTY-THREE!'

'Goodness me, I hope I can keep up!' Jean said.

'You'll be fine, things like this keep the mind sharp!'

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'I'll be back at four o'clock to collect you so we can have some dinner before bible study. Is that okay?'

'Lovely. Thank you, Percy. Don't forget to feed the dogs and listen out for my delivery'

'Another parcel!'

Dawn took the keys out of her bag, unlocked the door, and began arranging the chairs in a circle for Ladies Club. Ladies Club was a space for the women of the village to discuss current affairs, fellowship, have fun and enjoy the company of others. Often, they would invite a speaker to come and talk about a certain topic; today though, they were having a quiz. As she was arranging the final chair, she heard the door slam.

'Sorry! I see I'm the first one here!'

'Hello Jean! Here for Ladies Club I take it? You're a bit early, would you like a cup of tea? We could have a natter before everyone arrives if you like?'

'Wonderful. Two sugars and a splash of milk, please.'

Five minutes later, Dawn came back to find Jean reading a leaflet about the village.

'Here you go. I've got some biscuits too.'

'I was feeling a little peckish!'

'You and Percy were having quite the discussion yesterday about the forces and the nuclear tests.'

'We certainly were, I hope I didn't upset him. I just sometimes feel a bit angry about the way those veterans are treated.'

'Don't worry about upsetting him, he just has a different attitude to most. Although he pays his membership fee to the BNTVA every year, he doesn't really engage with it; I think he feels a bit like an outsider because he doesn’t necessarily agree with medals and compensation. How did the tests affect your husband?’

‘I think it’s Navy culture to drink and block out the memories. He would have very dark moods; if he had a problem, he would put it in a drawer and forget about it for a little while. When you bottle all these things up, it doesn’t help at all. He wasn’t an alcoholic, but alcohol made a very big impact on my life because he’d always be grumpy the next day if he had drunk too much in the evening. You couldn’t reason with him when he had a drink, he would fly off the handle.’

‘Did you stand up for yourself?’

‘I would just agree with everything he said because I thought I might not get shouted at that way. It was awful, it made life very difficult. His last 18 months on this Earth, where he didn’t drink so much, was probably the happiest time for us as a couple – despite being married for over forty years.’

‘I’m so sorry, Jean, what did the alcohol cause him to do?’

‘It was normally verbal, I mean, he might throw his sandwich at me, but he was very, very, verbally violent. He didn’t really have a soft side,’ she sighed. ‘He was a difficult man to live with, but he battled with his demons. He went through a lot in the forces, but these days you would have had counselling.’

‘For PTSD, you mean?’

‘Yeah. I remember when he threatened to murder me with a couple of antique knives. I really thought he would kill me that night – the drink did that to him. Not long after he died, I found them in his gun cabinet, so I took them to the auctioneers. One of them was American and one was German; I told the auctioneer to sell them, I wanted them out of my life. I got £150 for them in the end.’

‘Did he ever apologise to you?’

‘Well, not long before he died, he said by way of explanation not apology, “you’re always meanest and cruelest to the weakest one on deck – and that was you.” The ironic thing was that in those last 18 months, the weakest one on the desk was him.’ Jean’s eyes welled up with tears.

Dawn handed her a tissue, ‘Was he ill for long?’

‘He’d been coughing, it went on for a few months – you know what it’s like getting men to go to the doctors,’ she said, wiping her eyes with the tissue. ‘His GP arranged for all the necessary tests to be done and referred him for an x-ray to be done the next day. We had a call from the hospital to say, “We think there’s a bit of a shadow on the lung.” He had to go for two CT scans after that. The appointment for the consultant came through a couple of days later, where we were told, “We’re terribly sorry but you have a tumor on your lung, you’ve got lung cancer.”

Dawn tutted sympathetically, ‘A very cruel disease.’

‘I would always ask the doctors, “Is it anything to do with him being a nuclear test veteran?” They would close me down and say it’s nothing to do with that.’

‘Do you think witnessing the tests caused his illness?’

‘His brother has always said it was being at Maralinga that killed him. When he died, I thought that the GP would ask if I wanted the postmortem or not, but he didn’t mention it. I was then told he didn’t need one because of his lung cancer. I only fought them on it because I wanted to get rid of the demons that he carried with him for such a long time. When the results came back, I almost felt cheated for Reggie and the BNTVA. It came back, as expected: lung cancer and pneumonia.’

‘Those poor men deserve acknowledgement, recognition and compensation,’ Dawn said, putting her hand on Jean’s shoulder. ‘Would you consider having another relationship?’

‘I think I would love another relationship, romance in your seventies is a wonderful thing!’ Jean said, laughing. ‘One of my best pals keeps saying, “You’ve got to go online dating!” I don’t think I’d like to do that; if romance comes along, it comes along. It’s about independence at this age, but I would be quite happy to have somebody else in my life, *somebody*. Having things to share, to walk down the road and hold hands with somebody, to sit and have coffee with, just enjoy an afternoon together.’

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‘How is it only Tuesday, I am exhausted already!’ Dawn said, climbing into bed.

‘It’s not as if we do anything is it?’ Percy said, sarcastically.

‘I’ve been up since six o’clock, done all the washing, and dropped off the sewing to Margaret before we drove to the church for Ladies Club.’

‘I was meaning to ask how Ladies Club was?’

‘Jean joined us today; it was nice to speak to her properly. She’s been through ever such a lot. Her husband, God rest his soul, didn’t treat her very nicely. I felt so sad to hear the way he had treated her; I feel ever so lucky to have met you.’

‘We all know it was the uniform and boots that attracted you.’ Percy laughed, putting his arm around her shoulders.

Dawn gave him a kiss on his cheek, ‘You are a lovely man. Can you believe we have been married for 63 years?’

‘I’d have got less for murder.’ He winked at her.

‘Daft sod.’

He laughed, ‘I wouldn’t change a single day of those 63 years, life is better with you in it.’

She smiled at him, ‘Oh you old romantic. Tomorrow morning I’ve got to get up for six o’clock to get the food prepared for the lunch club. Steak pie, a flan and a lemon meringue.’

‘Your steak pie is award-winning, I must say. It’s all very wholesome.’

‘A lot of people eat on the hoof nowadays; they don’t have proper diets or nutritious food. That’s why I love cooking – because I know what goes in it. I can’t think of a time when you’ve not cleaned your plate!’

‘I never leave a pea, Dawn, wouldn’t dare!’

‘We need to collect James and Linda again on the way to the church. These lunch clubs are invaluable to the elderly, especially for those who live on their own. It’s having a meal with a lot of other people, and it means the world to them; to have that connection and share food and conversation.’

‘I think on Saturday afternoon we should make some time for you and me; we could make use of our National Trust membership and take the dogs for a walk. We could even drive down to the seaside; I miss looking out to the sea, I’ve really missed that actually.’

‘Shall we go for a spot of lunch too? We only have coffee at the church on Saturday morning so we could go straight from there.’

‘I just think we need to enjoy life and do what we can – while we still can. Let’s go to sleep now since we need to be up early. I love you, Dawn.’

‘I love you.’ Dawn said, turning off the light.

Chapter Six

Shaking up the realist tale: CNF and traditional knowledge production

6.1 Introduction

Over the course of the complex journey of writing these CNF stories as findings, a series of debates arose which have not yet been addressed in this thesis but are important to explore. Indeed, having been immersed in the rigorous and time-consuming process of NA and CNF, this final chapter presents a wider reflection on what counts as knowledge and evidence, the significance of CAP and CNF and how it fits in with traditional forms of knowledge production. It then discusses evidence-based policy and practice, the knowledge translation processes of the present study, as well as the contributions this work has made to academia, the BNTV community, and the wider public.

6.2 What counts as knowledge?

Knowledge permits the introduction of new ideas and perspectives on the social and natural world. Yet, at its core, the word *knowledge* is problematic, with the meaning changing depending on the problem under investigation and the methods employed to study it (Eisner, 2008). Certainly, as Eisner (2008) points out, research will always require different approaches according to the circumstances and the specific aims and objectives to be addressed. Regardless of methodology, the rationality behind knowledge production is the desire to share knowledge with others (Harari, 2011). Consequentially, it allows society to thrive, create understandings of different cultures, and engage in reflection (Puplampu, 2021). The social sciences are primarily concerned with understanding relationships between human behaviour and the wider social system (Gordon, 1985), yet the debate of *how to do* social science research revolves around whether the social world can be studied and measured in the same experimental way as the natural sciences (Bryman, 2001). As such, much has been written on the so-called *'paradigm wars'* (Bryman, 2008) with a divide between what is hard science (quantitative research), soft science (qualitative research), and what we consider to be valid and true (Guba & Lincoln, 1994).

The social sciences (e.g., sociology, psychology, political science, and economics) adopted a positivist stance to value-free knowledge construction as opposed to value-laden – a move that St Pierre (2016) argues resulted in the social sciences mirroring the harder sciences. Thus, the traditional Western approach to generating knowledge has been to employ objective, quantifiable methods (Pascale, 2011) within university settings/scientific societies and secured through peer review (Rasmussen, 2011). As Gordon (1985) posits, it is science's "incessant search for universal principles" (p.117) to explain the link between social life, the individual and the group. Auguste Comte, the founding father of positivism and sociology, became convinced that science was the only source of true knowledge. In Comte's introductory works, *A General View of Positivism* (1848, 1865, 2009), he states that the primary objective of positivism 'is twofold: to generalise our scientific conceptions, and to systematise the art of social life' (p. 3). Comte believed that studies of the social world were flagging behind the scientific fields of astronomy, physics, chemistry, and biology. To catch up, he argued that social sciences should share the same epistemological standpoints of precise and empirical observation (Hughes & Sharrock, 1997), using verifiable facts, hypotheses, and scientific theories for empirical testing (Bryman, 1988).

Although Comte's version of positivism has changed since the 19th century, its unwavering commitment to objective truth is still shared today (Zammito, 2004). It is this view of science which remains the dominant and influential methodology for knowledge production (Guillin, 2016). The typical linear model of science has resulted in the assumption that quantitative knowledge can be applied to any problem (Stern et al., 2021) - creating a conveyor belt of recommendations for decision makers and practitioners (Cash et al., 2006). Society, though, has evolved and challenged traditional thought and methods of scientific research (Kastenhofer & Molyneux-Hodgson, 2021; Rasmussen, 2011). This is also reflected in the changing face of academia (Denzin & Giardina, 2016). It is now more difficult than ever to not be constructivist or open-minded at the prospect of other truths and realities; knowledge production has acquired a more practice or evidence-based role (Rasmussen, 2011) with qualitative evaluation.

As Guillin (2016) highlights, Comte acknowledged that social phenomena did elude the reach of such scientific investigation. Therefore, given that the present study sits within the qualitative paradigm and places great value on the stories of the participants, it is relevant to briefly discuss the historical development of qualitative knowledge. Denzin and Lincoln (2005) argue that, at its heart, qualitative research and its methods are inherently linked to the era of colonialism. Observations, interviews, and ethnographies provide a plethora of opportunities to investigate and represent the Other. For countries to colonize other nations, they relied on gathering knowledge about the cultures and customs of that particular population to gain overall power and control (Denzin & Lincoln, 2005). Denzin and Lincoln (2005) also discuss in detail the historical waves of qualitative research (see their chapter for greater detail) but essentially, it can be traced through eight moments in history: traditional and the Chicago School (1900-1950), modernist (1950-1970), blurred genres (1970-1986), crisis of representation (1986-1990), postmodern (1990-1995), post-experimental (1995-2000), methodologically disputed present (2000-2004), and the future (2005-present).

Thinking critically about the process of knowledge production, or the sociology of knowledge (Berger & Luckmann, 1971), requires engaging with both social and political influences (Choudry, 2020). Yet, it seems only now, in this ‘future’ phase, that qualitative researchers are more concerned with forming critical discussions around diversity, gender, sexuality, freedom, and community to bring the voices of the Other or those in marginalised communities to the fore not just for exploration but for emancipation and change. While the battle for qualitative knowledge to be considered valuable has been won in some quarters, the argument surrounding *what counts* continues. Further, we need to question whose knowledge matters and how do we assess its value? The significance of this question lies in the fact that the scholarly production of knowledge informs past, present, and future understandings of ontology, epistemology, theory, and action (Puplampu, 2021). This discussion is necessary following the findings detailed in chapter five, particularly since these findings have been represented using creative writing.

The use of creative writing, and in particular, the use of fiction, has been challenged as a form of true and rigorous knowledge. When using novel means of producing knowledge, dilemmas arise, and often focus on the question, is it scientific? (Rasmussen, 2011). Instead, perhaps we should ask is this knowledge useful and can it be used for future knowledge production, actionable change or provide a platform for marginalised groups? While qualitative research advocates for the capturing of in-depth, rich, and complex data, and acknowledges the researcher’s subjectivity, representing findings using methods such as fiction, drama, poetry, or art remains a contentious issue (as discussed in section 4.6). This work is produced from the researcher’s experiences of the phenomenon under investigation, as well as their philosophical standpoints (Patiño & Goulart, 2016). The value of such research, argues González Rey (2007), should not be based on the number of participants recruited, but the ability of the researcher to shape theory, epistemology, ontology, and the findings to create new ways of thinking and understanding of a particular problem. In the case of this study, we should consider how CNF can disrupt the traditional modes of representation and make an impact for the community under investigation.

6.3 Counting CNF as knowledge

> "To be drawn to stories as a researcher is to be drawn into a way of life that gives meaning and value to those sources of knowledge that be gotten at in no other discursive way."
>
> (Goodall, 2008; p.12)

The fundamental tenet of creative academic practices is to combine *knowledge* using a narrative and imaginative approach, with fact and fiction being distinguishable through characterisation and narration (Genette, 1990). Yet, the scepticism surrounding research using creative forms of representation (see chapter four) has culminated in a lack of credibility against more traditional modes of research. To use creativity and innovation through art to produce or represent findings offers researchers the ability to understand the nuances of human social life and experience (Chamberlain et al., 2018). This visible distrust, though, can be attributed to the findings appearing ambiguous, provoking readers to make their own interpretation on the meanings presented (Boydell et al., 2017). As Chamberlain et al. (2018) puts it, "meanings are to be inferred rather than conferred" (p.133); the findings as CNF stories, such as presented in this thesis, do not offer finalised answers to the aims and objectives. Instead, they provoke open debate surrounding issues relating to ageing, loneliness, and identity, with the hope that it will inspire possible social action (Bagley & Castro-Salazar 2019) and changes to policy and practice. Communicating the findings of the research outside of academic and university circles is important for creating change within wider society (Bickford et al., 2012). Oftentimes, ground-breaking research can be met with public indifference and misunderstanding as a consequence of science's emphasis on being objective (Brace & Geoghegan, 2011); therefore, finding a method of translation and dissemination which is accessible and acceptable for non-expert audiences is crucial (Green & Brock, 2000; Pye, 2020).

Bochner and Ellis (2016) argue that new forms of inquiry gain acquiescence when there is a specific cultural phenomenon, problem or community that needs to be accommodated, meaning a more specific or modern approach may be necessary to address the needs of that population. This has created a crisis atmosphere within academia as new methods challenge the way knowledge is produced and applied (Bochner & Ellis, 2016). Characterising creative practices in relation to knowledge production is difficult; the propositional knowledge produced using, for example, creative writing cannot be thought of as *true* or *evident* since it cannot be defined in such absolute terms (Donnelly, 2012). As an alternative, Donnelly (2012) argues that when employing creative practices, knowledge should be thought of as embedded throughout the creative process through complete researcher immersion. In section 4.10, immersion is the focus of the framework in this study and considers it to be a prerequisite of the narrative analysis process.

While the concept of truth has been discussed in detail in 4.4.1, I believe that the stories shared by the participants should be thought of as true. In line with my philosophical standpoint, I did not ask the participants to provide armed forces records to prove their involvement in the nuclear testing programmes; verification occurred through their unwavering descriptions when retelling their life stories during both rounds of interviews. Further to this, all 29 participants in this study recalled very similar experiences, in a surprising level of detail despite not having regular contact with other BNTVs and limited communication with the BNTVA and NCCF. In sum, the CNF stories presented within this thesis provide an expression of reality as told during the interviews, allowing all participants to be represented.

As noted in several places throughout this thesis, the BNTVs are a unique population group which has received limited research attention. A Google Scholar search (conducted on 21/04/2021 using "British nuclear test veterans" OR "BNTVA") revealed only 115 results (including studies, book chapters, commentary articles and conference abstracts) from 1970-2021. Studies which do mention this community are largely epidemiological, with the potential impact of radiation on health and DNA dominating the discourse; currently, there are no published and peer-reviewed qualitative studies which have captured the lived experiences of this community in the same level of depth presented in this thesis. Indeed, the successful recruitment and participation of 29 individuals (23 men, 6 women) from the BNTV community signals an important and necessary contribution to academia.

The partial academic attention has offered a limited perspective regarding the potential health effects of radiation exposure, but as demonstrated in this thesis, the lived experience is missing. Within the British Press though, the BNTV's stories have received better coverage. Between 1983-1999, there were 132 newspaper articles (searched using British Newspaper Archive); and, between 2008-2021, 276 newspaper articles in relation to the BNTVs. The increase in mainstream media coverage has also culminated in representation on BBC1's Call the Midwife (aired on 18/04/2021). The storyline that was used focused on the health of a national serviceman present at Operation Grapple on Christmas Island; he suffers from excruciating stomach problems, struggles to conceive with his wife, and experiences the death of his newborn son. The episode ends with the doctor proclaiming that the MoD are responsible for the suffering of those present during the tests, as well as their families. With the experiences of the community receiving more widespread media attention, and the present study's use of CNF to represent their voices within academia, narrow conceptualisations of knowledge are challenged. Further, the significance of this form of knowledge dovetails with the urgent need to tell the stories of this community before their stories disappear with them.

A realist tale, as described by Gobo (2008), is the most common within academia as it is written for collegial readers. It is detached, singular, and largely results in the author's absence within the writing (Konecki, 2008) (see chapter four). For knowledge production, the realist tale implies that the researcher "has the right to give the last word in interpretation" (p.13) of a community or culture (Konecki, 2008). Given the history of *"Othering"* and the power that researchers have when interpreting data, it is clear to see why the realist tale is the most popular form of report. However, CNF has been used within a range of other disciplines by academics wanting to offer an alternative to the realist tale. Examples of disciplines which have incorporated this are environmental science, health, and ageing. Within environmental/conservation science, a shift to interdisciplinary approaches over the last ten years is evident (Brown, 2018). The use of raw data and graphs to communicate the impact of extreme weather in Borneo (e.g., Chang, 2010) falls short of evoking behavioural change outside of scientific circles (Pye, 2020). In work by Pye (2020), the use of a narrative and life history approach to create a 'natural biography' translates knowledge in a way that evokes empathy, creates interest, support, and encourages the reader to reconsider their lifestyle and relationship with the environment. Within the field of health, scholars have noted that research often lacks insight regarding *how* individuals make sense of diagnosed illness or disabilities, as well as the ageing process (Richardson & Motl, 2021). For knowledge production, CNF affords the researcher the opportunity to serve the community they have worked with, unlike the realist tale, as well as share their work widely through a range of different channels (e.g., drama, podcasting, and as stories). Indeed, CNF and other creative practices can translate empirical knowledge and typical, isolating academic language about a particular phenomenon into a format that can be more easily understood (Griffin & Phoenix, 2014; Smith et al., 2015).

In the case of the BNTVs, the experience of witnessing a nuclear explosion is difficult to comprehend by those who were not there and those who did not grow up during the era of the Cold War. Through the use of CNF, these experiences have been translated in a way that uses vivid description and imagery to explain just how traumatising it was for some of the participants. The following extract details exactly what a nuclear explosion looked like through the words of the participants rather than the researcher's interpretation alone (taken from an Unlikely meeting, chapter five):

'It was just for an instant, a tenth of a second or less, then it was gone. We were told to wait, then turn around. You know on a hot day when the sky is clear, and you look at the sun and it's shimmering? That's exactly what you saw when you looked at the sky. Then it turned into blood red ball, beautifully round; suddenly, it erupted, like a volcano in the sky. The actual shockwave was really powerful – it felt like an earthquake.'

During all the interviews with the BNTVs, witnessing the nuclear explosions were described in a similar way to the extract above, with further references to seeing the bones in their hands or of the spine of the person in front of them (see section 4.5.1). Using CNF to represent this experience not only allows for vivid imagery and character amalgamation, but should be considered a truthful and rigorous, with each story being true to the integrity of the information contained within them. Utilising CNF allowed the stories to go beyond the verbatim on the audio recordings and sanitised academic prose; indeed, the stories uphold a commitment to verisimilitude. The three stories presented in chapter five are grounded within systematic data collection and analysis processes. As Denzin (1997) argues, verisimilitude allows "readers to imaginatively feel their way into the experiences that are being described" (p.12). Gibson (2020) notes that it is empathy which enables engagement and understanding with the lived experiences of the individuals involved. This was achieved through creating fictional accounts truthful to data but not to the original context in which the data as collected (Wade et al., 2009).

C. Wright Mills (1959) suggests that to claim the attention of readers, you should ask yourself the following questions: how difficult/complex is the subject I am writing about? What status do I claim for myself through the process of writing? Finally, whom exactly am I writing for? In answer to these questions and with regards to the process of knowledge production, the topics of loneliness, wellbeing and ageing are theoretically complex but do not need to be explained in jargon or isolating language. The status I claim for myself is that of the voice behind the stories, or the storyteller; from interview transcript to CNF story, I have tried to be evocative, intimately involved and fully engaged with the words of my participants (Phoenix, Smith & Sparkes, 2010). Finally, this research has been written with two different audiences in mind: the academic community through the writing of this thesis and planned publications in academic journals; and, later, the BNTVA community through the knowledge translation process via presentations, story publications and a proposed podcast. Many benefits of using CNF have been highlighted, however, it is worthwhile to mention some of the challenges associated with using it for knowledge production and translation.

The first challenge was making the decision to step away from more traditional academic forms of representation for knowledge translation. Within a realist tale, the findings section typically uses the form of *theme – interpretation – evidence*; this is the most accepted style of academic writing within qualitative research due to its ability to appeal to both quantitative and qualitative audiences (Berbary, 2019). For this study, though, I felt that representing the BNTV community in this way was too impersonal and continued the trend of subjecting them to a continued silence. Like other academics have noted (e.g., St Pierre, 2013), I felt that a traditional representation in this instance would have reduced the BNTVs lived experiences and voices to *just* evidence, privileged my interpretation as the researcher and removed my subjective influence, imposed an incorrect structure on their lived experiences, and finally, would have appeared to represent the ‘truth’ of all the participants’ realities. Indeed, as noted in section 4.6, there is a risk of work being disregarded due to the traditional criteria of validity, reliability, and truth (Smith et al., 2018).

Another challenge of CNF is the time required to create an engaging, accurate, and truthful representation of the findings. The process of analysis and creation has been detailed in section 4.10 but the underpinning requirement for this was full immersion in the words and experiences of the participants. The data, collected through EOI forms, life history telephone and face-to-face interviews, authentically and ethically captures the lived experiences of this unique ageing population (see chapter four). Tracy and Hinrichs (2017) suggest that researchers should disclose the amount of raw data that was collected; in answer to this, the raw data amounted to EOI forms (n=39), total audio recording time (n=56.45 hours), interview transcripts (n=639 pages), and participant life histories (n=19). It is difficult to put a figure on the exact amount of time taken to do the NA and CNF writing, but NA took several months (July 2019 – February 2020), and the CNF stories took approximately 6.5 weeks each (or seven months) with editing and proofreading. In a similar way to Jacobson and Larsen (2014) the need to engage in trial and error over the course of crafting the stories is time-consuming. However, there are, of course, differences between writing as a doctoral researcher with an 80-100,000-word thesis and writing for publication in a journal.

The final challenge to discuss here is that for some researchers (especially those, such as I, trained in the sciences) there is a need to develop the ability to write creatively with correct flow, syntax, grammar, and necessary literary techniques (see chapter four) required for CNF. Indeed, as Jacobson and Larsen (2014) note, it is daunting to write in such a way when there is an awareness of professional creative writers that have spent their career perfecting their craft. One cannot improve their writing unless they take the time to practice and see what works. For knowledge production, the difficulty here is to write in a way which is, perhaps, unnatural and may face more scrutiny and adversity than the traditional form of qualitative report. Using advice from Caulley (2008) was especially helpful, as well as Smith et al. (2015) when developing the CNF stories in this thesis. It was also useful to consult with others, read them aloud, and take on board comments for development. In this instance, I was the only person who knew the participants' stories and experiences word-for-word due to being completely immersed in them. In addition, the BNTV community were, to those I read the stories to, virtually unheard of; this meant that I could ask the readers to elaborate on what they thought the key themes/messages and experiences were in each story.

6.3.1 CNF and quality

While CNF stories may appear as simple fiction, it is no less rigorous than other forms of qualitative work. In this study, the research should be considered both credible and rigorous based on the methods chosen for data collection, the level of engagement and immersion with the BNTV community, the high level of researcher training, and the use of piloting for each interview prior to commencement. As highlighted in chapter four, judging qualitative research with the same criteria as quantitative research is problematic and unhelpful. Viewing research from a criteriologist lens instead of a relativist lens (Sparkes & Smith, 2009) does not provide academics engaging in new forms of knowledge production and translation the space or opportunity to do so. Indeed, as Schinke, Smith and McGannon (2013) posit, “in a world of multiple mind-dependent realities there can be no pre-established, static, permanent and universal criteria” (p. 461) which can determine what is trustworthy and what is not.

Another issue that both Schinke et al. (2013) and Sparkes and Smith (2013) highlight, is that having such an exclusive range of judgement naturally means that what can be considered as *legitimate* research significantly excludes or polices the possibility of new knowledge and understandings (Garrett & Hodkinson, 1998). For the present study, the research should be judged according to its worthiness and substantive contribution, meaningful coherence, expression of reality, aesthetic merit, and evocation (Smith et al., 2015; Smith & McGannon, 2018). The stories presented within this thesis meet these criteria to a high level; firstly, for worthiness, the topic is relevant, timely, and significant due to the increased media and research attention the BNTV community is now receiving. In addition, the population group is dwindling, with less than 3,000 BNTVs remaining. For substantive contribution, this research is the first qualitative study to explore identity, ageing, and health and wellbeing among the BNTV community; it provides a methodological framework for conducting narrative analysis and developing CNF stories and challenges the dominant theoretical perspective of ageing.

In line with meaningful coherence, the research has achieved its objectives using novel and appropriate methods. The thread of the entire thesis, from chapter one to chapter seven, has been to tell the narrative story of nuclear testing and the impact it has had on those who were involved. The literature review, the research objectives, and the findings connect to ultimately explain the legacy of the nuclear tests from the point of view of a marginalised population. Next, expression of reality is fulfilled through the showcasing of the findings as CNF stories; these stories provide both a shared and individual sense of truth using interview verbatim as character dialogue. This dovetails well with the criteria of aesthetic merit; the use of the CNF as representation was to provide an artistic account of the experiences of the participants as opposed to the realist tale. Having made the decision to not dissect the findings in chapter six, this thesis allows the reader a level of interpretation that they may not get otherwise. The CNF stories are crafted in a way that has the traditional conventions of a story (beginning, middle, and end, as well as a plot/resolution), with language that is both emotive and enjoyable to read. With regards to the final criteria, evocation, this study has brought the life experiences and histories of a population in both an emotional and intellectual way. While chapter one and two explored a broad range of historical and scientific literature (e.g., the nuclear tests, the armed race, the health effects of radiation, military identity, ageing, and leisure/community activities) to provide the reader with context, the findings then present this from a human perspective. For example, it asks the reader to understand and feel the experience of loneliness and loss, losing independence and ability, and the unknowing surrounding potential radiation exposure.

If this study, which has employed creative practices, were to be judged according to the traditional (criteriologist) forms of quality (e.g., validity, reliability, replicability, generalisability) it would simply not be able to. That is not to say it is not trustworthy, but rather, these findings cannot be replicated, and they cannot be generalised to all elderly veterans. To attempt to do this would go against the very point of this work – that is, to represent a marginalised population. The issue that comes to the fore though through all of this is, *how* can research utilising CAP make a difference with regards to policy and practice? Moreover, *how* can the significance of the findings make a difference to the lives of a specific group and wider population? To answer these questions, I turn my attention to evidence-based practice and evidence-led policy within the fields of health and wellbeing.

6.4 Evidence-based policy and practice in health and wellbeing

As discussed in the opening section of this chapter, knowledge can be considered to be a consensus based on reasoning and discussion produced from evidence; evidence, meanwhile, is generated through comparison and analysis of data to make judgement or decisions (Brownson, Fielding & Maylahn, 2009; Dammann, 2019). Importantly, as Dammann (2019) writes "knowledge is evidence, but not all evidence is knowledge" (p8) and should be relevant to the problem being investigated. The concept of *evidence* is one that has become increasingly popular within healthcare, with considerable global investments in both research and infrastructures to ensure that individuals receive the very best care based on what works (Rycroft-Malone et al., 2003). According to the Oxford Dictionary (n.d), etymology of evidence refers to information supporting a claim or establishing a fact. Policy "is the development, enactment, and implementation of a plan or course of action carried out through a law, rule, code, or other mechanism in the public or private sector" (Bogenschneider, 2014, p. 43). Combining the two, evidence-based policy has become important for countries which place importance and value on both the quality of policy analysis and the evaluation of programmes/interventions. According to Head (2010), there are two things required for evidence-based policy to be successful; the first is a favourable political culture in which decision-makers want to utilise relevant knowledge. The second is a research culture which is committed to being rigorous when generating knowledge and evidence.

It is usually fast-paced, influence-driven and deeply political – making it incredibly challenging for research to respond in real-time (Bogenschneider & Corbett, 2021; Gamoran, 2018). Qualitative research's plethora of idiographic methods offers policy makers the opportunity to explore processes, procedures and practices which underline official statistics and evidence (Davies, 2000). This level of diversity, Davies (2000) argues, has raised questions for policy makers/ practitioners as to whether qualitative exploration is either appropriate or applicable. This thesis has discussed, numerous times, the legitimacy of such research and will not repeat this line of argument here. Instead, it should be acknowledged that social science should be addressing the problems within society, public policy, and applied practice; using qualitative research provides in-depth description by those populations affected, otherwise developing ecologically valid knowledge. Additionally, qualitative work often determines the evaluative questions that need to be asked, using critical thought and appraisal (Davies, 2000).

Evidence-based practice is largely evaluative; this is unsurprising given the aim of this work is to assess if interventions and programmes of support within key areas of policy (e.g., health and social care, education) are, indeed, improving the lives of those that need it. Within the realms of health and social care, evidence typically continues to be thought of as needing to be observed and verified independently before it can be translated into policy change (Davies, 2000); as Rycroft-Malone et al (2003) posit, the methodology of the study is not purposely overlooked, but for the evidence to inform both practice and policy, it needs to hold up to traditional yardsticks of quality and rigor. This, of course, makes sense but the issue of relevance here is that much of this evidence stems from quantitative research studies (Sackett et al., 1997); with randomised control clinical trials usually considered the gold standard (Rycroft-Malone et al., 2003). Consequentially, other types of evidence, such as that produced through CNF or CAP, has often been disregarded. Papoutsi et al. (2021) argues that medical disciplines have called for methods of research that can portray complex experiences to generate knowledge grounded within practice. As Richardson and Moti (2021) point out, although employing narrative has allowed research to understand lived experiences of individuals with long-term illnesses (e.g., Riessman, 2003), they fail to account for emotion and embodied knowledge.

Not only are creative forms of evidence overlooked, but the overreliance on behavioural/scientific approaches for both policy and practice has meant that when economic (e.g., 2008/9 financial crash) or public health crises (e.g., COVID-19 pandemic) occur, weaknesses of the system are exposed (Pabst, 2021). As Pabst (2021) argues, there is a need to recognise that scientific ‘evidence’ is mostly hypothetical and imperfect rather than ‘incontrovertible truth’ (p. 86). Further, the reliance on probability models of behaviour means that the social aspect of choice is missing. In a systematic review by Carmona, Baxter, and Carroll (2020), it was highlighted that the use of qualitative findings in evidence-led work is growing, with a need for context-sensitive evidence and patient-centred experience (Langlois et al., 2018). Indeed, as Glenton et al. (2016, 2019) argues, qualitative methodologies can explore issues such as stakeholder perceptions, beliefs, or attitudes to practices, interventions, or guidelines in a way that quantitative work cannot.

One of the most important benefits of incorporating qualitative evidence for policy and practice is that it offers the opportunity to represent the voices of those who would usually be excluded (Lewin et al., 2019). Representation and inclusion were the key motivators to include the other members of the BNTV's families. Of the limited work that has been undertaken with this community, in particular the Miles and Green (2011) health needs audit, it was found that many veterans did not access the health and social care provisions available, despite needing them; this was also the case within the present study. However, there are two key differences between this study and the audit; firstly, self-reporting questionnaires were not used to just determine health status and evaluate wellbeing. By asking the participants about their health in the years after the testing and at that current moment in time, I was able to explore a more holistic picture of their wellbeing.

The second important difference between this study and the Miles and Green (2011) audit is that despite some BNTVs needing the assistance of their wives, partners or descendants for daily living and other tasks, these individuals were not invited to contribute to the audit's focus group discussions. Given the high levels of poor health reported in this audit, it is surprising that those who care for them were not offered the chance provide the full picture of daily life. To address this shortcoming, all members of the family were welcome to participate in the present study. During the first round of interviews, three widows and one wife took part; for the second round, I was able to recruit six wives to participate in the interviews with their husbands. This added an interesting dynamic and would, at times, explore issues that the BNTVs would not have thought were relevant (e.g., skin rashes upon returning from their testing postings). Further, it gave the women a chance to speak about their experiences of being married to a BNTV in terms of caring responsibilities, fear of the potential side effects of radiation exposure, and sympathy for their lack of governmental acknowledgement.

The recruitment of 23 older male veterans also answers Sparkes (2015) and Williams et al's (2018) call for research to explore ageing from this perspective. By doing so, not only does this study make evidential contributions by working with an under-researched population group, but it also contributes to the growing body of evidence surrounding the ageing process, loneliness, veteran identity, and activities for wellbeing. As discussed in section 3.6, the global increase of an ageing population has resulted in growing pressure on health and welfare services to meet the demand of age-related health and wellbeing concerns (Ashby & Beech, 2016). However, ageing policies lack individual lived experiences and favour one-size-fits-all approaches (Walker, 2002). This was clear to see in the present study's findings, with many of the participants commenting on the lack of support from local authorities and the NHS.

Although they were forthcoming about the absence of care services, they did not actively seek the help they needed due to feeling like a burden and not wanting to take up the time of others.

6.5 Translating the knowledge produced in this thesis

Throughout this doctoral research study, the underlying aim and motivation has been to raise awareness of the BNTV community through understanding their individual lived experiences and portraying them authentically and ethically. Due to epistemological shifts and creative turns towards alternative methods, I was able to develop and use a systematic approach to analysis to ensure this study adhered to arguments of rigour. Taking all of this into account though, the next task is for this work to be translated for other people outside of the BNTV community to understand it and make sense of it.

The key purpose of knowledge translation is to reduce the delay between old knowledge and the application of new knowledge to improve the lives or health of population groups (Graham et al., 2006). In a similar way to evidence-based practice, the nature of this knowledge, how it is implemented and the nature of it will impact its application (Baumbusch et al., 2008). As discussed by Scott et al. (2012) and Smith and Gallo (2007), different methods of translation should be used; this includes interactive, visual arts and educational encounters. Bourbonnais and Michaud (2018) advocate for the use of storytelling as a strategy for the translation of knowledge – particularly within healthcare; an explanation for this is that stories are often more memorable than information communicated in other ways. Further, they suggest that for healthcare professionals, appealing to reason and emotion can trigger a reflection on their own practice conditions; in so doing, a new and meaningful perspective on a particular phenomenon can occur.

The work within this thesis, namely the methodology and findings, will be translated for open-access publication (e.g., in the International Journal of Qualitative Studies on Health and Well-being, Ageing and Society, and Qualitative Research in Sport, Exercise and Health). Open-access is the availability of academic publications within the public domain (Gair, Zuchowski, & Beddoe, 2021; Holbrook, 2019). The benefit of open-access is that new forms of knowledge from a multitude of disciplines are available to a wider audience (Gair et al., 2021). As Gair et al. (2021) rightly points out, restricting public access to taxpayer research by publishing in journals requiring subscriptions does not meet societal needs of equality and equity. This is ironic given the fact that a lot of academic work is focused on issues relating to social injustices, communities, and ethics. Therefore, it is vital that the translation of this thesis be published in an accessible format.

Given that academic journals are, mainly, for academic populations, a book for the CNF and life history stories will be produced as a more accessible format to reach non-academic audiences, as well as to avoid being limited by word counts and having to split the stories up as separate pieces. Additionally, it provides space for the creation of more stories that extend findings of the research in comparison to the findings section of this thesis. The NCCF and BNTVA have expressed interest in contributing towards the publication of such a book; this will ensure that the stories of the participants are accessible to both academic and non-academic spheres. Presentations, writing for online sources, and articles in the BNTVA/NCCF magazines are also ways in which I will try and reach a range of audiences.

Over the past four years, I have had the opportunity to present at several prestigious conferences, including: The British Sociological Association (2019), King's College Veterans Mental Health Conference (2020), and the British Society of Gerontology Conference (2020, 2021). Rather than being just a participant sample, CNF gives meaning to lived experiences within a particular context by putting it into perspective for an audience/reader (Bourbonnais & Michaud, 2018); this is especially valuable as it allowed me to take a (virtually unheard of) unique ageing population group and make them relatable within the academic community rather than completely disconnected (Banks-Wallace, 2002). In August 2021, I was invited by the BNTVA to attend a three-day reunion event to give my first presentation to members of the BNTV community, members of charitable organisations, and other researchers in the field of radiation studies. This presentation was a chance to translate this doctoral work to a 'lay' audience, some of which were also participants (this is discussed in section 6.6.1).

The main way of translating the knowledge produced in this study is through the possibility of creating a co-produced podcast, pending funding, to engage the BNTV community in discussions on the salient issues identified within this research (e.g., loneliness and isolation, leisure activities for wellbeing, and seeking help from health and welfare services). Podcasts are an excellent tool for knowledge translation as they can provide learning opportunities, allows for engagement in topical issues, gives the listener a sense of control

(Drew, 2017), and are free to download (Shaw & McNamara, 2021). Further, podcasts tend to be a discussion of specific topics with narrative stories to bridge the gap between the expert and the everyday individual (Gair et al., 2021). The use of podcasts dovetails with narrative and storytelling for knowledge translation (Bourbonnais & Michaud, 2018); in this instance, it would permit historical and expert conversation with individuals outside of the immediate community and into other ageing veteran groups, as well as providing a platform to share their lived experiences. There are numerous examples of successful historical and topical podcasts (e.g., Cold War Conversations by Ian Sanders or Two Cups of Tea by Chris Heath); which focus on the life stories of older individuals and showcase the things they have experienced. As of yet, no podcast specifically relating to the BNTV experience has been developed and I will be seeking the funding and support to do this once the thesis has been submitted.

6.6 Beyond translation and dissemination: Towards an impact agenda

Impact is infamously difficult to define, conceptualise, quantify, and evaluate (Hopkins et al., 2021), and differs depending on the user/audience (Penfield et al., 2014). Broadly, impact is considered to be the “influence of academic research beyond the academic sphere” (Wróblewska, 2021), the intellectual contribution to one’s field of study within academia and beyond for socioeconomic impact (Penfield et al., 2014), or an “auditable or recordable occasion of influence” (Haley et al., 2017, p.3). Impact has, according to Greenhalgh (2015) and Penfield et al. (2014), been traditionally benchmarked by metrics of publication or personal h-index (citations), and is often conflated with research outputs (Vanclay, 2002). However, researchers are now being asked to tangibly demonstrate the level of impact their work has beyond the realms of academia.

Since the late-1990s, the expectation has been for research to prove it has a valid value within society (McGee & Martin, 2011); prior to this, contribution was the concern of applied disciplines or the individual academic who aimed to achieve both external engagement and increase influence, especially since institutional funding was limited (Smith et al., 2020). At the time, the need to prove impact deepened frustrations that despite political and academic interests being in strengthening the connection between research and policy, the evidence-bases for policy itself was limited (Katikireddi et al., 2011; Smith & Stewart, 2017). Undoubtably, society can only see the benefit of academic studies if the results are accessible or marketable

(Lamm, 2006). As Penfield et al. (2014) argues, in striving to undertake excellent research, we largely anticipate that only great things will occur, and that we will showcase knowledge will wholly benefit large swathes of society.

Academics, particularly in the UK, are faced with mounting expectations and opportunities to undertake public engagement exercises, knowledge exchange activities, and research impact through a range of external and internal funding schemes and grants (Smith et al., 2020). Further, universities desire to achieve grant income and perform well in the Research Excellence Framework (REF) through the development of centres for impact (Smith et al., 2020). The REF is thought to be the most prominent and influential evaluation system of impact in the UK (Wróblewska, 2021) and has four primary objectives: to enable Higher Education Institutions to monitor and manage their performance and contribution to local, national, and international communities; to demonstrate to government, stakeholders and general public the value that research has; to evaluate the contribution research makes for society and economy for the purposes of informing funding and support; and, to understand how research leads to impact and improve methods of delivering it (Penfield et al., 2014). Therefore, good performance in the REF has implications for both research investment and prestige (Williams & Grant, 2018), and is part of a broader government policy, known as the Impact Agenda.

Like impact, the impact agenda is also difficult to define (Smith & Stewart, 2017) but it has the following features: a consensus that researchers must be able to accurately articulate the extent to which their work can create impact beyond academia, an assumption this impact will be positive, and a belief that funding for research should reflect the researcher’s beliefs and ability to generate their proposed outcomes and impact (REF, 2011). Overall, the impact agenda has raised questions regarding how best to measure, capture and monitor impact of research (Hopkins et al., 2021). For some, the Impact Agenda, presents a challenge to the traditional role of universities to have academic freedom and institutional autonomy, as well as threatening academics’ ability to comment on issues of social justice (Smith et al., 2020). Some academics feel that ‘blue skies’ research is at risk of being side-lined for work that is marketable and attractive for funding (Hammersley, 2014; Smith et al., 2020).

Esteves et al. (2017) argues that impact tends to be evaluated from a top-down approach; in so doing, the lived experiences of community members are ignored. This is problematic since any practice and policy decisions, or changes are likely to directly impact these individuals (Bice, 2020). As such, having an emphasis on impact allows for a greater importance on co-production or co-creation methods with local communities, government, and the wider public (Sasse & Hadden, 2018; Watermeyer, 2012). Co-production methods are those which involve producing knowledge with stakeholders and individuals to agree on the desired outcomes and deliver innovation and change (Greenhalgh, 2015). The present study did not set out to be defined by a predetermined coproduction framework. However, it could be argued that as the research progressed the process of working with and for the BNTVA population has come to the fore. This has not been a detached process though; I have been to several veteran events, had regular communication with members of the community, and worked with these individuals.

Yet the full realisation of the potential impact of this work from a research, policy, and practice perspective and for the BNTVAs involved has only just started to crystallise at the culmination of the thesis submission. Therefore, the impact of this work is in laying the foundations for more investigation and research to develop community outreach services to tackle loneliness and encourage engagement in community leisure activities for wellbeing. Indeed, the impact of this work would take time and planning and cannot be fixed due to the nature of the population with regards to age and location. Additionally, the proposed activities for knowledge translation and dissemination discussed above have become clearer albeit in small ways. The section below explores such potentials with reference to opportunities afforded through my networking relationship with the BNTV Association

6.6.1 Impact in action: Retelling stories

Having discussed the academic agenda when it comes to impact, it is necessary to provide an account of impact in action and the pathway to creating a difference. Of course, translation and dissemination are important for academic research (see 6.5), but how, as researchers, can we see the effect of the work we do? As noted in section 6.5, in August 2021, with only two months of the writing of this thesis remaining, I was invited by the BNTVA to give a presentation at their three-day reunion event and to talk about the work I had been conducting with the BNTVs by giving a reading of one of the CNF stories. Taken from *An Unlikely Meeting*, the following vignette was used:

'Alright Henry? How's things?' the man behind the coffee counter asked.

Henry looked down at his shoes, thought for a moment, then replied, 'Not too bad John, not too bad. I'll have a cup of tea and a slice of your lemon cake please.'

He glanced at the cake stand, breathed a heavy sigh, and then made his way to his usual spot. Henry always chose to sit at the table by the window overlooking the busy high street. He liked to see people come and go, seeing them talking to one another, and laughing. He pulled out the chair and began his careful descent. While looking at the people in the café, Henry wondered about how much the world seemed to have changed. In the corner of his eye, he spotted a young couple. They were sat opposite one another, but they weren't looking or talking to each other, they were staring down at their phones, romance, eh? Wasn't like that in my day, Henry thought.

'One cup of tea, and the biggest wedge of lemon cake for you, Henry!' John announced, proudly.

He placed the tea on the table, spilling it slightly, and creating a moat of tea around the cup.

'Thank you, John, that's great.'

Henry looked up and saw John staring at him rather oddly. He seemed fascinated by something. John bent down, level with Henry's lapel, squinting his bright blue eyes to focus clearly.

'Sorry Henry, but what's that on your jacket?'

Henry looked down at his blazer, baffled. Then he saw what John was referring to,

'Oh, don't worry about that John, it's nothing,' he said, throwing his hands up dismissively. He wasn't in the mood to explain it. John carried on staring, and then, to Henry's horror, slowly started reading it out loud,

'British…Nuclear…Test…Veterans…Association…' Henry raised his hand to his forehead, closed his eyes, and wished he had put on a different jacket this morning.

'I've seen this before. Another chap comes in here every afternoon - he has the same emblem on his tie.' Henry opened his eyes. He couldn't believe it; did he hear him correctly?

'Are you sure?' he had never met another member of the BNTVA.

'Trust me, one o'clock every day, I could set my watch to him.'

Henry looked down at his scratched watch face, it was 12.45pm. He took a sip of tea and moved the cake plate towards him. He could feel himself getting excited, the feeling of butterflies bouncing around in his stomach.

Henry lightly pressed his fork into the yellow, soft sponge. He tore a chunk off and brought it up to his mouth. Lemon cake was Henry's favourite, Betty used to make it for him all the time. With each bite he took, things began to come back to him. He closed his eyes tightly, he could almost see Betty in front of him, she was so beautiful, he thought. He remembered when his son was born, the wailing of a new-born baby entered his mind. His baby. The café was getting busier now, and the chatter was getting louder. The fancy coffee machine whirred continuously. The steam pipe screamed as it frothed the milk and yet, Henry still felt a sense of peacefulness sitting in the middle of it all. It was much better, to him, to be amongst the humdrum than sitting at home alone, waiting for the phone to ring – not that it ever really did these days.

As it was now 1 o'clock on a cold Wednesday, most of the tables and chairs in the café were occupied. Sam didn't mind too much, he liked to see the café busy. He noticed a man of a similar age sitting on his own; he was poring over the newspaper and drinking a cup of tea.

'Sorry to disturb you, would you mind if I sit here?' Sam asked.

'Not at all, be my guest.'

Sam pulled out the wooden chair and sat down. His eyes went back to the stranger opposite him; he was very intricate in his movements, he placed things down with precision and purpose. Then he saw it, he couldn't believe his eyes.

Sam leaned in closer, 'Oh my goodness, you're a…'

'I'm a what?' Henry said, confused and slightly defensive.

Sam whispered, 'A nuclear test veteran.' He held out his tie in solidarity. 'I am too.'

'One good old-fashioned coffee with a splash of milk and a piece of Vicky sponge,' John interrupted, 'Ahh, I see you two have met! I told you he'd be in at one o'clock!' He placed the coffee and cake next to Sam, careful to not spill it this time, 'Sam, this is Henry, Henry, this is Sam.'

They shook hands, a strong firm grip, a real man's handshake, Henry thought. He felt like he had stepped back in time. For so long, Henry had felt like an outsider, as if he were carrying a terrific secret around with him. Now, he was meeting someone who might just understand what that was like. Henry had always felt as though he had passed through the veil, as it were, and felt lucky to still be here.

'Naval Party 5555,' Sam announced.

'Number 71, Atomic Squadron,' Henry replied. Both raised their hand to their head and gestured a salute.

Henry looked at Sam carefully. He was quite short, bald, and had tattoos over his knuckles. He was wearing jeans, a white, short-sleeved shirt, a navy tie with the BNTVA emblem on it and a cardigan. As he arranged himself in the chair, Sam attempted to balance his walking stick against the table. Henry saw it starting to slip but Sam managed to catch it in time.

'Bloody thing! I've been in and out of hospital. I was in this Sunday for a few days but last year I was in for nearly 6 months! They can't seem to find what's wrong with me. They give you the impression that you're trying to pull their leg! Getting out and about is difficult too, I've just had to park the Bentley…sorry mobility scooter outside. I'm having an argument with the housing association now. I said, "provide me with a garage". But that costs money! Apparently, it's a fire hazard. There are worse things though; how many washing machines have gone up in flames just lately? Sorry to go on! My hip tends to come out too, it's a painful nuisance! I have to carry the stick with me because I never know when it's going to happen.' Now that he was satisfied with his seating arrangement and his walking stick was propped up, Sam took a sip of his coffee and was ready to begin talking about their shared, hidden history.

'Conscript or regular?' Sam asked, taking a bite of his cake.

'Conscripted into the Army. How about you?'

'Joined the Navy of my own free will, me, I loved being at sea. I was made for the Navy, and the Navy was made for blokes like me,' Sam said. 'I was in the Navy for over 15 years. When I look back now, I'm glad I went in because I saw the world and it enlightened me a lot.'

'I was at Monte Bello in Australia, 3rd October 1952, I remember the date as if it were yesterday. This was the first British nuclear test – they called it Operation Hurricane.'

Henry sucked the air into his chest, 'We hadn't been told where we were going until we were two days out from our destination. We wondered why they hadn't told us sooner, maybe it was so we couldn't jump ship.'

Sam nodded his head, 'None of us knew. What happened on the day of your test?'

Henry took a sip of his tea, which was now disappointing and cold. Knowing the discussion was going to take a while, he looked to catch the eye of John – who at this point was rearranging the biscuits in the jar.

'Could I get another when you're ready? Thanks John…Well, on countdown day I was tasked with starting up the generators in the Land Rover – luckily for me, they all started! I got back to the Zeebrugge, and we were told that we weren't allowed to put anything on. So, we all just had on a pair of shorts, a hat, socks and working boots.' Henry sighed, 'I would have thought that we should have had some sort of protection, given that we were working with atomics. We all had to be above deck as well, no one was allowed in the lower decks. Then came the countdown.' Henry put his elbows on the table, and covered his eyes with his hands, 'We had to face away, and all of a sudden, there was an immense flash. I could see the bones of the bloke in front of me. It was like looking at an x-ray. I thought, no Henry, you're seeing things, but everyone said it.' Sam nodded, Henry continued, 'Everyone was talking about the end of the world when it detonated. Obviously, it wasn't, but Sam, when you've seen a bomb like that go off, it stays in your mind forever. You can't get it out.'

The two men took a break from talking and looked out of the window. It had started raining heavily; the people on the street were scrambling to find somewhere to hide.

Henry took his gaze away from the window, 'Tell me about you, Sam. Give me a break from talking, my wife used to say I could talk the hind leg off a donkey!'

Sam looked at Henry and saw sadness in his eyes, even though he could see that he was trying to disguise it with laughter. He barely knew this man, but he could sense his loss and loneliness.

'Well, I joined the Navy when I was 16. I was 18 and was shipped off to Christmas Island; did you know, Henry, that's the world's largest atoll?' Henry nodded, 'it was beautiful, it was paradise for an 18-year-old boy from a council estate. I learned how to dive and everything! It was palm trees and sandy beaches!' He could picture it now. '! While I was there, I saw eleven hydrogen bombs. Eleven!' Henry's mouth fell open. 'After the first couple, it just became like anything else, normal almost. Like you Henry, I was dressed in shorts, sandals, and a shirt – sometimes not even that. The whole sky would be vivid daylight, even though you had covered your eyes and you had big black glasses on. The guy sitting in front of you, you could see his spine. So no, you weren't imagining it.'

Henry could feel his eyes prickling.

'It was just for an instant, a tenth of a second or less, then it was gone. We were told to wait, then turn around. You know on a hot day when the sky is clear, and you look at the sun and it's shimmering? That's exactly what you saw when you looked at the sky. Then it turned into this blood-red ball, beautifully round. Suddenly, it erupted like a volcano, in the sky. The mushroom cloud appeared, then shockwave and the heat, they were quick, then it just vanished. The actual shockwave was really powerful – it felt like an earthquake.'

Henry took a gulp of tea, 'Be honest with me Sam, were you scared?'

Sam looked to the ceiling, 'I was scared because I was young. Knowing what I know now, of course, I would have been scared. That bomb was supposedly a thousand times more powerful than the Hiroshima bomb. I know, Henry, no one usually believes me when I tell them about it.'

This was something Henry knew all too well, 'I do feel at times that people look at you with a blank stare. They haven't got a clue what you're talking about. Until today, I'd never spoken to any other nuclear veterans since the day we left Monte Bello.'

The café was now empty, except for Henry, Sam, and John. Henry noticed a couple outside holding hands, he sighed, then turned to his new friend, 'Tell me, how did you meet your wife, Sam?'

Sam smiled; he hadn't been asked this in a long time. 'Do you believe in fate, Henry?' Henry nodded, 'Well, I was on duty at the time and my mate came in said, "D'you want a pen friend?" He had three envelopes in his hand, so I took the middle one. When I opened it later that evening, it was actually a really interesting letter. So, I replied and sent her a photo of myself. A week later a reply came, another interesting letter! Nine months after the first letter, I came home, and met her in Hyde Park. We got on like a house on fire! I thought, yes, I really like this girl. Three months after meeting her I proposed, and six months after that, Myra and I were married. It will be 56 years in June.'

Henry loved stories about how people met, 'Any children?'

'We didn't have children. My wife miscarried a couple of times. We would have loved a family but in the end, it didn't happen. In those days, you didn't go for tests like they do now. I'm of the philosophy that what is God given, is God given. When we were trying for a family, I used to be quite upset that one never arrived but, after a while, I just accepted it wasn't going to happen.' Sam saw a ring on Henry's finger, 'I take it you're married, Henry?'

He looked down at his hand, he hadn't noticed that he had been twisting his wedding band while Sam was talking. 'Yes. Well, was.' Henry could feel a lump forming in his throat, he tried his best to ignore it. 'My wife was the greatest thing ever.'

'How did she pass away?'

Henry sipped his water and took a deep breath, 'She had cancer. In the end she had to go into a hospice, she knew she was going to die. I was there with her and my son; the nurse came in and said, “How are you feeling, Betty?” She said, “I’m feeling great, I’ve got my husband with me, I’ve got my son with me, I’m so happy.” The nurse looked at her, and asked, “Betty, are you afraid to die?” Without hesitation, she said, “No, I’m not afraid to die, I’m looking forward to meeting God.” I just didn’t know what to do.’ Henry brought his hand up to his eyes, ‘Anyway, you just keep putting one foot in front of the other. I guess I just don’t feel needed anymore.’

Sam found a handkerchief in his pocket, ‘Here.’

Henry took it and dabbed his eyes, ‘I’m sorry to cry,’

Sam looked on sympathetically, ‘We can’t always be macho and maintain this “men don’t cry” façade. We all cry.’

Henry moved his lips from side to side, his blue eyes looked sore. ‘How has it been, becoming a widower?’

‘I was absolutely devastated. My wife was a wonderful partner. Before she died, I was seventeen stone, now I’m eleven stone. I was left here alone. That’s when the loneliness started. What the hell do I do? How do I cook this? How does this work? How do I use the washing machine? That brings on loneliness or at least helps to. We were married for so long, of course I miss her. Can I tell you the greatest lie I’ve ever been told?’

‘Please do.’

It’s that time is a great healer. No, it’s not. That’s nonsense. People say it, but no, not in my case. I miss Betty all the time. It’s been the same every day and it doesn’t get easier. When she died there were many things I had never been involved in because that was her side of things. She used to buy my clothing because she said my choice was appalling.’

Sam laughed, ‘All women say that!’

Henry straightened his collar, ‘It did leave me gasping a bit, I had to learn how to cook. I can look after myself, but my son does pop in now and again. People ask me, “How do you manage?” And I say, “Her physical presence has gone but the mental presence doesn’t go.” I can be washing up and putting the cutlery in and I’ll hear her say, “You’re putting them the wrong way up again!”

John appeared with a plate of biscuits, ‘These free?’ Sam joked.

‘Of course!’ John sat down next to Henry and picked up a biscuit. He took a bite and then spoke, spraying crumbs on the table, ‘It’s curious to me that you’ve never met before.’

They looked at each other, ‘I guess so.’ Henry smiled, then looked at his watch. ‘Doesn’t time fly! I came in at midday and it’s nearly four o’clock!’

Sam took a bite of shortbread, ‘Is it really! No wonder I was feeling peckish.’ He winked at John then pushed himself up off the chair. ‘I should probably be off though chaps. Henry, same time tomorrow? We can carry on putting the world to rights?’

Henry smiled and stood up, ‘Yes, Sam, same time tomorrow.’

He walked around to Sam’s side of the table and put his hand out. Sam pushed it away and gave him a hug, strong and secure. Henry hadn’t felt that level of connection for a while, he breathed in Sam’s aftershave. The two men pulled away from their embrace, smiled, and Sam made his way to the door. He hopped on his scooter, gave Henry and John a wave and drove off.

Henry sat back down, ‘Do you mind if I just sit here a bit longer, John? I’m not quite ready to go home just yet.’

John squeezed his arm, ‘Of course not, would you like another cup of tea?’

He beamed, ‘That would be lovely, thank you.’

I attended this event as a representative of the Centre for Health Effects of Radiological and Chemical Agents/Brunel University London. The agenda for the first day of the reunion included a tour of RAF Cosford, lunch, and presentations from documentary filmmakers; a podcast creator; and other academics. On arrival, although I recognised a few individuals who had taken part in my study, they did not seem to recognise me. Other veterans assumed I must be a descendant or relative; at this point, despite wearing the university lanyard, I was relatively unknown. Recognising these individuals posed an ethical dilemma: how comfortable would I be giving a reading of one of the CNF stories knowing that they may recognise themselves in it? This created an ongoing negotiable ethical barrier, but this is one of the challenges with CNF and telling *real* stories of *real* people.

To overcome the ethical dilemma, on the second day of the event, knowing that this was when my presentation would take place, I spent time between the other discussions editing the story that I would read to ensure that any whole key stories (e.g., how a veteran met their now-deceased wife) were removed (see appendix 12). While these moments in the reading may not have given away any personal details of an individual to the room, they would certainly have been recognised by those who they described; I wanted to ensure there would be no discomfort for any of the attending veterans who would hear their own words in mine. While they had given their words freely, and had consented to them being published, I knew that in this scenario these words could bring up strong feelings of bereavement that would not have been desired at such an event.

The conference was research-heavy, with in-depth discussions of radiation, atom bombs, and the impact of radiation on the natural environment. My presentation would fall in the middle of the day, and I did worry that it would not be taken seriously in comparison to the work discussed by other scholars. After being introduced I took my place at the microphone and looked out at the members of the audience. I could see at least five individuals that I had spent hours interviewing who now saw and recognised me. My presentation, titled *Telling the Stories of British Nuclear Test Veterans*, began by announcing that this would be a social and wellbeing perspective on the impact of the nuclear testing. I provided a lay-overview of the methods of analysis and how the CNF stories were developed; following this, I then gave the reading.

While reading this story, I was making sure that I was looking up at regular intervals and meeting the eyes of members of the audience. I could feel the emotion in the air; upon reading the final line of the story, I had a lump in my throat and my eyes began to well. While it is a story of loneliness and loss, I could see the participants' reactions in 'real-time' and reflected on the knowledge that these were the real stories of this community. This was also the first time I had read my creative work out loud for public review. Yet, upon concluding my presentation, I was met with the biggest round of applause I had ever received at any conference or academic event. I did feel like it had been taken seriously, but importantly, I felt a sense of approval from them; my work had been accepted and appreciated.

As my presentation was the final one before lunch, I had a queue beginning to form of individuals that wanted to speak with me. I was told repeatedly that it was beautifully written, that they felt they could really resonate with the characters, and that I had represented my participants well. Many of the veterans, male and in their late eighties, shared with me that I had caused them to “have a lump in their throat” and “shed a tear”. I was asked, “when can I purchase the book? When can I read the thesis?” As a young researcher, it was encouraging to hear that someone wanted to read more of my work; it confirmed that I had made the right decision in representing this group with CNF rather than thematic themes. Moreover, I had the wonderful experience of someone saying to me, “It’s me! We spoke on the phone! You interviewed me!” Overall, it highlighted to me the societal and cultural impact of being visible, the true meaning of storytelling, treating participants ethically, and representing them in a way that is authentic and accessible. My attendance at this reunion event and seeing the impact the reading had on the community, has also opened conversation with the BNTVA about developing future projects with the charity and collaborating with other universities. Discussions centred around my possible involvement in their friendship telephone service as a form of community outreach.

Another point to raise, in relation to the politics of ageing and loneliness highlighted in chapter three, is that the event itself had impact. Being the first in-person event for this group because of the COVID-19 pandemic, it was evident that the BNTV community revelled in seeing other people after 18 months of forced social isolation. They bought each other drinks, they laughed, they shared old stories, and a sense of camaraderie from their Forces days became apparent. To have been a part of that, even as an initial outsider, was wonderful to see; particularly as I knew many of them were lonely in their day-to-day lives. Human contact and interaction, no face coverings, and hugs were in abundance for the first time since March 2020, and for three days, the pandemic was a distant memory.

6.7 Methodological contributions of this work to support knowledge production

As Kara (2015) poses, the 21st century heralds an exciting shift within research, with the methodological confines within the social sciences are beginning to expand. According to several scholars within the social sciences (e.g., Dewsbury, 2010; Hawkins 2015; Marston & De Leeuw, 2013), there needs to be more engagement with creativity within research. Indeed, as Edwards (2008) suggests, art and qualitative research within the social sciences are more alike than previously thought. One such similarity is the concept of truth (see section 4.4), whereby in art it is seen as complex and multiple; within research, the epistemological shift to seeing truth in this way has resulted in calls for representational methods which permit multiple perspectives, emotion, and researcher subjectivity (Lorimer & Parr, 2014; Sameshima & Vandermause, 2009). To answer this call, an innovative methodological contribution that the present study makes is the development and implementation of a systematic framework for NA and CNF writing (see section 4.10). This framework consists of a series of overlapping, reflexive and iterative processes which dovetail with the narrative principles of storytelling.

In a similar way to Ellingson (2009), I believe that blending the social sciences with forms of art encourages researcher reflexivity, offers a wider level of analysis, and allows for creative forms of participant representation. However, despite the increasing use of narrative within research, there is still a lack of clarity regarding how to use it as an analytic tool; like Adler et al. (2017) suggests, it is not researchers' disinterest, but absence of guidance. The framework in this thesis provides researchers with the necessary tools to engage with NA. With that being said, researchers utilising the proposed framework need to ensure that they are prepared to be fully immersed through continual reading of and listening to their corpus of data. Without immersion, the framework will not be as effective for analytical, ethical, and representational purposes. In a similar way to Barbosa Neves et al. (2021), the present study's methodological contribution does add complexity to an already nonlinear and intense process; although it may be time consuming, it provides researchers with an opportunity to move away from sanitised thematic themes and explanations and into creative practices. One significant point regarding creativity, as pointed out by Kara (2015), is that it resists "binary or categorical" thinking" (p. 14), making it ideal to produce new and exciting knowledge on otherwise unknown or understudied topics or population groups.

6.8 Chapter summary

This chapter has highlighted that there is a need for knowledge to be produced in ways which challenge the status quo and offer a better, more complete picture in terms of sensitivity, complexity and experience within social policy and programme application (Head, 2010). While policy makers, government politicians, and scientists tend to have different views on what counts as evidence and how trustworthy it is, the knowledge that has been produced in this doctoral study should be considered valid based on how rigorous the analysis process was and the accurate representation of the participants. The key challenge will be how to best employ this knowledge (Glasby & Beresford, 2006) within evidence-based practice and policy relating to the care and treatment of the BNTV community as service users. The translation of the evidence produced here will be carried out through articles published in academic journals, a potential book for the CNF stories, presentations at academic conferences, and finally, the potential co-production of a podcast discussing BNTV issues and wider armed forces topics.

Chapter Seven

CONCLUDING REMARKS AND RECOMMENDATIONS

7.1 Concluding remarks

The overall purpose of this doctoral research was to explore the life histories, lived experiences and lifelong impact the British nuclear testing programme had on health and wellbeing – from the perspectives of the British nuclear test veterans themselves. The primary aim was to understand the possible processes by which cultural, physical and/or leisure activities may help and contribute to improve health and wellbeing of this unique ageing community.

To answer the objectives, I used a phased approach to building rapport (see 4.9.1), allowing me to establish secure and quality relationships with the participants and undertake a series of life history interviews (both telephone and face-to-face in the homes of the participants) over two rounds (n=41). Through reflexivity and immersion, the knowledge produced in this thesis was collaborative and co-constructed. Recorded data from the interviews, then transcribed, were subjected to narrative analysis using a novel framework developed for the purpose of this study (see section 4.10). CNF was then used to authentically characterise the participants and allow them to tell their stories without the use of sanitised themes and researcher objectivity.

Three stories (see chapter five) were developed using the 'big', 'small', shared, and exceptional experiences as described by the BNTVs: An Unlikely Meeting, In Sickness and In Health, and Age is Just a Number. These CNF pieces explore issues relating to the ageing process, feelings of loneliness and isolation, and older male veteran identity. Further, the life-long impact the experience of witnessing a nuclear explosion has had on mental health has been discussed. In so doing, this is the first study to explore such issues within this unique ageing population of veterans. This work also raises awareness of the British nuclear testing programme and the experiences of witnessing a nuclear explosion; such knowledge is limited within the social sciences and is usually discussed in relation to health effects of radiation.

The first objective of this study was to understand the complexities of BNTV identity within the community. After undertaking NA and developing the CNF stories, it became increasingly evident that BNTV identity centres around the collective experience of witnessing the nuclear tests and being in the armed forces, a sense of survival for ‘passing through the veil’ or living to an age beyond their expectations. On the basis of archival exploration, the CHRC events at Brunel University London, and informal conversations with veterans prior to the study commencing, I had a preconceived notion that BNTV identity would be one that was angry and resentful of their government. I had anticipated that they would all want medals and accolades for their service during the testing; yet, what I found was almost the opposite of this. I was told of enjoying their time in tropical countries, being with men the same age and having fun, seeing a different world to the one they had grown up in, being taught discipline, snorkelling, and playing football. Some participants did want acknowledgement, but they had no real interest in financial compensation or medals – for them, it was simply too late. The use of CNF to represent this, particularly in ‘An Unlikely Meeting’ and ‘Age is Just a Number’, offers an alternative to the stories portrayed in the British press and represents those who do not conform to the status quo.

The second objective was to critically explore health and wellbeing issues within the BNTV community. It became apparent that most of the health and wellbeing issues were largely attributable to the ageing process, including coronary heart disease, high blood pressure, osteoarthritis, deafness, and poor sight. Incidences such as skin cancer, lung cancer, prostate cancer, cataracts, migraines, and miscarriages were highlighted as being attributable to possible exposure to radiation during the British testing programme. In the event of their husbands passing, the widows in this study all believed their deaths were a direct result of the testing, even if it was more likely to be due to lifestyle or age. For some, it appeared that believing their illnesses to be the responsibility of the UK government or MoD became a comfort to them; they blamed the radiation, witnessing the explosions, and the fallout from the blasts because that was easier than accepting their cancer was due to natural causes.

The salient issue that is discussed several times in the CNF stories is that of loneliness and social isolation. For the widows/widowers in this cohort, it was apparent that they were lonely – even if they did not want to admit it when I asked the direct question. I have reflected several times on the conversations I had with my participants, and one particular incident comes to mind; I asked a widow: “have you ever felt lonely?” Her response to this was, “of course not, no.” However, later when the interview had finished, she told me: “I have a phone in every room of this house, and I carry my mobile phone with me all the time in case I fall down the stairs. You see, I have all these phones and yet they never ring – not like they used to.” I have argued for the use of CNF as a form of representation within this thesis (see chapter six), and it is because it allows readers to gain a better understanding of a particular issue through creating a character that is relatable. I could have explained each theme with detached quotes, but I do not believe that it would have had the same impact as the participant telling you (the reader) themselves.

The third and final objective was to identify and analyse types of leisure activities that can enhance wellbeing and the reasons for engagement within this unique ageing population. The 29 members of the BNTV community that took part in this study were, largely, involved in a range of physical activity, leisure, and community activities. These included: walking groups, gardening clubs, yoga, church-based groups, choirs, life writing classes, membership to the Freemasons, coffee mornings, dog walking, further education, driving for a residential care homes and elderly community members, veteran clubs, and reunion events, knitting, and puzzles. As was demonstrated in the CNF stories, these activities gave the participants a sense of purpose, provided them with a routine, and, in their minds, stopped them from becoming ‘stagnant’ or a burden on anyone. While the inherent focus of active ageing policies (see chapter three) is on remaining physically active for physical and mental health, some of the participants made it explicitly clear that this was simply not possible. Their bodies were too frail to engage in regular physical activity, they relied on walking aids (e.g., Zimmer frames or walking sticks), or were in a wheelchair. For their mental wellbeing, some enjoyed knitting, watching television, reading, or going for a drive; the research on sedentary leisure though is scarce and more exploratory research is needed.

While the BNTVs in this study appear determined to resist the negative stereotypes of ageing, aligning to the active ageing perspective is problematic as it fails to account for the resources one has to ensure engagement within physical, social and community spheres. Indeed, for those who were mobile, had strong family networks, belonged to clubs and social groups, being active was a part of every life. For some, although mentally they wanted to be active, issues surrounding disability and accessibility came to the fore. These findings are relevant for researchers and policy makers within the fields of ageing, loneliness, and military veterans; moreover, this research provides the foundations for the development of future interventions which aim to tackle the important health and wellbeing issues within the community.

Against the backdrop of narrow conceptualisations of both knowledge production and the BNTV community, not only does this study provide a substantive contribution to academic knowledge, but it is also timely and significant (Tracey & Hinrichs, 2017); over the past four years (at the same time this doctoral study has been carried out), the BNTV community has experienced a great deal of media attention in tabloid newspapers and TV. Although the potential impact of exposure to radiation has dominated the medical discourse, this thesis offers a unique, ethical, and chronological insight into life before, during and after the British nuclear testing programme - as told by those who were there.

While this thesis has discussed its originality in relation to the BNTV community, their collective military experiences, and their feelings of loneliness/social isolation, it should also be noted that this work also offers a partial insight into how English culture and English society will have shaped the participants' behaviour and responses to the ageing process. Culture, as noted by Berry (2000) relates to everyday practices, knowledge, belief systems, and behaviour patterns of a given population; society refers to structures, institutions, and laws which regulate the behaviour of the population (Tesch-Römer & von Kondratowitz, 2006). One such example of a cultural metaphor, and prominent within this study, is the 'stiff upper lip'. Described by George Orwell in Inside the Whale (1970), as 'a kind of stoical resignation', reflects cultural, generational, or familial conditions that have, historically, smothered one's ability to express emotion (Carr & Fang, 2021). Importantly, it has also become synonymous with a masculine repression of emotion, particularly within military contexts (Capstick & Clegg, 2013). A myriad of studies has explored this concept among older people with regards to grief and loss (Bennett, 2007), attitude to pain (Yong et al., 2001), depression (McCrae et al., 2005), military veterans with dementia (Capstick & Clegg, 2013), emotional regulation (Brummer, Stopa & Bucks, 2013), and so on.

Although Sundström et al. (2018) propose that the 'stiff upper lip' can be presented positively as the need to be independent, Carr and Fang (2021) argue that this acts a barrier for seeking support and showing perceived weaknesses. Indeed, this attitude of "mustn't grumble, mustn't fuss" (Dorling, 2018; p. 1) among older people is one that is proving problematic for accessing health and social care (Forbes et al., 2013). As an example, Quinn-Scoggins et al.

(2021) recently explored cancer symptom experience and help-seeking behaviours during the COVID-19 pandemic and has outlined similar findings to Forbes et al. (2013). Highlighting that participants put their health concerns on hold or self-managed conditions/concerns to avoid burdening the NHS and 'wasting' the doctor's time. In light of this, the first point to make is that it was abundantly clear that health and social need provisions were not sought by the BNTV community even if they were desperately needed; listing the same reasons as Forbes et al. (2013) and Quinn-Scoggins et al. (2021). This attitude extended to their family members and children; with nearly all the participants commenting on how busy their children were and did not want to add to their supposed hectic lives. The participants could be struggling with their mobility and ability to carry out domestic tasks but would insist this was not the case to family and close friends.

Not only does such an attitude prevent health and help seeking behaviour, it also presents another issue of a reluctance to share any emotion-inducing experiences. Older men, and particularly those who are veterans, tend to pride themselves on the mantra of 'boys don't cry' as if it is a sign of weakness to show emotion (Kaye et al., 2007). As an example, only one BNTV became visibly upset during the face-to-face interviews, and he said, 'we all put up this façade of boys don't cry, we must be macho, but it's rubbish". While this learned behaviour has implications for mental health support and general wellbeing of older (veteran) males, it is also a wider issue for research. Indeed, having this British 'stoical resignation' can make it diffiult for older men to become recruited into gerontological studies, and as such, their experiences within qualitative research are a rarity (Leontowitsch, 2012; Lloyd, 1996; Perren et al., 2004; Thompson, 1994). During the recruitment process of this study, 950 advertisements were sent out in the BNTVA membership renewal packs, yet 19 men overall were successfully recruited to take part. This is not considered a weakness or limitation of this work, but a success; it is considered a success as 19 older male veterans spent around five hours each sharing intimate details of their military careers, relationships, as well as their physical, mental, and emotional health.

Undoubtedly, the work within this thesis, particularly the methods, will be questioned as to whether it can have impact. As discussed in chapter six, giving an overview presentation, and reading of one of the CNF stories at the BNTVA reunion event in August 2021 highlighted the importance of making research accessible to a wide range of audience, not just those in academia. Using characters, which are amalgamations of real people, with real spoken dialogue made them easy to relate to. The feedback I was given (e.g., “when can I purchase the book?”, “you should make this into a play or a short film,” and “the issues you’ve covered are those I worry about on a daily basis”) allows me to believe and know that there is scope to develop a strategy that goes beyond this doctoral thesis.

Aside from the BNTV specific knowledge, the findings of this research are timely with regards to individuals within the oldest old category (80 years+), loneliness, and the need to engage in leisure activities for wellbeing. As with the substantive contributions, the gap in the research has been addressed and achieved through the findings. The literature within the realms of ageing, disability and military veterans, the methods of data collection, analysis, and representation have been meaningfully interconnected to produce a collective voice.

7.2 Recommendations for research, policy, and practice

The present study was not able to design, implement and evaluate an intervention within the BNTV community, the reasons for this are outlined in section 4.2. A recommendation therefore is for future research to develop a programme of support that may alleviate the experience and impact of being lonely. This might be best achieved using a mixed methods approach to capture the quantifiable element of programme, as well as the words of the participants. Future research might also look to explore the effect of the testing on the partners and descendants exclusively to capture the familial impact, as well as the perceived effect of radiation in terms of physical and mental health.

The findings of this study show that this unique ageing population of veterans would also benefit through changes to policy and practice in several ways. This largely relates to the provisions needed to care for them as they move into their advanced years. Additionally, support for widows and widowers, governmental recognition of service, and the removal of barriers to leisure activities. From a health and social care perspective, policy changes within the wider health and care system, as well as within the BNTVA and NCCF as organisations are recommended; particularly for participants who have endured the loss of their partner and have limited contact with family members. It should not be the case that some of these BNTVs were, seemingly, left to struggle on their own every day.

A recommendation for practice is to introduce community outreach services to improve feelings of loneliness and isolation for these individuals, and to ensure they could speak to another person. Such services have been identified within the literature as being effective for older adults (see Miller et al., 2021, McDuffie, 2021 and Um, Laher and Roche, 2019). As described in section 4.10, I made a concerted effort to provide cake to share during the interviews; this was an exercise to develop rapport, but it was also a conscious acknowledgement that some of the participants had little engagement with others daily. The BNTVA are looking to introduce telephone friendship groups in partnership with Age UK, as well as other welfare services.

Another recommendation this study makes for practice is to improve access and remove barriers to leisure activities for those in the oldest old age category. Good health is, and was, the key to maintaining an active lifestyle, this was clear within the findings of this study and other research in health and ageing (see chapter three for a review of the literature). Yet, many of the participants voiced the lack of activities and areas in which they could socialise with others; their local councils did not provide social clubs or exercise groups, with some commenting that they would participate if they were available. Further, having a comfortable economic position ensured access to holidays abroad, membership to private leisure facilities and clubs, and private care if needed. This was especially evident during conversations with those participants who did not have the economic means to sustain the costs involved with maintaining some social engagement. The findings of this research highlight the need for older adults to have a network of support through leisure, community, or volunteering opportunities.

The recommendation for policy is for the government to provide acknowledgement to the BNTVs and their families – something this community has advocated for since the 1980s. In a similar instance, in 2008 the UK government commissioned an inquiry into public understanding of the armed forces; this report paved the way for implementing policies to improve the level of disadvantage imposed upon veterans (e.g., pay, tax-free bonuses, and housing) and provide support and recognition to those injured during their service. Although the government has maintained its position that the BNTVs were at no increased risk to radiation exposure, it is the recommendation of this research that the mental impact of such events, even if they occurred over six decades ago, need consideration. Attributing illness to radiation, despite not knowing if they have been exposed, weighed on the participants heavily; the widows of BNTVs expressed how their husbands' personalities changed as the years went by, and assigned the cause of their deaths to their role in the tests. Finally, the individuals in this study repeatedly voiced their frustration at this lack of acknowledgement; the vast majority did not seek compensation or other recompense for their role in the testing. The value of the UK government recognising this community would outweigh any tangible offering in the form of a medal.

Without lived experiences, policy makers and researchers make their own assumptions on how one should age well (Clarke & Warren, 2007); the economic needs of a society are of greater importance, and the relationship between limited resources and inactivity is ignored (Davey, 2002; Vincent; 2000). Considering this shortcoming, the present study has explored the ageing process through life history and narrative to understand how it feels to age with regards to physical, mental, social, and emotional changes. Ultimately, the findings from this study revealed that health is what underpins and determines one’s ability to be active as they age. Indeed, critics of the WHO’s Active Ageing agenda (e.g., Holstein & Minkler, 2007) suggest it upholds unrealistic goals of ageing rather than reframing the narrative of decline. Instead, the concept of wellbeing, although difficult to define and measure, provides a better opportunity to improve the QoL of ageing populations. Through this approach, the present study makes the case that threats to wellbeing (e.g., loneliness and physical decline) can be alleviated through leisure and community activities and not viewing age as a chronological issue with guaranteed losses.

The knowledge produced in this thesis extends academic and general understanding of the British nuclear test veteran community and the struggles they have surrounding identity, loneliness, disability, and losses associated with ageing. This thesis also provides an authentic account of what it was like to see a nuclear bomb test – an experience that most individuals (hopefully) will never have to experience in their lifetimes. Further to this, the findings of this thesis explore the barriers and facilitators to engaging with physical activity, and community and leisure activities in older age, and the benefit it can bring for body, mind, and wellbeing. Through narrative and CNF, the knowledge produced and transferred may lay the foundations for future programmes of support to address the salient issues of loneliness using community outreach services (e.g., friendship groups or telephone services) which have been discussed internally with the BNTVA and NCCF, respectively. If future research into the design, implementation, and evaluation of a programme of support does not take place, the findings of this research and the use of CNF and narrative for knowledge translation and dissemination, provide a platform for the marginalised voices of the BNTV community who have been silent for over 60 years with little recognition and acknowledgement.

Bibliography

Abadi, M. H., Barker, A. M., Rao, S. R., Orner, M., Rychener, D., & Bokhour, B. G. (2021). Examining the Impact of a Peer-Led Group Program for Veteran Engagement and Well-Being. *The Journal of Alternative and Complementary Medicine, 27(S1),* S-37-S-44.

Abbe, A., & Brandon, S. E. (2014). Building and maintaining rapport in investigative interviews. *Police practice and research, 15(3),* 207-220.

Abbott, H. P. (2002). *The Cambridge Introduction to Narrative* (Eds.). Cambridge: Cambridge University Press.

Acland, A. (2010). *Dialogue by Design: A handbook of Public and Stakeholder Engagement.* London: Dialogue by Design.

Adams, T. E. (2008). A review of narrative ethics. *Qualitative Inquiry, 14(2),* 175-194.

Adler, J. M., & McAdams, D. P. (2007). The narrative reconstruction of psychotherapy. *Narrative Inquiry, 17(2),* 179–202.

Adler, J. M., Dunlop, W. L., Fivush, R., Lilgendahl, J. P., Lodi-Smith, J., McAdams, D. P., ... & Syed, M. (2017). Research methods for studying narrative identity: A primer. *Social Psychological and Personality Science, 8(5),* 519-527.

Adler, N. E., Boyce, T., Chesney, M. A., Cohen, S., Folkman, S., Kahn, R. L., & Syme, S. L. (1994). Socioeconomic status and health: The challenge of the gradient. *American Psychologist, 49,* 15–24.

Age Concern (2006). Promoting mental health and well-being in later life. London: Age Concern. Retrieved June 2018, from https://www.mentalhealth.org.uk/sites/default/files/promoting_mh_wb_later_life.pdf

Age UK (2014). Evidence Review: Loneliness in Later Life. Retrieved from https://www.ageuk.org.uk/Documents/EN-GB/For-professionals/Research/Age%20UK%20Evidence%20Review%20on%20Loneliness%20July%202014.pdf?dtrk=true. Accessed June 2018.

Agli, O., Bailly, N., & Ferrand, C. (2015). Spirituality and religion in older adults with dementia: a systematic review. *International Psychogeriatrics, 27(5),* 715-725.

Agrawal, G., & Arokiasamy, P. (2009). Morbidity prevalence and health care utilization among older adults in India. *Journal of Applied Gerontology, 29(2),* 155-179.

Aguila, A. P. (2009). Living long-distance relationships through computer-mediated communication. *Social Science Diliman, 5(1-2),* 83-106.

Ahern, J., Worthen, M., Masters, J., Lippman, S. A., Ozer, E. J., & Moos, R. (2015). The challenges of Afghanistan and Iraq veterans' transition from military to civilian life and approaches to reconnection. *PloS one, 10(7),* e0128599.

Aked J., Marks, N., Cordon, C., & Thompson, S. (2008). *Five ways to wellbeing*. London: New Economics Foundation.

Akizuki, T. (1981). *Nagasaki 1945*. London: Quartet.

Albertson, K. (2019). Relational legacies impacting on veteran transition from military to civilian life: trajectories of acquisition, loss, and re-formulation of a sense of belonging. *Illness, Crisis & Loss, 27(4),* 255-273.

Al-Ghabeesh, S. H., Alshraifeen, A. A., Saifan, A. R., Bashayreh, I. H., Alnuaimi, K. M., & Masalha, H. A. (2018). Spirituality in the lives of patients with end-stage renal disease: a systematic review. *Journal of religion and health, 57(6),* 2461-2477.

Allen, J. (2008). Older people and well-being. England: Institute of Public Health Research. Retrieved June 2019, https://www.ippr.org/files/images/media/files/publication/2011/05/older_people_and_wellbeing_1651.pdf

Allen, T. B., & Polmar, N. (1995). *Code-Name Downfall: The Secret Plan to Invade Japan-And Why Truman Dropped the Bomb* (Eds.). New York: Simon & Schuster.

Allerhand, M., Gale, C. R., & Deary, I. J. (2014). The dynamic relationship between cognitive function and positive well-being in older people: a prospective study using the English Longitudinal Study of Aging. *Psychology and aging, 29(2),* 306-318.

Alperovitz, G (1965). *Atomic Diplomacy: Hiroshima and Potsdam: The Use of the Atomic Bomb and the American Confrontation with Soviet Power*. Michigan, Simon & Schuster.

Alves, S., Aspinall, P. A., Thompson, C. W., Sugiyama, T., Brice, R., & Vickers, A. (2008). Preferences of older people for environmental attributes of local parks: The use of choice-based conjoint analysis. *Facilities, 26(11/12),* 433-453.

Alvesson, M., & Sköldberg, K. (2017). *Reflexive methodology: New vistas for qualitative research,* (3rd Edition.). London: SAGE.

Anant, S. S. (1966). Need to belong. *Canadas Mental Health, 14(2),* 21-27.

Andersen, Å. (2003). *Discursive analytical strategies – Understanding Foucault, Koselleck, Laclau, Luhmann* (Eds.). Bristol: Policy Press.

Anderson, C. (2019). *Discourses of Ageing and Gender: The impact* of *public and private voices on the identity of ageing women* (Eds.). Cham, Switzerland: Palgave Macmillan.

Anderson, C., Kraus, M. W., Galinsky, A. D., & Keltner, D. (2012). The Local-Ladder Effect. *Psychological Science*, *23(7)*, 764–771.

Anderson, C., Seff, L. R., Batra, A., Bhatt, C., & Palmer, R. C. (2016). Recruiting and engaging older men in evidence-based health promotion programs: Perspectives on barriers and strategies. *Journal of Aging Research*, 1-9.

Andrews, M. (2014). *Narrative imagination and everyday life* (Eds.). Oxford: Oxford University Press.

Annerstedt, M., Jönsson, P., Wallergård, M., Johansson, G., Karlson, B., Grahn, P., ... & Währborg, P. (2013). Inducing physiological stress recovery with sounds of nature in a virtual reality forest—Results from a pilot study. *Physiology & behavior, 118*, 240-250.

Apple Jr, R. W. (1985, November 22). Reagan-Gorbachev talks end; new effort on arms planned; president sees a fresh start. *The New York Times,* p.12.

Arnold, L. (1987). *A Very Special Relationship: British Atomic Weapon Trials in Australia.* H. M. Stationary Office.

Aruanno, B., & Garzotto, F. (2019). MemHolo: Mixed reality experiences for subjects with Alzheimer's disease. *Multimedia Tools and Applications, 78(10),* 13517–13537.

Asal, V., & Breadsley, K. (2007). Proliferation and International Crisis Behavior. *Journal of Peace Research, 44(2),* 139-155.

Ashby, S. M., & Beech, R. (2016). Addressing the Healthcare Needs of an Ageing Population: The Need for an Integrated Solution. *International Journal of Collaborative Research on Internal Medicine and Public Health, 8(4)*, 268-272.

Aspinall, P. A., Thompson, C. W., Alves, S., Sugiyama, T., Brice, R., & Vickers, A. (2010). Preference and relative importance for environmental attributes of neighbourhood open space in older people. *Environment and Planning B: Planning and design*, *37*(6), 1022-1039.

Badley, G. (2009). Academic writing as shaping and re-shaping. *Teaching in Higher Education*, *14*(2), 209-219.

Baez, M., Far, I. K., Ibarra, F., Ferron, M., Didino, D., & Casati, F. (2016). Effects of online group exercises for older adults on physical, psychological, and social wellbeing: A randomized pilot trial. *Journal of Life and Environmental Sciences, 5:*e3150.

Bagley, C., & Castro-Salazar, R. (2019). Critical arts–based research: a performance of provocation. *Qualitative Inquiry, 25(9-10),* 945-955.

Bailey, B. A., & Davidson, J. W. (2005). Effects of group singing and performance for marginalized and middle-class singers. *Psychology of Music, 33(3),* 269-303.

Ball, S. J. (1995). Military Nuclear Relations between the United States and Great Britain under the Terms of the McMahon Act, 1946-1958. *The Historical Journal, 38(2),* 439-454.

Balter, S. (2010). Caution: Not seeing may be believing. *Catheterization and Cardiovascular Interventions 2(76),* 835.

Baltes, M. M. (1998). The psychology of the oldest-old: The fourth age. *Current Opinion in Psychiatry, 11(4),* 411-415.

Baltes, P. B., & Smith, J. (2003). New frontiers in the future of aging: From successful aging of the young old to the dilemmas of the fourth age. *Gerontology, 49(2),* 123-135.

Bamberg, M. (2006). Stories: Big or small: Why do we care? *Narrative inquiry, 16(1),* 139-147.

Bamberg, M. (2010). Blank check for biography? Openness and ingenuity in the management of the "who-am-I-question" and what life stories actually may not be good for. In D. Schiffrin, A. De Fina, & A, Nylund (Eds.), *Telling stories: Language, narrative and social life* (109-122). Washington D.C: Georgetown University Press.

Bamberg, M. (2012). Narrative Analysis. In H. Cooper (Eds.), *APA Handbook of Research Methods in Psychology* (3 Volumes). Washington DC: APA Press.

Banks, J., & Albertson, K. (2018). Veterans and violence: an exploration of pre-enlistment, military, and post-service life. *European Journal of Criminology, 15(6),* 730-747.

Banks, S., Armstrong, A., Carter, K., Graham, H., Hayward, P., Henr, A., … & Strachan, A. (2013). Everyday ethics in community-based participatory research. *Contemporary Social Science: Journal of the Academy of Social Sciences, 8(3),* 1-15.

Banks-Wallace, J. (2002). Talk that talk: Storytelling and analysis rooted in African American oral tradition. *Qualitative health research, 12(3),* 410-426.

Barbera, R. A. (2008). Relationships and the Research Process: Participatory Action Research and Social Work. *Journal of Progressive Human Services, 19(2),* 140-159.

Barbosa Neves, B., Wilson, J., Sanders, A., & Kokanović, R. (2021). Using crystallization to understand loneliness in later life: integrating social science and creative narratives in sensitive qualitative research. *Qualitative Research,* 1-17.

Baril, R., Clarke, J., Friesen, M., Stock, S., Cole, D., & Bombardier C. (2003). Management of return-to-work programs for workers with musculoskeletal disorders: A qualitative study in three Canadian provinces. *Social Science & Medicine, 57(11),* 2101–2114.

Barnaby, F. (1977) Can Nuclear-Weapon Proliferation be Prevented? *Bulletin of Peace Proposals, 8(1),* 7-14.

Barone, T. (2007). A return to the Gold Standard? Questioning the future of narrative construction as educational research. *Qualitative Inquiry, 13(4),* 454–470.

Bartlett, H., Warburton, J., Lui, C. W., Peach, L., & Carroll, M. (2013). Preventing social isolation in later life: Findings and insights from a pilot Queensland intervention study. *Ageing & Society, 33,* 1167–1189.

Basham, V. (2013). *War, identity, and the liberal state: Everyday experiences of the geopolitical in the armed forces*. London: Routledge.

Basu, L. (2011). Memory dispositifs and national identities: The case of Ned Kelly. *Memory Studies, 4(1),* 33-41.

Baumbusch, J. L., Kirkham, S. R., Khan, K. B., McDonald, H., Semeniuk, P., Tan, E., & Anderson, J. M. (2008). Pursuing common agendas: A collaborative model for knowledge translation between research and practice in clinical settings. *Research in Nursing & Health, 31(2),* 130–140.

Baumeister, R. F., & Leary, M. R. (1995). The need to belong: Desire for interpersonal attachments as a fundamental human motivation. *Psychological Bulletin, 117(3),* 497–529.

Baverstock, K. (2003). The 2003 NRPB report on UK nuclear-test veterans. *The Lancet, 361,* 1759-1760.

BBC. (2018, June 18). Nuclear test veteran wants government apology over blasts. Retrieved November 19, 2020, from https://www.bbc.co.uk/news/uk-england-derbyshire-44508192

Beard, J. G., & Ragheb, M. G. (1980). Measuring Leisure Satisfaction. *Journal of Leisure Research, 12(1),* 20–33.

Beard, J. R., & Bloom, D. E. (2015). Towards a comprehensive public health response to population ageing. *The Lancet, 385,* 658–61.

Beard, J. R., Officer, A., Carvalho, I. A., Sadana, R., Pot, A. M., Michel, J. P.,…Chatterji, S. (2016). The World report on ageing and health: a policy framework for healthy ageing. *The Lancet, 387,* 2145-2154.

Beebe, G. W. (1982). Ionizing Radiation and Health: With the late-appearing effects of exposure to ionizing radiation now well identified, research focuses on the measurement of risk. *American Scientist, 70(1),* 35-44.

Beehler, G. P., Baker, J. A., Falkner, K., Chegerova, T., Pryshchepava, A., Chegerov, V.,…& Moysich, K. B. (2008). A multilevel analysis of long-term psychological distress among Belarusians affected by the Chernobyl disaster. *Public Health, 122,* 1239–1249.

Bekhet, A. K., Zauszniewski, J. A., & Nakhla, W. E. (2008). Loneliness: a concept analysis.

Nursing Forum, 3(4), 207–213.

Bell, S. L., Phoenix, C., Lovell, R., & Wheeler, B. W. (2014). Green space, health, and wellbeing: Making space for individual agency. *Health & Place, 30*, 287-292.

Belmi, P., & Laurin, K. (2016). Who wants to get to the top? Class and lay theories about power. *Journal of Personality and Social Psychology, 111(4),* 505–529.

Belza, B., Walwick, J., Shiu-Thornton, S., Schwartz, S., & Taylor, M. L. J. (2004). Older adult perspectives on physical activity and exercise: voices from multiple cultures. *Preventing Chronic Disease, 1(4),* A09.

Bennett, K. M. (2007). "No Sissy Stuff": Towards a theory of masculinity and emotional expression in older widowed men. *Journal of Aging Studies, 21(4),* 347–356.

Berbary, L. A. (2019). Creative Analytic Practices: Onto-Epistemological and Theoretical Attachments, Uses, and Constructions Within Humanist Qualitative Leisure Research. *Leisure Sciences, 41(3),* 148–166.

Berger, P. L., & Luckmann, T. (1971). *The Social Construction of Reality* (4th ed.). London, UK: Penguin University Books.

Bergman, B.P., Burdett, H. & Greenberg, N. (2014) Service life and beyond – Institution or culture? *The Rusi Journal, 159(5),* 60-68.

Bernard, M., Ray, M., & Reynolds, J. (2020). *The evolution of British gerontology: Personal perspectives and historical developments* (Eds.). Bristol: Policy Press.

Bernstein, B. J. (1995). The atomic bombings reconsidered. *Foreign Affairs, 74(1),* 135-152.

Berry, J. W. (2000). Culture. In A. E. Kazdin (Eds.). *Encyclopaedia of psychology* (pp.392-400). Oxford, UK: Oxford University Press.

Berryman, J. W. (2010). Exercise is medicine: a historical perspective. *Current sports medicine reports, 9(4),* 195-201.

Bertaux, D., & Kohli, M. (1984). The life story approach: A continental view. *Annual review of sociology, 10(1),* 215-237.

Bhatti, M. (2006) "When I'm in the garden I can create my own paradise": homes and gardens in later life. *The Sociological Review,* 318–341.

Bice, S. (2020). The future of impact assessment: Problems, solutions and recommendations. *Impact Assessment and Project Appraisal, 38*(2), 104–108.

Bickford, D., Posa, M. R. C., Qie, L., Campos-Arceiz, A., & Kudavidanage, E. P. (2012). Science communication for biodiversity conservation. *Biological Conservation, 151(1),* 74-76.

Binks, E., & Cambridge, S. (2018). The transition experiences of British military veterans. *Political Psychology*, *39*(1), 125-142.

Birt, L., Scott, S., Cavers, D., Campbell, C., & Walter, F. (2016). Member checking: a tool to enhance trustworthiness or merely a nod to validation? *Qualitative health research*, *26*(13), 1802-1811.

Blaikie, A. (1999). *Ageing and Popular Culture*. Cambridge University Press.

Blainey, G. (1973). *The Causes of War* (Eds.). New York: Free Press.

Blodgett, A. T., Ge, Y., Schinke, R. J., & McGannon, K. R. (2017). Intersecting identities of elite female boxers: Stories of cultural difference and marginalization in sport. *Psychology of Sport and Exercise*, *32*, 83-92.

Bloom, L. R., & Munroe, P. (1995). Conflicts of selves: nonunitary subjectivity in women administrators' life history narratives. In A.J Hatch & R. Wisniewski, (Eds.). *Life History and Narrative* (pp. 99-112). London: Routledge Falmer.

Boaz, A., Ashby, D., & Young, K. (2002). Systematic reviews: what have they got to offer evidence-based policy and practice? *ESRC UK Centre for Evidence Based Policy and Practice,* Queen Mary, University of London, 28.

Bochner, A. P. (1994). Perspectives on inquiry II: Theories and stories. In M. L. Knapp & G. R. Miller (Eds.), *Handbook of interpersonal communication* (pp. 21–41). Thousand Oaks, CA: Sage.

Bochner, A. P., & Riggs, N. A. (2014). Practicing narrative inquiry. In P. Leavy (Ed.), *The Oxford handbook of qualitative research* (pp. 195–222). Oxford University Press.

Bochner, A., & Ellis, C. (2016). *Evocative autoethnography: Writing lives and telling stories* (Eds.). Oxon: Routledge.

Bogenschneider, K. (2014). *Family policy matters: How policymaking affects families and what professionals can do* (3rd edition.). New York, NY: Routledge.

Bogenschneider, K., & Corbett, T. (2021). *Evidence-based Policymaking: Envisioning a New Era of Theory, Research, and Practice,* (Eds.). Oxon: Routledge.

Bohlmeijer, E., Ten Klooster, P. M., Fledderus, M., Veehof, M., & Baer, R. (2011). Psychometric properties of the five-facet mindfulness questionnaire in depressed adults and development of a short form. *Assessment, 18*(3), 308-320.

Boice Jr, J. D. (2012). Radiation epidemiology: a perspective on Fukushima. *Journal of Radiological protection, 32(1),* 33-40.

Boisgontier, M. P., & Iversen, M. D. (2020). Physical inactivity: a behavioral disorder in the physical therapist's scope of practice. *Physical therapy, 100(5),* 743-746.

Boniface, S. (2015, August 08). Nuclear test veteran says photos prove men were exposed to deadly radiation. Retrieved November 19, 2020, from https://www.mirror.co.uk/news/uk-news/nuclear-test-veteran-says-photos-6220608

Bonilha, A. G., Onofre, F., Viera, M. L., Prado, M. Y., & Martinez, J. A. (2009). Effects of singing classes on pulmonary function and quality of life of COPD patients. *International Journal of Chronic Obstructive Pulmonary Disease, 4,* 1-8.

Boog, B. W. M. (2003). The emancipatory character of action research, its history and the present state of the art. *Journal of Community & Applied Social Psychology, 13(6),* 426-438.

Booth, M. L., Bauman, A., & Owen, N. (2002). Perceived barriers to physical activity among older Australians. *Journal of Aging and Physical Activity, 10,* 271–280.

Borah, E. V., & Manser, S. S. (2016). The roles of veteran peers in mental health recovery during transition from military to civilian life. *The Civilian Lives of US Veterans: Issues and Identities [2 volumes],* 431.

Boss, L., Kang, D. H., & Branson, S. (2015). Loneliness and cognitive function in the older adult: a systematic review. *International Psychogeriatrics*, *27*(4), 541-553.

Boudiny, K. (2013). 'Active ageing': from empty rhetoric to effective policy tool. *Ageing & Society*, *33*(6), 1077-1098.

Bound, J., & Waidmann, T. (2007). Estimating the health effects of retirement. *Michigan Retirement Research Center Research Paper No. UM WP, 168*.

Bourbonnais, A., & Michaud, C. (2018). Once upon a time: Storytelling as a knowledge translation strategy for qualitative researchers. *Nursing Inquiry, 25,* 1-7.

Bowleg, L. (2008). When Black + lesbian + woman ≠ Black lesbian woman: The methodological challenges of qualitative and quantitative intersectionality research. *Sex Roles: A Journal of Research, 59(5-6),* 312–325.

Bowling, A., & Dieppe, P. (2005). What is successful ageing and who should define it? *BMJ, 331(7531),* 1548-51.

Boydell, K. M., Hodgins, M. J., Gladstone, B. M., & Stasiulis, E. (2017). Ineffable knowledge: Tensions (and solutions) in art-based research representation and dissemination. *Journal of Applied Arts & Health, 8(2),* 193-207.

Boyle, P. G. (1990). *The Churchill–Eisenhower Correspondence 1953–1955* (Eds.). Chapel Hill, NC: University of North Carolina Press.

Boylorn, R. M. (2008). As seen on TV: An autoethnographic reflection on race and reality television. *Critical Studies in Media Communication, 25(4),* 413-433.

Brace, C., & Geoghegan, H. (2011). Human geographies of climate change: Landscape, temporality, and lay knowledges. *Progress in Human Geography, 35(3),* 284-302.

Brackenridge, C. (1999). Managing myself: Investigator survival in sensitive research. *International Review for the Sociology of Sport, 34(4),* 399-410.

Brandel, M., Vescovelli, F., & Ruini, C. (2017). Beyond Ryff's scale: Comprehensive measures of eudaimonic well-being in clinical populations. A systematic review. *Clinical psychology & psychotherapy, 24(6),* O1524-O1546.

Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology, 3(2),* 77-101.

Braun, V., & Clarke, V. (2019). Reflecting on reflexive thematic analysis. *Qualitative Research in Sport, Exercise and Health, 11(4),* 589-597.

Breen, L. J., & O'Connor, M. (2011). Family and social networks after bereavement: Experiences of support, change and isolation. *Journal of Family Therapy, 33(1),* 98-120.

Brewster, L., McWade, B., & Clark, S. J. A. (2020). A point of connection? Wellbeing, the veteran identity and older adults. *Ageing and Society*, 1–22.

Brinkmann, S., Jacobsen, M. H., & Kristiansen, S. (2014). Historical Overview of Qualitative Research in the Social Sciences. In. P. Leavy (Eds). *The Oxford Handbook in Qualitative Research* (pp. 17-42). Oxford: Oxford University Press.

Britt, T. W., Greene–Shortridge, T. M., Brink, S., Nguyen, Q. B., Rath, J., Cox, A. L., ... & Castro, C. A. (2008). Perceived stigma and barriers to care for psychological treatment: Implications for reactions to stressors in different contexts. *Journal of Social and Clinical Psychology*, *27(4),* 317-335.

Brodie, B. (1946). *The Absolute Weapon: Atomic Power and World Order* (Eds.). New York: Harcourt Brace.

Bromet, E. J. (2014). Emotional consequences of nuclear power plant disasters. *Health Physics, 106,* 206–210.

Brooke, J., & Jackson, D. (2020). Older people and COVID‐19 isolation, risk, and ageism. *Journal of clinical nursing*, 1-7.

Brookhaven National Laboratory (2008). *2008 Environmental Report*. Retrieved from https://www.bnl.gov/esh/env/ser/. Accessed February 12, 2018.

Brown, B. (2018). Interdisciplinary research. *European Review, 26(2),* S21-S29.

Brown, M. C., Creel, A. H., Engel, C. C., Herrell, R. K., & Hoge, C. W. (2011). Factors associated with interest in receiving help for mental health problems in combat veterans returning from deployment to Iraq. *The Journal of nervous and mental disease, 199(10),* 797-801.

Brown, P. (2017). Narrative: an ontology, epistemology, and methodology for pro-environmental psychology research. *Energy Research & Social Science, 31,* 215-222.

Brownson, R. C., Fielding, J. E., & Maylahn, C. M. (2009). Evidence-based public health: a fundamental concept for public health practice. *Annual review of public health, 30,* 175-201.

Bruce T. (2019) The Case for Faction as a Potent Method for Integrating Fact and Fiction in Research. In: S. Farquhar & E. Fitzpatrick (Eds.). *Innovations in Narrative and Metaphor.* Springer, Singapore.

Bruce, T. (2016). *Terra Ludus: A Novel about Media, Gender and Sport* (Eds.). Rotterdam: Sensepublishers.

Brueck, S. & Grant, C. (2011). The Obama administration's federal educational policy, intersectionality, citizenship, and flourishing. *Race, Gender & Class, 18(3),* 7-27.

Brugha, R., & Varvasovszky, Z. (2000). Stakeholder analysis: a review. *Health Policy and Planning 15(3),* 239-246

Brumfiel, G. (2013). Fukushima: fallout of fear. *Nature, 493,* 290–93.

Brummer, L., Stopa, L., & Bucks, R. (2013). The Influence of Age on Emotion Regulation Strategies and Psychological Distress. *Behavioural and Cognitive Psychotherapy, 42(6),* 668–681.

Bruner, E. M. (1984). Introduction: The opening up of anthropology. In S. Plattner & E. M. Bruner (Eds.), *Text, play, and story: The construction and reconstruction of self and society—1983 proceedings of the American ethnological society* (pp. 1-16). Princeton, NJ: American Ethnological Society.

Bruner, J. (1986). Play, thought and language. *Prospects, 16(1),* 77-83.

Bruner, J. (1987). Life as narrative. *Social research,* 11-32.

Bruner, J. (1990). Culture and human development: A new look. *Human development, 33(6),* 344-355.

Bruner, J. (1999). Narratives of aging. *Journal of Aging Studies, 13(1),* 7–9.

Bryman, A. (1988). *Quantity and Quality in Social Research* (Eds.). London: Unwin Hyman.

Bryman, A. (2001). *Social Research Methods* (Eds.). Oxford: Oxford University Press.

Bryman, A. (2008). Why do researchers integrate/combine/mesh/blend/mix/merge/fuse quantitative and qualitative research? *Advances in mixed methods research, 21(8),* 87-

100.

Buchmann, M. (1989). *The script of life in modern society: Entry into adulthood in a changing world* (Eds.). Chicago: University of Chicago Press.

Bulmer, S., & Jackson, D. (2016). “You do not live in my skin”: Embodiment, voice, and the veteran. *Critical Military Studies, 2(1–2),* 25–40.

Burke, S. M., & Utley, A. (2013). Climbing towards recovery: Investigating physically injured combat veterans’ psychosocial response to scaling Mt. Kilimanjaro. *Disability and rehabilitation*, *35(9),* 732-739.

Burkett, J. (2013). The Campaign for Nuclear Disarmament and changing attitudes towards the Earth in the nuclear age. *The British Journal for the History of Science, 45(4),* 625–639.

Burnell, K., Needs, A., & Gordon, K. (2017). Exploring the suitability and acceptability of peer support for older veterans. *Quality in Ageing and Older Adults*, *18(2),* 120-130.

Burroway, J. (2003). *Writing fiction: A guide to narrative craft* (6th ed.). New York: Longman.

Bury, M. (1995). Ageing, gender, and sociological theory. In S. Arber & J. Ginn (Eds.), *Connecting gender and ageing* (pp. 15–30). Philadelphia: Open University Press.

Butler, R. N. (1969). Age-ism: Another form of bigotry. *The Gerontologist, 9(4),* 243–246.

Butler, R. N. (1975). *Why survive? Being old in* America (Eds.). New York: Harper and Row.

Bygren, L. O., Konlaan, B. B., & Johansson, S. E. (1996). Attendance at cultural events, reading books or periodicals, and making music or singing in a choir as determinants for survival: Swedish interview survey of living conditions. *BMJ*, *313(7072),* 1577-1580.

Cacioppo, S., Grippo, A. J., London, S., Goossens, L., & Cacioppo, J. T. (2015). Loneliness: Clinical import and interventions. *Perspectives on Psychological Science*, *10(2),* 238-249.

Caddick, N. (2018). Life, embodiment, and (post-) war stories: Studying narrative in critical military studies. *Critical Military Studies*, *7(2),* 155-172.

Caddick, N., & Smith, B. (2014). The impact of sport and physical activity on the well-being of combat veterans: A systematic review. *Psychology of sport and exercise*, *15(1),* 9-18.

Caddick, N., McGill, G., Greaves, J., & Kiernan, M. D. (2018). Resisting decline? Narratives of independence among aging limbless veterans. *Journal of Aging Studies, 46,* 24-31.

Caddick, N., Smith, B., & Phoenix, C. (2015). Male combat veterans’ narratives of PTSD, masculinity, and health. *Sociology of Health & Illness, 37(1),* 97-111.

Caldwell, M. (1969). The threat to our children, *Sanity,* 1.

Camporeale, J. (2008). Basics of Radiation Treatment. *Clinical Journal of Oncology Nursing, 12(2),* 193-195.

Capstick, A., & Clegg, D. (2013). Behind the stiff upper lip: War narratives of older men with dementia. *Journal of War & Culture Studies, 6(3),* 1-17.

Carless, D., & Sparkes, A. C. (2008). The physical activity experiences of men with serious mental illness: Three short stories. *Psychology of sport and exercise, 9(2),* 191-210.

Carless, D., Peacock, S., McKenna, J., & Cooke, C. (2013). Psychosocial outcomes of an inclusive adapted sport and adventurous training course for military personnel. *Disability and Rehabilitation, 35(24),* 2081–2088.

Carless, D., Sparkes, A. C., Douglas, K., & Cooke, C. (2014). Disability, inclusive adventurous training, and adapted sport: Two soldiers' stories of involvement. *Psychology of Sport and Exercise, 15,* 124-131.

Carlson, J. A. (2010). Avoiding traps in member checking. *Qualitative Report, 15(5),* 1102-1113.

Carmichael, F., Hulme, C., Porcellato, L., Ingham, B., & Prashar, A. (2011). Ageism and age discrimination: The experiences and perceptions of older employees. In E. Parry & S. Tyson (Eds.), *Managing an Age-Diverse Workforce* (pp. 115-128). Palgrave Macmillan, London.

Carmona, C., Baxter, S., & Carroll, C. (2020). Systematic review of the methodological literature for integrating qualitative evidence syntheses into health guideline development. *Research Synthesis Methods, 12,* 491-505.

Carnevale, F. A. (2002). Authentic qualitative research and the quest for methodological rigour. *Canadian Journal of Nursing Research Archive, 34(2),* 121-128.

Carney, G., & M. Gray. (2015). Unmasking the Elderly Mystique: Why it is Time to Make the Personal Political in Aging Research. *Journal of Aging Studies, 35*, 123–134.

Carr, D. C., Kail, B. L., Matz-Costa, C., & Shavit, Y. Z. (2018). Does becoming a volunteer attenuate loneliness among recently widowed older adults? *The Journals of Gerontology: Series B, 73(3),* 501-510.

Carr, S., & Fang, C. (2021). A gradual separation from the world: a qualitative exploration of existential loneliness in old age. *Ageing and Society*, 1–21.

Carstensen, G., Rosberg, B., Mc Kee, K. J., & Åberg, A. C. (2019). Before evening falls: Perspectives of a good old age and healthy ageing among oldest-old Swedish men. *Archives of Gerontology and Geriatrics, 82*, 35–44.

Cash, D. W., Borck, J. C., & Patt, A. G. (2006). Countering the loading-dock approach to linking science and decision making: comparative analysis of El Niño/Southern Oscillation (ENSO) forecasting systems. *Science, technology, & human values, 31*(4), 465-494.

Castiello Jones, K., Misra, J., & McCurley, K. (2013). Intersectionality in sociology. Sociologists for Women in Society. Retrieved 11th March 2022 from https://socwomen.org/wp-content/uploads/2018/02/swsfactsheet_intersectionality.pdf

Castle, C. L., Engward, H., & Kersey, T. (2021). Arts activity and well-being for visually impaired military veterans: A narrative discussion of current knowledge. *Public Health, 194,* 232–237.

Caulley, D. N. (2008). Making Qualitative Research Reports Less Boring: The Techniques of Writing Creative Nonfiction. *Qualitative Inquiry, 14(3),* 424-449.

Cervinka, R., Röderer, K., & Hefler, E. (2012). Are nature lovers happy? On various indicators of well-being and connectedness with nature. *Journal of health psychology*, *17(3),* 379-388.

Chacko, E. (2004). Positionality and praxis: fieldwork experiences in rural India. *Singapore Journal of Tropical Geography, 2(1),* 51-63.

Chamberlain, K., McGuigan, K., Anstiss, D., & Marshall, K. (2018). A change of view: Arts-based research and psychology. *Qualitative Research in Psychology, 15(2-3),* 131-139.

Champ, F. M., Nesti, M. S., Ronkainen, N. J., Tod, D. A., & Littlewood, M. A. (2018). An Exploration of the Experiences of Elite Youth Footballers: The Impact of Organisational Culture. *Journal of Applied Sport Psychology, 32(2),* 146-167.

Chang, C. H. (2010). The impact of global warming on storms and storm preparedness in South Northeast Asia. *Kajian Malaysia, 28(1),* 53-76.

Chang, Y. C. (2009). Legality of the threat or use of nuclear weapons. *Energy Policy, 37(6),* 2131–2135.

Charles, S. T., Reynolds, C. A., & Gatz, M. (2001). Age-related differences and change in positive and negative affect over 23 years. *Journal of personality and social psychology, 80(1),* 136.

Chase, S. (2018). Narrative Inquiry. Toward Theoretical and Methodological Maturity. In: N. Denzin & Y. Lincoln (5th Edition). *The SAGE Handbook of Qualitative Research* (pp. 946-970). California: Sage.

Chase, S. E. (2005), Narrative inquiry: multiple lenses, approaches, voices. In N. Denzin & Y. Lincoln (3rd Edition), *The Sage Handbook of Qualitative Research* (pp. 651-679). Thousand Oaks, CA: Sage.

Chase, S. E. (2011). Narrative inquiry: Still a field in the making. In N. K. Denzin & Y. S. Lincoln (4th Edition), *Handbook of Qualitative Research* (421-434). Thousand Oaks, CA: Sage.

Chen, J. (2015). Issues and challenges of Radiation Risk Communication to the public. *Radiation Emergency Medicine, 4(11),* 11-15.

Chen, N., Chen, J., & Ko, P. C. (2021). Active aging in the countryside: Space, place, and the performance of leisure–work lifestyles in contemporary rural China. *Population, Space and Place,* e2429.

Cheney, J. (1989). Postmodern environmental ethics: Ethics as bioregional narrative. *Environmental Ethics, 11(2),* 117–134.

Cheney, T. A. R. (2001). *Writing creative nonfiction: Fiction techniques for crafting great nonfiction* (Eds.). Berkeley, CA: Ten Speed Press.

Cherubini, A., Lowenthal, D. T., Williams, L. S., Maggio, D., Mecocci, P., & Senin, U. (1998). Physical activity and cardiovascular health in the elderly. *Aging Clinical and Experimental Research*, *10(1),* 13-25.

Chia, R. (1996). The problem of reflexivity in organizational research: Towards a postmodern science of organization. *Organization*, *3(1),* 31-59.

Chinchilla, M., Gabrielian, S., Glasmeier, A., & Green, M. F. (2020). Exploring community integration among formerly homeless veterans in project-based versus tenant-based supportive housing. *Community mental health journal, 56*(2), 303-312.

Chiseri-Strater, E. (1996). Turning In upon Ourselves: Positionality, Subjectivity, and Reflexivity in Case Study and Ethnographic Research. In P. Mortensen & G. E. Kirsch (Eds.), *Ethics and Representation in Qualitative Studies of Literacy*, (pp. 115-133). USA: National Council of Teachers.

Cho, J., & Trent, A. (2006). Validity in qualitative research revisited. *Qualitative research, 6(3),* 319-340.

Cho, S., Crenshaw, K.W. and McCall, L. (2013). Toward a Field of Intersectionality Studies: Theory, Applications, and Praxis. Signs: Journal of Women in Culture and Society, 38(4), pp.785–810.

Choo, H. Y., & Ferree, M. M. (2010). Practicing intersectionality in sociological research: A critical analysis of inclusions, interactions, and institutions in the study of inequalities. *Sociological Theory, 28(2),*129-149.

Choudry, A. (2020). Reflections on academia, activism, and the politics of knowledge and learning. *The International Journal of Human Rights, 24*(1), 28-45.

Christensen, K., Doblhammer, G., Rau, R., & Vaupel, J. W. (2009). Ageing populations: the challenges ahead. T*he Lancet, 374(9696*), 1196–1208.

Christeson, W., Taggart, A. D., Messner-Zidell, S., Kiernan, M., Cusick, J., & Day, R. (2012). *Still too fat to fight. Mission: Readiness, Military Leaders for Kids*. Mission: Readiness. Retrieved from https://strongnation.s3.amazonaws.com/documents/25/53e07c20-db3e-40ff-9ee0-cf6cebfdd4eb.pdf?1469639530&inline;%20filename=%22Still%20Too%20Fat%20to%20Fight.pdf%22 [accessed May 2021].

Christodouleas, J. P., Forrest, R. D., Ainsley, C. G., Tochner, Z., Hahn, S. M., & Glatstein, E. (2011). Short-Term and Long-Term Health Risks of Nuclear Power Plant Accidents. *New England Journal of Medicine, 364(24)*, 2334–2341.

Chu, D. A., Williams, L. M., Harris, A. W. F., Bryant, R. A., & Gatt, J. M. (2013). Early life trauma predicts self-reported levels of depressive and anxiety symptoms in nonclinical community adults: Relative contributions of early life stressor types and adult trauma exposure. *Journal of Psychiatric Research, 47*, 23–32.

Cirincione, J. (2007). *Bomb Scare: The hisory and future of nuclear weapons* (Eds.). New York: Columbia University Press.

Clandinin, D. J., & Connelly, F. M. (2000). *Narrative inquiry: Experience and story in qualitative research* (Eds.). San Francisco, USA: Jossey-Bass.

Clandinin, D.J. (2007). *Handbook of Narrative Inquiry: Mapping a Methodology* (Eds.). Thousand Oaks, CA: Sage.

Clark, D. O. (1999). Identifying psychological, physiological, and environmental barriers and facilitators to exercise among older low income adults. *Journal of clinical geropsychology, 5(1)*, 51-62.

Clark, M. C., & Rossiter, M. (2008). Narrative learning in adulthood. *New directions for adult and continuing education, 119*, 61-70.

Clarke, A., & Warren, L. (2007). Hopes, fears, and expectations about the future: What do older people’s stories tell us about active ageing? *Ageing and Society, 27(4)*, 465–488.

Clarke, V., & Braun, V. (2013). Teaching thematic analysis: Overcoming challenges and developing strategies for effective learning. *The psychologist, 26(2),* 120-123.

Clayton, B. (2010). Ten minutes with the boys, the thoroughly academic task, and the semi-naked celebrity: Football masculinities in the classroom or pursuing security in a ‘liquid’ world. *Qualitative Research in Sport and Exercise, 2,* 371-384.

Clemson, L., Singh, M. A. F., Bundy, A., Manollaras, K., & Black, D. (2012). Integration of balance and strength training into daily life activity to reduce rate of falls in older people (the LiFE study): randomised parallel trial. *British Medical Journal, 345*, e4547.

Clift, S., Hancox, G., Morrison, I., Hess, B., Kreutz, G., & Stewart, D. (2010). Choral singing and psychological wellbeing: quantitative and qualitative findings from English choirs in a cross-national survey. *Journal of Applied Arts & Health, 1,* 19–34.

Clift, S., Page, S., Daykin, N., & Peasgood, E. (2016). The perceived effects of singing on the health and well-being of wives and partners of members of the British Armed Forces: a cross-sectional survey. *Public Health*, *138,* 93–100.

Codd, H. (2018). Ageing in prison. In S. Westwood (Eds), *Ageing, Diversity and Equality: Social Justice Perspectives* (pp. 345-358). London: Routledge.

Coffey, A., & Atkinson, P. (1996). *Making Sense of Quality Data Analysis: Complementary Strategies* (Eds.). London: Sage.

Cohen, D. J., & Crabtree, B. F. (2008). Evaluative criteria for qualitative research in health care: controversies and recommendations. *The Annals of Family Medicine, 6(4),* 331-339.

Cohen, G. D., Perlstein, S., Chapline, J., Kelly, J., Firth, K. M., & Simmens, S. (2006). The impact of professionally conducted cultural programs on the physical health, mental health, and social functioning of older adults. *Gerontologist*, *46*, 726–34.

Cohen-Mansfield, J., Marx, M. S., Guralnik, J. M. (2003). Motivators and barriers to exercise in an older community-dwelling population. *Journal of Ageing and Physical Activity, 11,* 242-253.

Cole, A. L., & Knowles, G. J. (2001). *Lives in context: The art of life history research*, (Eds.). AltaMira Press.

Coleman, D., & Iso-Ahola, S. E. (1993). Leisure and health: The role of social support and self-determination. *Journal of leisure research, 25(2),* 111-128.

Coles, J., & Mudaly, N. (2010). Staying safe: Strategies for qualitative child abuse researchers. *Child Abuse Review: Journal of the British Association for the Study and Prevention of Child Abuse and Neglect, 19(1),* 56-69.

Coll, J. E., Weiss, E. L., Yarvis, J. S., & Oh, H. (2011). No One Leaves Unchanged: Insights for Civilian Mental Health Care Professionals into the Military Experience and Culture. *Social Work in Health Care, 50(7),* 487–500.

Collins, P. H. (1990). *Black feminist thought: Knowledge, consciousness, and the politics of empowerment* (Eds.). Boston, USA: Hyman.

Colville, J. (1985). The Fringes of Power: 10 Downing Street Diaries 1939–1955 (p.675). London: W. W. Norton & Co.

Comte, A., Bridges, J. H., & Comte, A. (2009). *A general view of positivism: Or, summary* *exposition of the system of thought and life, adapted to the great western republic, formed of the five advanced nations, the French, Italian, Spanish, British, and German, which, since the time of Charlemagne, have always constituted a political whole* (Reissued, Truebner and Co, 1865). Cambridge University Press.

Connell, R. W. (1995). *Masculinities, (Eds.).* Berkeley: University of California Press

Conolly, O., & Haydar, B. (2008). The case against faction. *Philosophy and Literature, 32(2),* 347-358.

Cook, C., Pietrobon, R., & Hegedus, E. (2007). Osteoarthritis and the impact on quality of life health indicators. *Rheumatology international*, *27(4),* 315-321.

Cooke, P. J., Melchert, T. P., & Connor, K. (2016). Measuring Well-Being: A Review of Instruments. *The Counseling Psychologist*, *44(5),* 730–757.

Cooper, L., Caddick, N., Goldier, L., Cooper, A., & Fossey, M. (2016). Transition from the Military into Civilian Life: An Exploration of Cultural Competence. *Armed Forces and Society, 44(1),* 156-177.

Copeland, J. R. M., Beekman, A. T. F., Dewey, M. E., Hoojer, C., Jordan, A., Lawlor, B. A.,…& Wilson, K. C. (1999). Geographical distribution of depression among older people. *British Journal of Psychiatry, 174*, 312–321.

Corker, S. (2018, February 16). DNA tests for UK's nuclear bomb veterans. Retrieved November 19, 2020, from https://www.bbc.co.uk/news/health-43075718

Cornwall, A., & Jewkes, R. (1995). What is Participatory Research? *Social Science and Medicine, 41(12),* 1667-1676.

Corrigan P. W., Watson, A., & Barr, L. (2006). The self-stigma of mental illness; implication for self-esteem and self-efficacy. *Journal of Social and Clinical Psychology, 25,* 875–84.

Costello, E., Kafchinski, M., Vrazel, J., & Sullivan, P. (2011). Motivators, Barriers, and Beliefs Regarding Physical Activity in an Older Adult Population. *Journal of Geriatric Physical Therapy, 34(3),* 138-147.

Coulton, S., Clift, S., Skingley, A., & Rodriquez, J. (2015). Effectiveness and cost-effectiveness of community singing on mental health-related quality of life of older people: randomised controlled trial. *The British Journal of Psychiatry, 207,* 250-255.

Cowles, K. V. (1988). Issues in qualitative research on sensitive topics. *Western Journal of Nursing Research*, *10(2),* 163-179.

Cox, B., McBride, D., Broughton, J., & Tong, D. (2015). Health conditions in a cohort of New Zealand Vietnam veterans: Hospital admissions between 1988 and 2009. *BMJ Open, 5(12),* e008409.

Cox, C. B. (2015). *Social policy for an aging society: A human rights perspective* (Eds.). New York: Springer.

Coyle, C. E., & Dugan, E. (2012). Social isolation, loneliness, and health among older adults. *Journal of Aging and Health, 24,* 1346–1363.

Coyle, J. (2002). Spirituality and health: towards a framework for exploring the relationship between spirituality and health. *Journal of advanced nursing, 37(6),* 589-597.

Crawford, P., Lewis, L., Brown, B., & Manning N. (2013). Creative practice as mutual recovery in mental health. *Mental Health Review Journal, 18,* 55–64.

Creech, A., Hallam, S., Varvarigou, M., McQueen, H., & Gaunt, H. (2013). Active music making: a route to enhanced subjective well-being among older people. *Perspectives in Public Health. 133,* 36–43.

Creighton-Smith, B. A., Cook, M., & Edginton, C. R. (2017). Leisure, ethics, and spirituality. *Annals of Leisure Research, 20(5),* 546–562.

Crenshaw, K. (1989). Demarginalizing the Intersection of Race and Sex: A Black Feminist Critique of Anti-discrimination Doctrine, Feminist Theory and Antiracist Politics. *University of Chicago Legal Forum, (1):* 139–68.

Crenshaw, K. (1991). Mapping the margins: Intersectionality, identity politics, and violence against women of color. *Stanford Law Review, 43(6)*, 1241-1299.

Croce, J. (2021). Brotherhood in Tension: The Militarized Appropriation of Homosocialism and Homoeroticism. *Flux: International Relations Review, 11(1),* 9-17.

Cronon, W. (1992). A place for stories: Nature, history, and narrative. *The journal of American history, 78(4),* 1347-1376.

Crouthamel, J. (2014). The Ideal Man Goes to War. In J. Crouthamel (Ed.), *An Intimate History of the Front: Masculinity, Sexuality, and German Soldiers in the First World War* (pp. 15–40). Palgrave Macmillan US.

Cutler, D. (2012). *Tackling loneliness in older age: The role of the arts*. The Baring Foundation & Campaign to End Loneliness. Retrieved from https://www.campaigntoendloneliness.org/wp-content/uploads/Tackling-Loneliness-A-Role-for-the-Arts.pdf. Accessed June 2018.

Czaja, S. J., Sharit, J., & James, J. B. (2019). *Current and emerging trends in aging and work* (Eds.). Springer Nature.

D’Cunha, N. M., Nguyen, D., Naumovski, N., McKune, A. J., Kellett, J., Georgousopoulou, E. N., ... & Isbel, S. (2019). A mini-review of virtual reality-based interventions to promote well-being for people living with dementia and mild cognitive impairment. *Gerontology, 65(4),* 430-440.

Dainton, M., & Aylor, B. (2002) Patterns of communication channel use in the maintenance of long-distance relationships. *Communication Research Reports, 19,* 118-129.

Dallaire, B., McCubbin, M., Carpentier, N., & Clement, M. (2008). Representations of elderly with mental health problems held by psychosocial practitioners from community and institutional settings. *Social Work in Mental Health, 7(1-3),* 139-152.

Dammann, O. (2019). Data, Information, Evidence, and Knowledge: A Proposal for Health Informatics and Data Science. *Online journal of public health informatics, 10(3),* e224.

Dandeker, C., Wessely, S., Iversen, A., & Ross, J. (2006). What's in a Name? Defining and caring for "Veterans" The United Kingdom in International Perspective. *Armed Forces & Society, 32,* 161–177.

Dauer, L. T., Thornton, R. H., Hay, J. L., Balter, R., Williamson, M. J., & St. Germain, J. (2011). Fears, Feelings, and Facts: Interactively Communicating Benefits and Risks of Medical Radiation with Patients. *AJR, 196,* 756-761.

Davey, J. A. (2002). Active ageing and education in mid and later life. *Ageing & Society, 22(1),* 95-113.

Davidson, J. R. T., & Meltzer-Brody, S. (1999). The under recognition and under treatment of depression: What is the breadth and depth of the problem? *Journal of Clinical Psychiatry, 60(7),* 4–9.

Davies, A. (2011). On constructing ageing rural populations: 'Capturing' the grey nomad. *Journal of Rural Studies, 27(2),* 191-199.

Davies, K., Collerton, J. C., Jagger, C., Bond, J., Barker, S. A., Edwards, J., ... & Robinson, L. (2010). Engaging the oldest old in research: lessons from the Newcastle 85+ study. *BMC geriatrics, 10(1),* 1-9.

Davies, P. (2000). Contributions from qualitative research. In H. T. O. Davies, S. M. Nutley & P. C. Smith (Eds.). *What works: Evidence-based policy and practice in public services,* (291-316). Bristol: The Policy Press.

Daykin, N., Julier, G., Tomlinson, A., Meads, C., Mansfield, L., Payne, A., …Victor, C. (2016). Music, singing, and wellbeing. *What Works for Wellbeing,* 2-96.

De Chesnay, M. (2014). *Nursing research using life history: Qualitative designs and methods in nursing* (Eds.). New York: Springer Publishing Company.

De Groot, G. C. L., & Fagerström, L. (2011). Older adults' motivating factors and barriers to exercise to prevent falls. *Scandinavian Journal of Occupational Therapy 18(2)*:153–160.

de Jong Gierveld, J. (1998). A review of loneliness: concept and definitions, determinants, and consequences. *Reviews in Clinical Gerontology, 8(1),* 73-80.

de Jong Gierveld, J., & Havens, B. (2004). Cross-national comparisons of social isolation and loneliness: introduction and overview. *Canadian Journal on Aging, 23*(2), 109-113.

de Vries, B. (2015). Structuring the insider's view: Narrative gerontology in research and practice. *The Gerontologist, 55(2),* 337-338.

Dearing, J. W., Rogers, E. M., Meyer, G., Casey, M. K., Rao, N., Campo, S., & Henderson, G. M. (1996). Social marketing and diffusion-based strategies for communicating with unique populations: HIV prevention in San Francisco. *Journal of Health Communication, 1(4),* 343–363.

Debs, E. (1918, June 16). The Anti-War Speech. https://history.hanover.edu/courses/excerpts/111debs.html

Deci, E. L., & Ryan, R. M. (2008). Facilitating optimal motivation and psychological well-being across life's domains: Correction to Deci and Ryan (2008). *Canadian Psychology, 49(3)*, 262.

Declerck, K., & Berghe, W. V. (2018). Back to the future: Epigenetic clock plasticity towards healthy aging. *Mechanisms of Ageing and Development*, *174*, 18-29.

Demers, A. L. (2013). From death to life: Female veterans, identity negotiation, and reintegration into society. *Journal of Humanistic Psychology, 53(4),* 489-515.

Demuth, C. (2015). "Slow food" post-qualitative research in psychology: Old craft skills in new disguise? *Integrative Psychological and Behavioural Science, 49,* 207-215.

Denzin, N. K. (1989). I*nterpretive biography.* Newbury Park, CA: Sage.

Denzin, N. K. (1997). *Interpretive ethnography* (Eds.). London: Sage.

Denzin, N. K. (2000). Aesthetics and the practices of qualitative inquiry. *Qualitative inquiry*, *6(2)*, 256-265.

Denzin, N. K., & Giardina, M. D. (Eds.). (2016). *Qualitative inquiry and the conservative challenge,* (Eds.). Routledge.

Denzin. N. K., & Lincoln, Y. S. (2005). The discipline and practice of qualitative research. (3rd Edition.), *Handbook of qualitative research* (pp. 1-32). Thousand Oaks, CA: SAGE.

Department of Health and Social Care. (2021). *Integration and Innovation: working together to improve health and social care for all* (pp. 1-80). London: H. M. Government. Retrieved from https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachme nt_data/file/960548/integration-and-innovation-working-together-to-improve-health-and-social-care-for-all-web-version.pdf

Deppermann, A. (2013). How to get a grip on identities-in-interaction:(What) does ‘positioning’ offer more than ‘membership categorization’? Evidence from a mock story. *Narrative Inquiry, 23(1),* 62–88.

Detweiler, M. B., Sharma, T., Detweiler, J. G., Murphy, P. F., Lane, S., Carman, J., ... & Kim, K. Y. (2012). What is the evidence to support the use of therapeutic gardens for the elderly? *Psychiatry investigation, 9(2),* 100-110.

Devadanam, C. (1965). NATO's Role in World Affairs. *The Indian Journal of Political Science, 26(4),* 182-191.

Dewsbury, J. D. (2010). Language and the Event: The Unthought of Appearing Worlds. In B. Anderson & P. Harrison (Eds.). *Taking-Place: Non-Representational Theories and Geography* (pp. 147–160). Farnham: Ashgate.

Dhamoon, R. K. (2011). Considerations on mainstreaming intersectionality. *Political Research Quarterly, 64,* 230–243.

Dhunpath, R. (2000). Life history methodology: "Narradigm" regained. *International Journal of Qualitative Studies in Education, 13,* 543-551.

Diamandopoulos, K., & Green, J. (2018). Down syndrome: An integrative review. *Journal of Neonatal Nursing,* 1-8.

DiCicco-Bloom, B., & Crabtree, B. F. (2006). The qualitative research interview. *Medical education, 40(4),* 314-321.

Diener, E. (2000). Subjective well-being: The science of happiness and a proposal for a national index. *American Psychologist, 55(1),* 34–43.

Diener, E., & Suh, M. E. (1997). Subjective well-being and age: An international analysis. *Annual Review of Gerontology and Geriatrics, 17,* 304–324.

Diener, E., Suh, E. M., Lucas, R. E., & Smith, H. L. (1999). Subjective well-being: Three decades of progress. *Psychological Bulletin, 125(2),* 276–302.

Dilthey, W. (1985). *Poetry and experience: Selected Works* (Vol. 5). Princeton, NJ: Princeton University Press.

Dingle, G. A., Brander, C., Ballantyne, J., & Baker, F. (2013). ‘To be heard : the social and mental health benefits of choir singing for disadvantaged adults. *Psychology of Music, 41,* 405e21.

Dobrez, L. (2012). Towards a more rigorous definition of terms: Are there scenes in European Palaeolithic art? *Pleistocene Art of the World,* 316-317.

Dodd, M. J., Cho, M. H., Miaskowski, C., Painter, P. L., Paul, S. M., Cooper, B. A., ... & Bank, K. A. (2010). A randomized controlled trial of home-based exercise for cancer-related fatigue in women during and after chemotherapy with or without radiation therapy. *Cancer nursing, 33(4),* 245.

Dodge, R., Daly, A. P., Huyton, J., & Sanders, L. D. (2012). The challenge of defining wellbeing. *International journal of wellbeing, 2(3),* 222-235.

Dohrenwend, B. P., Dohrenwend, B. S., Warheit, G. J., Bartlett, G. S., Goldsteen, R. L., Goldsteen, K., & Martin, J. L. (1981). Stress in the community: a report to the President's Commission on the accident at Three Mile Island. *Annals of the New York Academy of Sciences, 365,* 159–174.

Dollard, J. (1949). *Criteria for the Life History (2nd Edition).* New York: Peter Smith.

Donnelly, M. Z. (2012). Truth, Narrative, and Opening Space. *Open Journal of Philosophy, 2(4),* 213.

Donnelly, P. F., Gabriel, Y., & Özkazanç-Pan, B. (2013). Untold stories of the field and beyond: narrating the chaos. *Qualitative Research in Organizations and Management: An International Journal, 8(1),* 4-15.

Dorling, D. (2018). Dying Quietly: English Suburbs and the Stiff Upper Lip. *The Political Quarterly, 90(1),* 32–43.

Drew, C. (2017). Educational Podcasts: A Genre Analysis. *E-Learning and Digital Media, 14(4),* 201–211.

Dubovská, E., Chrz, V., Tavel, P., Šolcová, I. P., & Růžička, J. (2017). Narrative construction of resilience: stories of older Czech adults. *Ageing & Society, 37(9),* 18

Dykstra, P. A. (2009). Older adult loneliness: Myths and realities. *European Journal on Ageing, 6,* 91–100.

Earthy, S., & Cronin, A. (2008). Narrative analysis. In. N. D. Gilbert (3rd Edition.), *Researching social life* (pp. 420-439). London: SAGE.

Edwards, R. (2008). *Researching families and communities: Social and generational change* (Eds.). London: Routledge.

Ehni, H. J., Kadi, S., Schermer, M., & Venkatapuram, S. (2018). Toward a global geroethics–gerontology and the theory of the good human life. *Bioethics, 32(4),* 261-268.

Einstein, A. "From the President's Secretary's Files." Received by F. D Roosevelt, 2 Aug. 1939.

Eisner, E. (2008). Art and knowledge. In J.G. Knowles & A. Cole (Eds.), *Handbook of the arts in qualitative research* (pp. 2-12). Los Angeles, CA: Sage.

Elder, G. H., & Clipp, E. C. (1988). Wartime Losses and Social Bonding: Influences across 40 Years in Men's Lives. *Psychiatry, 51(2),* 177–198.

Ellingson, L. L. (2009). *Engaging crystallization in qualitative research: An introduction* (Eds.). London: Sage.

Elliott, J. (2005). *Using Narrative in Social Research* (Eds.). London: SAGE Publications Ltd.

Ellis, C. (2004). *The ethnographic I* (Eds.). Walnut Creek, CA: Altamira Press.

Ellis, C. S., & Bochner, A. P. (2006). Analyzing analytic autoethnography: An autopsy. *Journal of contemporary ethnography*, *35(4)*, 429-449.

Ellis, C., & Bochner, A. (2000). Autoethnography, Personal Narrative, Reflexivity: Researcher as Subject, in N. K. Denzin & Y. S. Lincoln (2nd Edition*.), Handbook of Qualitative Research* (pp. 733-768). London: SAGE.

Ellos, W. J. (1998). Some narrative methodologies for clinical ethics. *Cambridge Quarterly of Healthcare Ethics*, *7(3),* 315–322.

El-Sayed, A. M., Scarborough, P., & Galea, S. (2012). Unevenly distributed: a systematic review of the health literature about socioeconomic inequalities in adult obesity in the United Kingdom. *BMC Public Health*, *12*(1), 1–12.

Emden, C. (1998). Conducting a narrative analysis. *Collegian*, *5*, 34–39.

Erciyes, E. (2020). Paradigms of Inquiry in the Qualitative Research. *European Scientific Journal ESJ*, *16(7)*, 181-200.

Ernst, J. M., & Cacioppo, J. T. (1999). Lonely hearts: Psychological perspectives on loneliness. *Applied and preventive psychology*, *8(1)*, 1-22.

Esteves, A. M., Factor, G., Vanclay, F., Götzmann, N., & Moreira, S. (2017). Adapting social impact assessment to address a project's human rights impacts and risks. *Environmental Impact Assessment Review*, *67*, 73–87.

Etter-Lewis, G. (1993). *My soul is my own: Oral narratives of African American women in the professions* (Eds.). New York: Routledge.

Evans, A. B., Andreassen, S. M., & Virklund, A. W. (2020). "Together, we can do it all!": narratives of masculinity, sport and exercise amongst physically wounded Danish veterans. *Qualitative Research in Sport, Exercise and Health*, *12(5),* 697-716.

Faircloth, B. S., & Hamm, J. V. (2005). Sense of belonging among high school students representing 4 ethnic groups. *Journal of Youth and Adolescence*, *34(4),* 293-309.

Fancourt, D., & Steptoe, A. (2018). Cultural engagement predicts changes in cognitive function in older adults over a 10-year period: findings from the English Longitudinal Study of Ageing. *Scientific Reports*, *8(1),* 1-8.

Farmelo, G. (2013). *Churchill's Bomb—a hidden history of science, war and politics*. London: Faber and Faber.

Fear, N.T., Iversen, A., Meltzer, H., Workman, L., Hull, L., Greenberg, N.,… & Wessely, S. (2007). Patterns of drinking in the UK Armed Forces. *Addiction, 102,* 1749–1759.

Featherstone, M., & Hepworth, M. (1991). The mask of ageing and the postmodern life course. *The body: Social process and cultural theory*, 371-389.

Ferreira-Valente, A., Sharma, S., Torres, S., Smothers, Z., Pais-Ribeiro, J., Abbott, J. H., & Jensen, M. P. (2019). Does religiosity/spirituality play a role in function, pain-related beliefs, and coping in patients with chronic pain? A systematic review. *Journal of religion and health*, 1-55.

Field, G. (2011). "Civilians in Uniform": Class and Politics in the British Armed Forces, 1939–1945. *International Labor and Working-Class History, 80(1),* 121-147.

Finch, J. (1984). It's great to have someone to talk to: The ethics and politics of interviewing women. *Social Researching: Politics, Problems, Practice, London: Routledge and Kegan Paul.*

Finlay, L. (2002). "Outing" the Researcher: The Provenance, Process, and Practice of Reflexivity. *Qualitative Health Research*, *12(4),* 531-545.

Firestone W. A. (1993). Alternative Arguments for Generalizing from Data as Applied to Qualitative Research. *Educational Researcher, 22(4)*, 16-23.

Fiske, S. T. (1993). Controlling other people. The impact of power on stereotyping. *American Psychologist, 48,* 621–628.

Fiske, S. T., & Markus, H. R. (2012). *Facing social class* (Eds.). New York, NY: Russell Sage Foundation.

Fleming, A. A. (1999). Older men in contemporary discourses on ageing: absent bodies and invisible lives. *Nursing inquiry, 6(1),* 3-8.

Floyd, M., Rice, J., & Black, S. R. (2002). Recurrence of posttraumatic stress disorder in late life: A cognitive aging perspective. *Journal of Clinical Geropsychology, 8(4),* 303-311.

Forbes, L. J. L., Simon, A. E., Warburton, F., Boniface, D., Brain, K. E.,… & Wardle, J. (2013). Differences in cancer awareness and beliefs between Australia, Canada, Denmark, Norway, Sweden and the UK (the International Cancer Benchmarking Partnership): do they contribute to differences in cancer survival? *British Journal of Cancer, 108(2),* 292–300.

Forces in Mind Trust (2013). The Transition Mapping Study: Understanding the transition process for Service personnel returning to civilian life (pp 53–54).

Forgeard, M. J., Jayawickreme, E., Kern, M. L., & Seligman, M. E. (2011). Doing the right thing: Measuring wellbeing for public policy. *International journal of wellbeing, 1(1),* 79-106.

Forrow, L., Blair, B., Helfand, I., Lewis, G., Postol, T., Sidel, V.,…Cassel, C. (1998). Accidental Nuclear War - A Post-Cold War Assessment. *The New England Journal of Medicine,* 1326–1331.

Foucault, M. (1980). *Power/Knowledge: Selected Interviews & Other Writings, 1972-1977* (Eds.). New York: Pantheon Books.

Franche, R. L, & Krause, N. (2002). Readiness for return to work following injury or illness: Conceptualizing the inter- personal impact of health care, workplace, and insurance factors. *Journal of Occupational Rehabilitation, 12,* 233–256.

Franche, R. L., Baril, R., Shaw, W., Nicholas, M., & Loisel, P. (2005). Workplace-Based Return-to-Work Interventions: Optimizing the Role of Stakeholders in Implementation and Research. *Journal of Occupational Rehabilitation, 15(4),* 525-542.

Frank, A. W. (1995). The wounded storyteller. Chicago: University of Chicago Press.

Frank, A. W. (2010). *Letting stories breathe: A socio-narratology*. University of Chicago Press.

Fraser, N. (2009). Feminism, capitalism and the cunning of history. *New Left Review, 56*. Retrieved March 2022 from https://newleftreview.org/issues/ii56/articles/nancy-fraser-feminism-capitalism-and-the-cunning-of-history

Fraser, S., Lagacé, M., Bongué, B., Ndeye, N., Guyot, J., Bechard, L., ... & Tougas, F. (2020). Ageism and COVID-19: What does our society’s response say about us? *Age and Ageing, 49(5),* 692-695.

Freeman, S. M., Moore, B. A., & Freeman, A. (2009). *Living and surviving in harm's way: A psychological treatment handbook for pre-and post-deployment of military personnel* (Eds.). London: Taylor & Francis.

Freene, N., Waddington, G., Chesworth, W., Davey, R., & Cochrane, T. (2013). Physiotherapist-led home-based physical activity program versus community group exercise for middle-aged adults: quasi-experimental comparison. *Open Journal of Preventive Medicine 3(2),* 229–237.

Freire, P. (1970). *Pedagogy of the oppressed*. New York, NY: Continuum Press.

Freund, A., & Dropkin, J. (2013). Chapter 3: Ergonomic Hazards. In T. Gorman, J. Dropkin, J. Kamen, S. Nimbalkar, N. Zuckerman, T. Lowe…A. Freund (Eds.). *Controlling health hazards to hospital wokers.* Baywood Publishing Co.

Fried, L., Prohaska, T., Burholt, V., Burns, A., Golden, J., Hawkley, … & Victor, C. (2020). A unified approach to loneliness. *Lancet, 395(10218),* 114.

Frohmann, L. (2005). The framing safety project. *Violence Against Women, 11(11),* 1396–1419

Fukasawa, M., Kawakami, N., Umeda, M., Miyamoto, K., Akiyama, T., Horikoshi, N.,…Bromet, E. J. (2017). Environmental radiation level, radiation anxiety, and psychological distress of non-evacuee residents in Fukushima five years after the Great East Japan Earthquake: Multilevel analyses. *SSM - Population Health, 3,* 740-748.

Fulton, E., Wild, D., Hancock, J., Fernandez, E., & Linnane, J. (2019). Transition from service to civvy street: The needs of armed forces veterans and their families in the UK. *Perspectives in Public Health, 139*(1), 49–58.

Furunes, T., & Mykletun, R. J. (2010). Age discrimination in the workplace: Validation of the Nordic Age Discrimination Scale (NADS). *Scandinavian Journal of Psychology, 51*(1), 23-30.

Gadamer, H. G. (2013). *Truth and Method* (Eds). London: Bloomsbury.

Gaddis, J. L. (1986). The Long Peace: Elements of Stability in the Postwar International System. *International Security, 10(4),* 99-142.

Gair, S., Zuchowski, I., & Beddoe, L. (2021). Open Access Publishing: A Key Enabler to Research Impact, Informed Practice and Social Justice. *Social Work Academic and Industry Partnerships: Engagement and Impact, 22(2),* 25-38.

Gale, C. R., Cooper, C., Deary, I. J., & Sayer, A. A. (2014). Psychological well-being and incident frailty in men and women: the English Longitudinal Study of Ageing. *Psychological medicine, 44(4),* 697-706.

Gamoran, A. (2018). Evidence-based policy in the real world: A cautionary view. *The Annals of the American Academy of Political and Social Science, 678(1),* 180-191.

Garden, R. (2010). Telling stories about illness and disability: The limits and lessons of narrative. *Perspectives in Biology and Medicine, 53(1),* 121-135.

Gardner, M., Robertson, M., & Campbell, A. (2000). Exercise in preventing falls and fall related injuries in older people: a review of randomised controlled trials. *British Journal of Sports Medicine, 34,* 7–17.

Garland-Thomson, R. (2007). Shape structures story: Fresh and feisty stories about disability. *Narrative, 15(1),* 113-123.

Garrett, D., & Hodkinson, P. (1998). Can there be criteria for selecting research criteria? A hermeneutical analysis of an enescapable dilemma. *Qualitative inquiry, 4 (4),* 515–539.

Genette, G. (1990). The pragmatic status of narrative fiction. *Style,* 59-72.

Georgakopoulou, A. (2006). Thinking big with small stories in narrative and identity analysis. *Narrative inquiry, 16(1),* 122-130.

George, L. K., Kinghorn, W. A., Koenig, H. G., Gammon, P., & Blazer, D. G. (2013). Why gerontologists should care about empirical research on religion and health: transdisciplinary perspectives. *The Gerontologist, 53(6),* 898–906.

Gerstorf, D., Lövdén, M., Röcke, C., Smith, J., & Lindenberger, U. (2007). Well-being affects changes in perceptual speed in advanced old age: longitudinal evidence for a dynamic link. *Developmental psychology, 43(3),* 705.

Giaxoglou, K., & Georgakopoulou, A. (2020). A narrative practice approach to identities: Small stories and positioning analysis in digital contexts. In M. Bamberg, C. Demuth, & M. Watzlawik (Eds.), *Cambridge Handbook of Identity*. Cambridge University Press.

Gibbs, D. A., Rae Olmsted, K. L., Brown, J. M., & Clinton-Sherrod, A. M. (2011). Dynamics of stigma for alcohol and mental health treatment among army soldiers. *Military Psychology, 23(1),* 36-51.

Gibson, W. (2020). Aesthetics, verisimilitude, and user engagement: Reporting findings through fictional accounts in qualitative inquiry. *Qualitative Research,* 1-17.

Giddens, A. (1991). *Modernity and self-identity: Self and society in the late modern age*. Cambridge, MA: Polity.

Gilbert, E. S. (2001). Studies of workers exposed to low doses of radiation. *American Journal of Epidemiology, 153,* 319–322.

Gilbert, M. (1988). *Winston S. Churchill, Volume VIII: Never Despair 1945–65.* (p. 875.) London: Heinemann.

Gilleard, C. (2005). Cultural approaches to the aging body. In M. L. Johnson (Eds.), *Cambridge handbook of age and ageing* (pp. 156–164). New York: Cambridge University Press.

Gilleard, C. (2018). Suffering: The Darker Side of Ageing. *Journal of Aging Studies, 44,* 28–33.

Gilleard, C., & Higgs, P. (2000). *Cultures of ageing: Self, citizen and the bod*y (Eds.). London, UK: Prentice Hall.

Gilmer, P.J., & DuBois, M. (2002). Teaching Social Responsibility: The Manhattan Project Commentary on 'Six Domains of Research Ethics?' *Science and Engineering Ethics, 8(2),* 206-210.

Glasby, J., & Beresford, P. (2006). Commentary and issues: Who knows best? Evidence-based practice and the service user contribution. *Critical Social Policy, 26*(1), 268-284.

Glenton, C., Lewin, S., & Norris, S. L. (2016). *World Health Organization Handbook for*

Guideline Development (2nd Edition) Geneva: WHO.

Glenton, C., Lewin, S., Lawrie, T. A., Barreix, M., Downe, S., Finlayson, K. W.,…Tunçalp, Ö. (2019). Qualitative evidence synthesis (QES) for guidelines: paper 3 - Using qualitative evidence syntheses to develop implementation considerations and inform implementation processes. *Health Research Policy and Systems, 17(1),* 1-14.

Glionna, J. M. (2012). A year after tsunami, a cloud of distrust hangs over Japan: the Fukushima nuclear disaster has left residents doubting their government, their source of energy, even the food they eat. *Los Angeles Times* (Los Angles, USA), March 11, 2012.

Gobo, G. (2008). *Doing Ethnography* (Eds.). London: SAGE.

Goldstein, J. (2001). *War and Gender: How Gender Shapes the War System and Vice Versa,* (Eds.). Cambridge, MA: Cambridge University Press.

Gonzales, E., Matz-Costa, C., & Morrow-Howell, N. (2015). Increasing opportunities for the productive engagement of older adults: A response to population aging. *The Gerontologist, 55(2),* 252-261.

González Rey, F. (2007). Social and individual subjectivity from an historical cultural standpoint. *Outlines. Critical Practice Studies*, *9(2)*, 3-14.

Goodall, H.L. (2008). *Writing Qualitative Inquiry: Self, Stories and Academic Life*. Walnut Creek, California: Left Coast Press.

Goodley, D. (1996). Tales of Hidden Lives: A critical examination of life history research with people who have learning difficulties. *Disability & Society, 11(3),* 333–348.

Goodley, D., & C. Tragaskis. (2006). Storying disability and impairment: Retrospective accounts of disabled family life. *Qualitative Health Research, 16,* 630–46.

Goodson, I. (2001). The story of life history: Origins of the life history method in sociology. *Identity: An International Journal of Theory and Research*, *1(2)*, 129-142.

Goodson, I. F., & Gill, S. R. (2011). Understanding the life history process. *Counterpoints, 386,* 35-54.

Goodson, I. F., & Sikes, P. J. (2001). *Life history research in educational settings: Learning from lives.* Open University Press.

Gordon, E. W. (1985). Social Science Knowledge Production and Minority Experiences. *The Journal of Negro Education, 54(2),* 117-133.

Gordon, S. J., Baker, N., Kidd, M., Maeder, A., & Grimmer, K. A. (2020). Pre-frailty factors in community-dwelling 40–75-year-olds: opportunities for successful ageing. *BMC geriatrics, 20(1),* 1-13.

Gordon-Larsen, P., Nelson, M. C., Page, P., & Popkin, B. M. (2006). Inequality in the built environment underlies key health disparities in physical activity and obesity. *Pediatrics, 117(2),* 417-424.

Gould, M., Adler, A., Zamorski, M., Castro, C., Hanily, N., Steele, N.,…& Greenberg, N. (2010). Do stigma and other perceived barriers to mental health care differ across Armed Forces? *Journal of the Royal Society of Medicine, 103,* 148–156.

Graham, I. D., Logan, J., Harrison, M. B., Straus, S. E., Tetroe, J., Caswell, W., & Robinson, N. (2006). Lost in knowledge translation: time for a map? *Journal of continuing education in the health professions, 26(1),* 13-24.

Grani, F., & Bruun-Pedersen, J. R. (2017, March). Giro: better biking in virtual reality. In *2017 IEEE 3rd Workshop on Everyday Virtual Reality (WEVR)* (pp. 1-5). IEEE.

Green, L. W., & Mercer, S. L. (2001). Can Public Health Researchers and Agencies Reconcile the Push From Funding Bodies and the Pull From Communities? *American Journal of Public Health, 91(12),* 1926-1929.

Green, M. C., & Brock, T. C. (2000). The role of transportation in the persuasiveness of public narratives. *Journal of personality and social psychology, 79(5),* 701.

Greenfield, E. A., & Marks, N. F. (2007). Religious social identity as an explanatory factor for associations between more frequent formal religious participation and psychological well-being. *The international journal for the psychology of religion*, *17(3)*, 245-259.

Greenhalgh, T. (2015). Co-creation: A new approach to optimising research impact? *Medical Journal of Australia*, *203*(7), 283–284.

Greenwood, D. J., & Levin, M. (2000). Reconstructing the relationships between universities and society through action research. *Handbook of qualitative research*, *2*, 85-106.

Grewal, I., Lewis, J., Flynn, T., Brown, J., Bond, J., & Coast, J. (2006). Developing attributes for a generic quality of life measure for older people: preferences or capabilities? *Social Science & Medicine, 62(8),* 1891–1901.

Griffin, M., & Phoenix, C. (2014). Learning to run from narrative foreclosure: One woman's story of aging and physical activity. *Journal of Aging and Physical Activity, 22(3),* 393-404.

Gross, H., & Lane, N. (2007). Landscapes of the lifespan: Exploring accounts of own gardens and gardening. *Journal of Environmental Psychology, 27(3),* 225-241.

Guba, E. G., & Lincoln, Y. S. (1994). Competing paradigms in qualitative research. In N. K. Denzin & Y. S. Lincoln (Eds.), *Handbook of qualitative research* (pp. 105–117). Sage Publications, Inc.

Gubrium, A. (2006). “I was my momma baby. I was my daddy gal”: Strategic stories of success. *Narrative Inquiry, 16(2),* 231-253.

Guillin, V. (2016). Comte and the Positivist Vision. In L. McIntyre & A. Rosenberg (Eds.), *The Routledge Companion to Philosophy of Social Science* (pp. 27-37). London: Routledge.

Gullette, M. (1997). *Declining to Decline* (Eds.). Charlottesville: University Press of Virginia.

Gullette, M. (2003). From life storytelling to age autobiography. *Journal of Aging Studies, 17(1),* 101-111.

Gutkind, L. (2005). *In fact: The best of creative nonfiction* (Eds.). New York: Norton.

H. M. Government (2021). *UK Summary; The official UK government website for data and insights on coronavirus*. Retrieved August 2021, from https://coronavirus.data.gov.uk/

H. M. Government, Limitation Act (1980). Chapter 58. Retrieved from http://www.legislation.gov.uk/ukpga/1980/58. [Accessed January 2018]

H. M. Government. (2018). A connected society: A strategy for tackling loneliness – laying the foundations for change. Available at https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/936725/6.4882_DCMS_Loneliness_Strategy_web_Update_V2.pdf [Accessed March 2021]

H. M. Government. (2018). *PM launches Government’s first loneliness strategy*. Retrieved May 2020, from https://www.gov.uk/government/news/pm-launches-governments-first-loneliness-strategy

H. M. Treasury (2015). LIBOR fines to be used to support military charities and Royal Voluntary Service. Retrieved from https://www.gov.uk/government/news/libor-fines-to-be-used-to-support-military-charities-and-royal-voluntary-service [Accessed March 2018]

Hackley, C. (2007). Auto-ethnographic consumer research and creative non-fiction: exploring connections and contrasts from a literary perspective. *Qualitative Market Research: An International Journal, 10(1),* 13-27.

Haffower, H. (2020). A certain horrible subset of the internet is calling the coronavirus ‘boomer remover’. *Business Insider Australia*.

Hagemaster, J. N. (1992). Life history: a qualitative method of research. *Journal of advanced nursing, 17(9),* 1122-1128.

Haines, A., & Helfand, I. (2017). Treaty to prohibit nuclear weapons: Towards safeguarding humanity. *The Lancet, 390*(10105), 1819–1820.

Haldane, A. (2014). In giving, how much do we receive? The social value of volunteering. *A*

Pro Bono Economics lecture to the Society of Business Economists, London, *9*.

Haley, U. C. V., Page, M. C., Pitsis, T. S., Rivas, J. L., & Yu, K. F. (2017). Measuring and achieving scholarly impact: A report from the Academy of Management's Practice Theme Committee. *Academy of Management*.

Hall, E. J., & Giaccia, A. (2011). *Radiobiology for the Radiologist* (7th edition.). Philadelphoa: Lippincott Williams & Wilkins.

Hall, S. (1997). Introduction. In S. Hall (Eds.), *Representation: Cultural representations and signifying practices* (pp. 1–11). Thousand Oaks, CA: Sage.

Hammersley, M. (2014). The perils of 'impact' for academic social science. *Contemporary Social Science, 9(3),* 345-355.

Hannan, L., Carney, G., Devine, P., & Hodge, G. (2019). "A View from Old Age': Women's Lives as Narrated Through Objects. *Life Writing, 16(1),* 51-67.

Harari, Y. (2011). *Sapiens: A Brief History of* Humankind (Eds.). London: Penguin Random House.

Hardell, L., & Sage, C. (2008). Biological effects from electromagnetic field exposure and public exposure standards. *Biomedicine & Pharmacotherapy, 62(2),* 104-109.

Hardy, B. (1968). Toward a poetics of fiction. *Novel, 2(1),* 5– 14.

Harper, M., & Cole, P. (2012). Member checking: Can benefits be gained similar to group therapy. *The Qualitative Report, 17(2),* 510-517.

Harris, J., Springett, J., Croot, L., Booth, A., Campbell, F., Thompson, G.,…& Yang, Y. (2015). Can community-based peer support promote health literacy and reduce inequalities? A realist review. *Public Health Research, 3(3),* 1-188.

Hars, M., Herrmann, F. R., Gold, G., Rizzoli, R., & Trombetti, A. (2014). Effect of music-based multitask training on cognition and mood in older adults. *Age and Ageing, 43,* 196–200.

Hartig, T., Mitchell, R., De Vries, S., & Frumkin, H. (2014). Nature and health. *Annual review of public health, 35,* 207-228.

Harvey, D. (2005). *A Brief History of Neoliberalism* (Eds.). Oxford: Oxford University Press.

Hasegawa, A., Tanigawa, K., Ohtsuru, A., Yabe, H., Maeda, M., Shigemura, J.,…Chem, R. (2015). Health effects of radiation and other health problems in the aftermath of nuclear accidents, with an emphasis on Fukushima. *The Lancet, 386,* 479-488.

Hashimoto, A., & Ikels, C. (2005). Filial piety in changing Asian societies. In M. L. Johnson (Eds.), *Cambridge handbook of age and ageing* (pp. 437–442). New York:Cambridge University Press.

Hatch, J. A., & Wisniewski, R. (1995). Life history and narrative: Questions, issues, and exemplary works. *Life history and narrative,* 113-135.

Hatch, S. L., Harvey, S. B., Dandeker, C., Burdett, H., Greenberg, N., Fear, N. T., & Wessely, S. (2013). Life in and after the Armed Forces: social networks and mental health in the UK military. *Sociology of health & illness, 35(7),* 1045-1064.

Havlick, D. G., Cerveny, L. K., & Derrien, M. M. (2021). Therapeutic landscapes, outdoor programs for veterans, and public lands. *Social Science & Medicine, 268,* 113540.

Hawkins, B. L., Cory, A. L., & Crowe, B. M. (2011). Effects of participation in a Paralympic military sports camp on injured service members. *Therapeutic Recreation Journal, 45(4),* 309-325.

Hawkins, H. (2015). Creative geographic methods: knowing, representing, intervening. On composing place and page. *cultural geographies*, *22(2)*, 247-268.

Hawkley, L. C., & Kocherginsky, M. (2018). Transitions in Loneliness Among Older Adults: A 5-Year Follow-Up in the National Social Life, Health, and Aging Project. *Research on Aging, 40(4),* 365-387.

Hays, T., & Minichiello, V. (2005). The meaning of music in the lives of older people: a qualitative study. *Psychology of Music*, *33*, 437– 51.

Head, B. W. (2010). Reconsidering evidence-based policy: Key issues and challenges. *Policy and Society, 29(2)*, 77-94.

Hearn, J. (2011). Neglected Intersectionalities in Studying Men: Age(ing), Virtuality, Transnationality. In H. Lutz, M. T. H. Vivar & L. Supik (Eds.). *Framing intersectionality: Debates on a multi-faceted concept in gender studies*. Surrey, UK: Ashgate Publishing Limited.

Heinrich, L. M., & Cullone. E. (2006). The clinical significance of loneliness: A literature review. *Clinical Psychology Review, 26(6),* 695-718.

Heintzman, P. (2016). Religion, spirituality, and leisure. *Leisure matters: The state and future of leisure studies,* 67-75.

Helbostad, J. L., Vereijken, B., Becker, C., Todd, C., Taraldsen, K., Pinjnappels, M., Aminian, K., & Mellone, S. (2017). Mobile health applications to promote active and healthy ageing. *Sensors, 17(3),* 1-13.

Helliwell, J., & Putnam, R. D. (2005). The social context of well-being. In F. A. Huppert, B. Keverne & N. Baylis (Eds.), *The Science of well-being* (pp. 435-459). Oxford: Oxford University Press.

Herman, D. (2007). Storytelling and the sciences of mind: Cognitive narratology, discursive psychology, and narratives in face-to-face interaction. *Narrative*, *15(3),* 306-334.

Herman, D., Jahn, M., & Ryan, M. L. (2010). *Routledge encyclopaedia of narrative theory*. Routledge.

Heron, J., & Reason, P. (1997). A participatory inquiry paradigm. *Qualitative inquiry, 3(3),* 274-294.

Hewlett, R. G., Holl, J. M. (1989). Atoms for Peace and War 1953–1961: Eisenhower and the Atomic Energy Commission (Eds.). Berkeley, CA: University of California Press.

Higate, P. R. (2003). *Military Masculinities: Identity and the State*. London: Praeger.

Higgs, P., & Gilleard, C. (2014). Frailty, abjection and the "othering" of the fourth age. *Health Sociology Review*, *23(1),* 10–19.

Hill, A. (2018). UK is "completely and institutionally ageist". *The Guardian*. Retrieved 18 February 2021, from https://www.theguardian.com/science/2018/dec/26/uk-is-completely-and-institutionally-ageist

Hill, A., & Leigh-Hunt, N. (2016). Understanding Organisations, their functions and structure. *Public Health Textbook* (Online). Retrieved from https://www.healthknowledge.org.uk/public-health-textbook/organisation-management Accessed on March 28 2018.

Hill, K. D., Einstein, A. J. (2016). New approaches to reduce radiation exposure. *Trends in Cardiovascular Medicine, 26,* 55-65.

Hinojosa, R., & Hinojosa, M. S. (2011). Using military friendships to optimise post-deployment reintegration for male Operation Iraqi Freedom/Operation Enduring Freedom veterans. *Journal of Rehabilitation & Development, 48(10),* 1145-1158.

Hoge, C. W., Castro, C. A., Messer, S. C., McGurk, D., Cotting, D. I., & Koffman, R. L. (2004). Combat duty in Iraq and Afghanistan, mental health problems, and barriers to care. *New England journal of medicine*, *351(1),* 13-22.

Holbrook, J. B. (2019). Philosopher's corner: Open science, open access, and the democratization of knowledge. *Issues in Science and Technology, 35(3),* 26-28.

Holdstock, D., & Waterston, L. (2000). Nuclear weapons, a continuing threat to health. *Lancet, 355(9214),* 1544–1547.

Holler, R. (2019). The role of the welfare state in supporting economic transitions following family bereavement: Comparing Britain and Israel. *Social Policy & Administration, 53,* 128-141.

Holloway W. & Jefferson T. (2000) *Doing Qualitative Research Differently – Free*

Association, Narrative and the Interview Method (Eds.). London: SAGE publications.

Holloway, D. (2010). Nuclear weapons and the escalation of the Cold War, 1945–1962. In M. Leffler & O. Westad (Eds.), *The Cambridge History of the Cold*, (pp. 376-397). Cambridge: Cambridge University Press.

Holloway, I., & Brown, L. (2016). *Essentials of a qualitative doctorate* (Eds.). London: Routledge.

Holloway, I., & Todres, L. (2003). The status of method: flexibility, consistency, and coherence. *Qualitative research*, *3(3)*, 345-357.

Holloway, I., & Wheeler, S. (2010). *Qualitative Research in Nursing and Healthcare* (3rd Edition). Oxford: Wiley-Blackwell.

Holmes, D. (2011). Legal fallout continues after nuclear testing. *The Lancet Oncology, 12*, 835.

Holstein, M. B., & Minkler, M. (2007). Critical gerontology: Reflections for the 21st century. *Critical perspectives on ageing societies*, 13-26.

Holt-Lunstad, J., Smith, T. B., Baker, M., Harris, T., & Stephenson, D. (2015). Loneliness and social isolation as risk factors for mortality: A meta-analytic review. *Perspectives on Psychological Science, 10*, 227–237.

Holt-Lunstad, J., Smith, T. B., Layton, & J. B. (2010). Social Relationships and Mortality Risk: A Meta-Analytic Review. *PLoS Medicine*, *7(7)*, 1000316.

Honda, S., Shibata, Y., Mine, M., Imamura, Y., Tagawa, M., Nakane, Y., & Tomonaga, M. (2002). Mental health conditions among atomic bomb survivors in Nagasaki. *Psychiatry and Clinical Neurosciences, 56*, 575–583.

Hopkins, A., Oliver, K., Boaz, A., Guillot-Wright, S., & Cairney, P. (2021). Are research-policy engagement activities informed by policy theory and evidence? 7 challenges to the UK impact agenda. *Policy Design & Practice*, 1-17.

Hopper, T., Madill, L., Bratseth, C., Cameron, K., Coble, J., & Nimmon, L. (2008). Multiple voices in health, sport, recreation, and physical education: Revealing unfamiliar spaces in a polyvocal review of qualitative research genres. *Quest, 60(2),* 214–235.

House of Lords (2011). The lord speaker & mile end group lecture:The Inaugural Michael Quinlan Lecture, 1-17.

Howe, E. (2018). Armed Forces: Political Activities. Questions for Ministry of Defence. Accessed on 1st May 2022, retrieved from https://questions-statements.parliament.uk/written-questions/detail/2018-10-15/HL10679#

Huber, M., Knottnerus, J. A., Green, L., van der Horst, H., Jadad, A. R., Kromhout, D.,…& Smid, H. (2011). How should we define health? *British Medical Journal, 343(7817),* 1-3.

Hughes, J., & Sharrock, W. (1997). *The Philosophy of Social Research* (3rd edition). Essex: Pearson.

Hughes, M., & King, A. (2018). Representations of LGBT ageing and older people in Australia and the UK. *Journal of Sociology, 54*(1), 125–140.

Hui, S. S. C., & Morrow, J. R. (2001). Level of participation and knowledge of physical activity in Hong Kong Chinese adults and their association with age. *Journal of Aging and Physical Activity, 9(4),* 372-385.

Hyvärinen, M. (2010). Revisiting the narrative turns. *Life writing, 7(1),* 69-82.

Iriye, A. (2013). *The origins of the Second World War in Asia and the Pacific* (Eds). London: Routledge, Taylor & Francis Group.

Irving, J., Davis, S., & Collier, A. (2017). Aging with purpose: Systematic search and review of literature pertaining to older adults and purpose. *The International Journal of Aging and Human Development, 85(4),* 403-437.

Isaacs, K., Mota, N. P., Tsai, J., Harpaz-Rotem, I., Cook, J. M., Kirwin, P. D.,… Pietrzak, R. H. (2017). Psychological resilience in U.S. military veterans: A 2-year, nationally representative prospective cohort study. *Journal of Psychiatric Research, 84,* 301-309.

Israel, B. A., Checkoway, B., Schulz, A., & Zimmerman, M. (1994). Health Education and Community Empowerment: Conceptualizing and Measuring Perceptions of Individual, Organizational, and Community Control. *Health Education Quarterly, 21(2),* 149-170.

Israel, B. A., Schulz, A. J., Parker, E. A., & Becker, A. B. (1998). Review of community-based research: assessing partnership approaches to improve public health. *Annual review of public health, 19(1),* 173-202.

Iversen, A. C, Dyson, C., Smith, N., Greenberg, N., Walwyn, R., Unwin, C.,…Wessely, S. (2005). 'Goodbye and good luck': the mental health needs and treatment experiences of British ex-service personnel. *The British journal of psychiatry: The journal of mental science, 186,* 480–486.

Iversen, A. C., & Greenberg, N. (2009). Mental health of regular and reserve military veterans. *Advances in psychiatric treatment, 15(2),* 100-106.

Iversen, A. C., van Staden, L., Hughes, J., Browne, T., Hull, L., Hall, J., et al. (2009). The prevalence of common mental disorders and PTSD in the UK military: Using data from a clinical interview-based study. *BMC Psychiatry, 9,* 68.

Iversen, A. C., van Staden, L., Hughes, J., Greenberg, N., Hotopf, M., Rona, R., et al. (2011). The stigma of mental health problems and other barriers to care in the UK Armed Forces. *BMC Health Services Research, 11,* 31.

Jackson, E. (2013). Choosing a methodology: Philosophical underpinning. *Practitioner Research in Higher Education, 7(1),* 49-62.

Jacobson, M., & Larsen, S. C. (2014). Ethnographic fiction for writing and research in cultural geography. *Journal of Cultural Geography, 31(2),* 179–193.

Jadhav, A., & Weir, D. (2018). Widowhood and Depression in a Cross-National Perspective: Evidence from the United States, Europe, Korea, and China. *The journals of Gerontology: Series B, Psychological Sciences and Social Sciences, 73(8),* e143–e153.

Janke, M. C., Nimrod, G., & Kleiber, D. A. (2008). Leisure activity and depressive symptoms of widowed and married women in later life. *Journal of Leisure Research, 40(2),* 250-266.

Jauchem, J. R. (1991). Effects of electromagnetic fields: misconceptions in the scientific literature. *Journal of Microwave Power and Electromagnetic Energy, 26,* 189–195.

Jauchem, J. R., & Frei, M. R. (1992). Heart rate and blood pressure changes during radiofrequency irradiation and environmental heating. *Comparative Biochemistry and Physiology, 101,* 1-9.

Jauchem, J. R., & Merritt, J. H. (1991). The epidemiology of exposure to electromagnetic fields: an overview of the recent literature. *Journal of Clinical Epidemiolology, 44,* 895–906.

Jen, S., Zhou, Y., & Jeong, M. (2020). “You’ll See”: Younger Women Interviewing Older Women in Qualitative Research. *Journal of Gerontological Social Work, 63(8),* 753-767.

Jervis, R. (1988). The political effects of nuclear weapons: A comment. *International Security, 13(2),* 80-90.

Jessee, E. (2019). The limits of oral history: Ethics and methodology amid highly politicized research settings. *The Oral History Review, 38(2),* 287-307.

Johnson, B., & Macleod-Clark, J. (2003). Collecting sensitive data: the impact on researchers. *Qualitative Health Research, 13(3),* 421–434.

Johnson, H. (2018, August 27). He was just 20 miles from a nuclear blast. The flash was so intense he could see the bones in his hands. Retrieved November 19, 2020, from https://www.manchestereveningnews.co.uk/news/greater-manchester-news/just-20-miles-nuclear-blast-15078806

Johnson, J. G., First, M. B., Block, S., Vanderwerker, L. C., Zivin, K., & Zhang, B. (2009). Stigmatization and receptivity to mental health services among recently bereaved adults. *Death Studies, 33(8),* 691–711.

Johnson, K. J., & Mutchler, J. E. (2014). The emergence of a positive gerontology: From disengagement to social involvement. *The Gerontologist, 54(1),* 93-100.

Johnstone, G., Dickins, M., Lowthian, J., Renehan, E., Enticott, J., Mortimer, D., & Ogrin, R. (2021). Interventions to improve the health and wellbeing of older people living alone: a mixed-methods systematic review of effectiveness and accessibility. *Ageing & Society, 41(7),* 1587-1636.

Jones, O. (2020). Loneliness is a national crisis. But there is a way to tackle it. *The Guardian.* Retrieved June 2021, from https://www.theguardian.com/commentisfree/2020/feb/07/loneliness-social-connect-local-communities

Juroš, T. V. (2011). Reporting on the Issues of Research Rigour and Ethics: The Case of Publications Using Qualitative Methods in the Croatian Social Science Journals. *Revija za sociologiju, 41(2),* 161-184.

Kahana, E., Bhatta, T., Lovegreen, L. D., Kahana, B., & Midlarsky, E. (2013). Altruism, helping, and volunteering: Pathways to well-being in late life. *Journal of aging and health, 25(1),* 159-187.

Kahneman, D., Diener, E., & Schwarz, N. (1999). *Well-Being: The Foundations of Hedonic Psychology* (Eds.). New York: Russel Sage Foundation.

Kamiya, K., Ozasa, K., Akiba, S., Niwa, O., Kodama, K., Takamura, N., & Wakeford, R. (2015). Long-term effects of radiation exposure on health. *The Lancet, 386(9992),* 469–478.

Kannus, P. (1999). Preventing osteoporosis, falls, and fractures among elderly people. *BMJ, 318,* 205–206.

Kanugo, S., Tsuzuki, A., Deen, J. L., Lopez, A. L., Rajendran, K., Manna, B.,...& Clemens, J. D. (2010). Use of verbal autopsy to determine mortality patterns in an urban slum in Kolkate, India. *Bulletin for the World Health Organisation, 88,* 667-674.

Kaplan, G. A., & Keil, J. E. (1993). Socioeconomic factors and cardiovascular disease: a review of the literature. *Circulation, 88(4),* 1973–1998.

Kara, H. (2015). *Creative Research Methods in the Social Sciences: A Practical Guide* (Eds.). Bristol: Policy Press.

Kastenhofer, K., & Molyneux-Hodgson, S. (2021). *Community and Identity in Contemporary Technosciences* (p. 315). Springer Nature.

Katikireddi, S. V., Higgins, M., Bond, L., Bonell, C., & Macintyre, S. (2011). How evidence based is English public health policy? *BMJ, 343*, d7310–d7310.

Katzmarzyk, P. T., Lee, I. M., Martin, C. K., & Blair, S. N. (2017). Epidemiology of physical activity and exercise training in the United States. *Progress in cardiovascular diseases*, *60(1),* 3-10.

Kay, C. W. P., & Sutton, R. J. (2021). Outdoor and Adventurous Activities in Supporting Wounded, Injured and Sick Military Personnel and Veterans. In Nature and Health. Routledge.

Kay, T. (2016). Bodies of knowledge: connecting the evidence bases on physical activity and health inequalities. *International journal of sport policy and politics*, *8(4),* 539-557.

Kaye, L. W., Kay, D., & Crittenden, J. A. (2007). Intervention with Abused Older Males: Conceptual and Clinical Perspectives. *Journal of Elder Abuse & Neglect*, *19(1-2),* 153–172.

Keddie, A., Flood, M., & Hewson-Munro, S. (2022). Intersectionality and social justice in programs for boys and men. *NORMA*, 1–17.

Keeley, G. (2020). Corpses of the elderly found abandoned in Spanish care homes, *Aljazeera.* Retrieved 4th March 2021, from https://www.aljazeera.com/news/2020/3/24/corpses-of-the-elderly-found-abandoned-in-spanish-care-homes

Kehle, S. M., Polusny, M. A., Murdoch, M., Erbes, C. R., Arbisi, P. A., Thuras, P., & Meis, L. A. (2010). Early mental health treatment-seeking among US National Guard soldiers deployed to Iraq. *Journal of Traumatic Stress: Official Publication of The International Society for Traumatic Stress Studies*, *23(1),* 33-40.

Kelly, J. (2016). Brexit: How much of a generation gap is there? *BBC News Magazine.* Retrieved 8th February 2021, from https://www.bbc.co.uk/news/magazine-36619342

Kelly, J. R. (1982). *Leisure* (Eds.). Illinois: Prentice Hall

Kelly, J. R. (2006). Activity and ageing: Challenge in retirement. In *Work, leisure, and well-being* (pp. 177-192). London: Routledge.

Kelly, T., & Howie, L. (2007). Working with stories in nursing research: Procedures used in narrative analysis. *International Journal of Mental Health Nursing*, *16(2),* 136-144.

Kemp, T. P., & Dilworth, C. (1988). Toward a narrative on ethics: A bridge between ethics and the narrative reflection of Ricoeur. *Philosophy & social criticism*, *14(2)*, 179-201.

Kennedy-Pipe, C. (2017). Liberal Feminists, Militaries and War. In R. Woodward & C. Duncanson (Eds.), *The Palgrave International Handbook of Gender and the Military* (pp. 23–37). Palgrave Macmillan UK.

Kenyon, G. M., & Randall, W. L. (1999). Introduction: narrative gerontology. *Journal of Aging Studies*, *13*(1), 1-2.

Kenyon, G., Bohlmeijer, E., & Randall, W. L. (2010). *Storying later life: Issues, investigations, and interventions in narrative gerontology* (Eds.). Oxford University Press.

Keshava, N., & Ong, T. (1999). Occupational exposure to genotoxic agents. *Mutatation Research*, *437,* 175-194.

Ketelle, D. (2004). Writing truth as fiction: Administrators think about their work through a different lens. *The qualitative report*, *9(3),* 449-462.

Keyes, C. (2002). The mental health continuum: From languishing to flourishing in life. *Journal of Health and Social Behavior*, *43,* 207–222.

Killeen, C. (1998). Loneliness: an epidemic in modern society. *Journal of advanced nursing*, *28(4),* 762-770.

Kim, J. (2016). Youth involvement in participatory action research (PAR). *Critical Social Work*, *17(1).*

Kim, P. Y., Thomas, J. L., Wilk, J. E., Castro, C. A., & Hoge, C. W. (2010). Stigma, barriers to care, and use of mental health services among active duty and National Guard soldiers after combat. *Psychiatric Services*, *61(6),* 582-588.

King, D. G. (1990). Religion and health relationships: A review. *Journal of Religion and Health*, *29(2),* 101-112.

King, N. (2006). The lengthening list: Age relations and the feminist study of inequality. In: T. M. Calasanti & K. E. Slevin (Eds.). *Age matters: Realigning Feminist Thinking* (pp.47-74). New York: Routledge.

Kinston, W., & Rosser, R. (1974). Disaster: effects on mental and physical state. *Journal of Psychosomatic Research, 18(6),* 437-456.

Kissenger, H. A. (1960). Limited War: Conventional or Nuclear? A Reappraisal. *Daedalus, 89(4),* 800-817.

Kjellgren, A., & Buhrkall, H. (2010). A comparison of the restorative effect of a natural environment with that of a simulated natural environment. *Journal of environmental psychology*, *30(4),* 464-472.

Kleiber, D. A., & Nimrod, G. (2009). 'I can't be very sad': constraint and adaptation in the leisure of a 'learning in retirement' group. *Leisure Studies, 28(1),* 67-83.

Klein, S., & Alexander, D. A. (2012). Scoping review: A needs-based assessment and epidemiological community-based survey of ex-service personnel and their families in Scotland. Available from https://www.webarchive.org.uk/wayback/archive/3000/https://www.gov.scot/resource/0041/00417172.pdf [Last accessed June 2021]

Koenig, H. G., Al Zaben, F., & Khalifa, D. A. (2012). Religion, spirituality and mental health in the West and the Middle East. *Asian journal of psychiatry, 5(2),* 180-182.

Konecki, K. T. (2008). Triangulation and Dealing with The Realness of Qualitative Research. *Qualitative Sociology Review, 4(3)*, 7-28.

Kouritzin, S. G. (2000). Bringing life to research: Life history research and ESL. *TESL Canada Journal*, 1-4.

Kraus, M. W., Park, J. W., & Tan, J. J. X. (2017). Signs of Social Class: The Experience of Economic Inequality in Everyday Life. *Perspectives on Psychological Science*, *12(3),* 422–435.

Kreiswirth, M. (1992). Trusting the tale: The narrativist turn in the human sciences. *New Literary History, 23(3),* 629–657.

Kristensen H., & Norris R (2017). *Status of world nuclear forces*. Federation of American Scientists. https://fas.org/issues/nuclear-weapons/ status-world-nuclear-forces/ (accessed Feb 28, 2018).

Kristiansen, C. B., Kjær, J. N., Hjorth, P., Andersen, K., & Prina, A. M. (2019). The association of time since spousal loss and depression in widowhood: a systematic review and meta-analysis. *Social Psychiatry and Psychiatric Epidemiology,* 1-12.

Krok, D. (2014). The religious meaning system and subjective well-being: The mediational perspective of meaning in life. *Archive for the Psychology of Religion*, *36*(2), 253-273.

Ku, P. W., Fox, K. R., & Chen, L. J. (2016). Leisure-time physical activity, sedentary behaviors and subjective well-being in older adults: An eight-year longitudinal research. *Social Indicators Research*, *127(3),* 1349-1361.

Kuon, E., Schmitt, M., & Dahm, J. B. (2002). Significant Reduction of Radiation Exposure to Operator and Staff during Cardiac Interventions by Analysis of Radiation Leakage and Improved Lead Shielding. *The American Journal of Cardiology, 89(1),* 44-49.

Kvale, S. (2007). *Doing Interviews*. SAGE Publications, Ltd.

Kwate, N. O. A., & Meyer, I. H. (2010). The myth of meritocracy and African American health. *American journal of public health*, *100(10),* 1831-1834.

Labov, W. (1982). Building on empirical foundations. *Perspectives on historical* *linguistics*, *24*, 17.

Lamm, G. M. (2006). Innovation works. *A case study of an integrated pan-European technology transfer model. BIF Futura*, *21(2),* 86-90.

Landi, F., Abbatecola, A. M., Provinciali, M., Corsonello, A., Bustacchini, S., Manigrasso, L., ...& Lattanzio, F. (2010). Moving against frailty: does physical activity matter? *Biogerontology*, *11(5)*, 537-545.

Langlois, E. V., Tunçalp, Ö., Norris, S. L., Askew, I., & Ghaffar, A. (2018). Qualitative evidence to improve guidelines and health decision-making. *Bull World Health Organ, 96(2),* 79-79A.

Lara, E., Martín-María, N., Forsman, A. K., Cresswell-Smith, J., Donisi, V., Ådnanes, M., …& Miret, M. (2019). Understanding the multi-dimensional mental well-being in late life: Evidence from the perspective of the oldest old population. *Journal of Happiness Studies: An Interdisciplinary Forum on Subjective Well-Being, 109.*

Lareau, A., & Conley, D. (2008). *Social class: How does it work?* (Eds.). New York, NY: Russell Sage Foundation.

Laslett, B. (1999). Personal narratives as sociology. *Contemporary Sociology*, *28(4)*, 391-401.

Laslett, P. (1989). *A fresh map of life*. London, England: Weidenfeld & Nicolson.

Laslett, P. (1991). *A fresh map of life: The emergence of the third age*. Harvard University Press.

Lazutka, J. R., Lekevièius, R., Dedonyte, V., Maciulevièiûte-Gervers, L., Mierauskiene, J., Rudaitiene, S., & Slapsyte, G., (1999). Chromosomal aberrations and sister-chromatid exchanges in Lithuanian populations: effects of occupational and environmental exposures. *Mutation Research, 445*, 225-239.

Lee, C. D., & Bakk, L. (2001). Later-life transitions into widowhood. *Journal of Gerontological Social Work, 35*, 51–63.

Lehmann, H., & Wadsworth, J. (2011). The impact of Chernobyl on health and labour market performance. *Journal of Health Economics, 30,* 843–857.

Lemon, L. L., & Hayes, J. (2020). Enhancing trustworthiness of qualitative findings: Using Leximancer for qualitative data analysis triangulation. *The Qualitative Report, 25(3),* 604-614.

Lent, R. W. (2004). Toward a unifying theoretical and practical perspective on well-being and psychosocial adjustment. *Journal of Counseling Psychology*, *51(4),* 482.

Leontowitsch, M. (2012). Interviewing older men. In M. Leontowitsch (Eds.), *Researching Later Life and Ageing* (pp. 104-123). London: Palgrave Macmillan.

Levine-Rasky, C. (2019). Creative nonfiction and narrative inquiry. *Qualitative Research Journal, 19(3),* 355-367.

Levy, B. (2009). Stereotype embodiment: A psychosocial approach to aging. *Current directions in psychological science, 18(6),* 332-336.

Levy, B. R., & Myers, L. M. (2004). Preventive health behaviors influenced by self-perceptions of aging. *Preventive medicine, 39(3),* 625-629.

Levy, B. R., Slade, M. D., Kunkel, S. R., & Kasl, S. V. (2002b). Longevity increased by positive self-perceptions of aging. *Journal of Personality and Social Psychology, 83(2),* 261–270.

Lewin, S., Glenton, C., Lawrie TA, Downe, S., Finlayson, K. W., Rosenbaum, S.,…Tunçalp, Ö. (2019). Qualitative evidence synthesis (QES) for guidelines: paper 2 - Using qualitative evidence synthesis findings to inform evidence-to-decision frameworks and recommendations. *Health Research Policy and Systems, 17(1),* 1-18.

Li, Y. (2007). Recovering from spousal bereavement in later life: Does volunteer participation play a role? *The Journals of Gerontology: Series B, Psychological Sciences and Social Sciences, 62(4),* S257-S266.

Lieblich, A. (1996) Some unforeseen outcomes of conducting narrative research with people of one's own culture. In R. Josselson (Eds.), *Ethics and Process in the Narrative Study of Lives*. California: Sage.

Lifton, R. J. (1967). *Death in Life: Survivors of Hiroshima*. New York: Random House.

Lin, X., & Bryant, C. (2009). Students' attitudes toward older people: A cross-cultural comparison. *Journal of Intergenerational Relationships, 7(4),* 411-424.

Lincoln, Y. S. (1995). Emerging criteria for quality in qualitative and interpretive research. *Qualitative inquiry, 1(3),* 275-289.

Lincoln, Y. S. (2010). "What a long, strange trip it's been…": Twenty-five years of qualitative and new paradigm research. *Qualitative inquiry, 16(1),* 3-9.

Linton, M. J., Dieppe, P., & Medina-Lara, A. (2016). Review of 99 self-report measures for assessing well-being in adults: exploring dimensions of well-being and developments over time. *BMJ open, 6(7),* e010641.

Litalien, M., Atari, D. O., & Obasi, I. (2021). The influence of religiosity and spirituality on health in Canada: A systematic literature review. *Journal of Religion and Health,* 1-42.

Little, M. P., Azizova, T. V., Bazyka, D., Bouffler, S. D., Cardis, E., Chekin, S.,…Lipshultzet, S. E. (2012). Systematic review and meta-analysis of circulatory disease from exposure to low-level ionizing radiation and estimates of potential population mortality risks.

Environmental Health Perspectives, 120(11), 1503–1511.

Little, M. P., Tawn, E. J., Tzoulaki, I., Wakeford, R., Hildebrandt, G., Paris, F., Tapio, S., Elliot, P. (2010). Review and meta-analysis of epidemiological associations between low/moderate doses of ionizing radiation and circulatory disease risks, and their possible mechanisms. *Radiation and Enviromental Biophysics, 49,* 139-153.

Little, M. P., Wakeford, R,. Tawn, E. J., Bouffler, S. D., Berringon de Gonzalez, A. (2009). Risks associated with low doses and low dose rates of ionizing radiation: why linearity may be (almost) the best we can do. *Radiology, 251(1),* 6-12.

Liu, H., Chen, X., & Zhang, H. (2020). Leisure satisfaction and happiness: The moderating role of religion. *Leisure Studies, 40,* 1–15.

Liu, Y., Wang, Z., & Lü, W. (2013). Resilience and affect balance as mediators between trait emotional intelligence and life satisfaction. *Personality and Individual differences, 54(7),* 850-855.

Lloyd, L. (2015). The fourth age. In J. Twigg & W. Martin (Eds.), *Routledge handbook of cultural gerontology* (pp.261-268). Oxon, UK: Routledge, Taylor & Francis Group.

Lloyd, M. (1996). Condemned to be meaningful: Non-response in studies of men and infertility. *Sociology of Health & Illness, 18(4),* 433-454.

Lobelo, F., Stoutenberg, M., & Hutber, A. (2014). The exercise is medicine global health initiative: a 2014 update. *British journal of sports medicine, 48(22),* 1627-1633.

Lomsky-Feder, E. (2004). Life stories, war, and veterans: On the social distribution of memories. *Ethos, 32(1),* 82-109.

Lopata, H. Z. (1973). *Widowhood in an American City* (Eds.). Piscataway, NJ: Transaction Publishers.

Lorber, W., & Garcia, H. (2010). Not supposed to feel this: Traditional masculinity in psychotherapy with male veterans returning from Afghanistan and Iraq. *Psychotherapy (Chicago, Ill.), 47,* 296–305.

Lorimer, H., & Parr, H. (2014). Excursions – telling stories and journeys. *Cultural Geographies, 21(4),* 543–547.

Lu, L. (2011). Leisure experiences and depressive symptoms among Chinese older people: A national survey in Taiwan. *Educational Gerontology, 37(9),* 753–771.

Luchsinger, A. (2016). Veterans seeking veterans through interpersonal communication. *International Journal of Communication and Health, 8,* 1-9.

Ludden, G. D., van Rompay, T. J., Niedderer, K., & Tournier, I. (2019). Environmental design for dementia care-towards more meaningful experiences through design. *Maturitas, 128,* 10-16.

Luthar, S. S., Cicchetti, D., & Becker, B. (2000). Research on resilience: Response to commentaries. *Child development, 71(3),* 573-575.

Maas, J., Verheij, R. A., de Vries, S., Spreeuwenberg, P., Schellevis, F. G., & Groenewegen, P. P. (2009). Morbidity is related to a green living environment. *Journal of Epidemiology & Community Health, 63(12),* 967-973.

Maas, J., Verheij, R. A., Groenewegen, P. P., De Vries, S., & Spreeuwenberg, P. (2006). Green space, urbanity, and health: how strong is the relation? *Journal of epidemiology & community health, 60(7),* 587-592.

MacAuley, D., Bauman, A., & Frémont, P. (2016) Exercise: not a miracle cure, just good medicine. *British Journal of Sports Medicine, 50***,** 1107-1108.

Maclellan, N. (2017). *Grappling with the bomb: Britain's Pacific H-Bomb Tests.* Australia: The Australian National University Press.

Macmanus, D., & Wessley, S. (2013). Veteran mental health services in the UK: Are we headed in the right direction? *Journal of Mental Health, 22(4),* 301-305.

Macnicol, J. (2006). *Age discrimination: An historical and contemporary analysis* (Eds.). Cambridge: Cambridge University Press.

Maguire, M., & Delahunt, B. (2017). Doing a Thematic Analysis: A Practical, Step-by-Step Guide for Learning and Teaching Scholars. *AISHE-J, 3,* 3351-33514.

Maher, J. P., & Conroy, D. E. (2017). Daily life satisfaction in older adults as a function of (in) activity. *Journals of Gerontology Series B: Psychological Sciences and Social Sciences, 72(4),* 593-602.

Maher, R. L., Hanlon, J., & Hajjar, E. R. (2014). Clinical consequences of polypharmacy in elderly. *Expert Opinion on Drug Safety, 13(1),* 57–65,

Makhijani, A., & Smith, B., & Thorne, M. C. (2006). Science for the vulnerable: Setting radiation and multiple exposure environmental health standards to protect those most at risk. *Takoma Park, MD: Institute for Energy and Environmental Research*.

Makhijani, A., Hu, H., & Yih, K. (1995). *Nuclear wastelands* (Eds.). Cambridge, Mass: MIT Press.

Malone, J., & Dadswell, A. (2018). The role of religion, spirituality and/or belief in positive ageing for older adults. *Geriatrics, 3(2),* 28.

Manning, C. J. (2013). Unaffiliated parents and the religious training of their children. *Sociology of Religion*, *74(2)*, 149-175.

Mansfield, L. (2007). Involved-detachment: A balance of passion and reason in feminisms and gender-related research in sport, tourism, and sports tourism. *Journal of sport & tourism, 12(2),* 115-141.

Mansfield, L. (2016). Resourcefulness, reciprocity and reflexivity: the three Rs of partnership in sport for public health research. *International journal of sport policy and politics, 8(4),* 713-729.

Mansfield, L., Daykin, N., Meads, C., Tomlinson, A., Gray, K., Lane, J., & Victor, C. (2019). A conceptual review of loneliness across the adult life course (16+ years): Synthesis of qualitative studies. *What Works for Wellbeing*, 2-52.

Mansfield, L., Kay, T., Anokye, N., & Fox-Rushby, J. (2019). Community sport and the politics of aging: Co-design and partnership approaches to understanding the embodied experiences of low-income older people. *Frontiers in Sociology, 4(5),* 1-12.

Manstead, A. S. R. (2018). The psychology of social class: How socioeconomic status impacts thought, feelings, and behaviour. *British Journal of Social Psychology*, *57(2)*, 267–291.

Marston, S. A., & De leeuw, S. (2013). Creativity and Geography: Toward A Politicized Intervention. *Geographical Review*, *103(2),* iii–xxvi.

Martinson, M., & Berridge, C. (2014). Successful ageing and its discontents: A systematic review of the social gerontology literature. *The Gerontologist, 55(1)*, 58–69.

Mathews, J. D., Forsythe, A. V., Brady, Z., Butler, M. W., Goergen, S. K., Byrnes, G.B.,… Darby, S. C. (2013). Cancer risk in 680,000 people exposed to computed tomography scans in childhood or adolescence: data linkage study of 11 million Australians. *British Medical Journal, 346,* 1-18.

Mathur, A., & Moschis, G. P. (2005). Antecedents of cognitive age: A replication and extension. *Psychology & Marketing, 22(12),* 969-994.

Mattingly, C., & Garro, L. C. (2000). *Narrative and the cultural construction of illness and healing* (Eds.). California: University of California Press.

Mattsson, S., & Söderberg, M. (2013). Dose Quantities and Units for Radiation Protection. In S. Mattsson & C. Hoeschen (Eds.), *Radiation Protection in Nuclear Medicine* (pp. 7-18). Berlin, Germany: Springer.

Mazzei, J., & O'Brien, E. E. (2009). You got it, so when do you flaunt it? Building rapport, intersectionality, and the strategic deployment of gender in the field. *Journal of Contemporary Ethnography*, *38(3),* 358-383.

McCarron, E. (2018). *Say no to ageism on International Day of Older Persons*. Age UK.

Retrieved 17 March 2021, from https://www.ageuk.org.uk/discover/2018/say-no-to-ageism/.

McCormick, W. H., Currier, J. M., Isaak, S. L., Sims, B. M., Slagel, B. A., Carroll, T. D., ... & Albright, D. L. (2019). Military culture and post-military transitioning among veterans: A qualitative analysis. *Journal of Veterans Studies, 4(2)*, 287-298.

McCrae, N., Murray, J., Banerjee, S., Huxley, P., Bhugra, D., Tylee, A., & Macdonald, A. (2005). "They're all depressed, aren't they?" A qualitative study of social care workers and depression in older adults. *Aging & Mental Health*, *9(6)*, 508–516.

McDougall, F. A., Kvaal, K., Mathews, F. M., Paykel, E., Jones, P. B., Dewey, M. E., & Brayne, C. (2007). Prevalence of depression in older people in England and Wales: The MRC CFA Study. *Psychological Medicine, 37,* 1787–1795.

McDuffie, D. L. (2021). Addressing the Mental Health of Black Older Adults During the COVID-19 Pandemic. *GeroPsych*, 1662-9647/a000275.

McGale, P., & Darby, S. C. (2005). Low doses of ionizing radiation and circulatory diseases: a systematic review of the published epidemiological evidence. *Radiation Research,163*, 247–257.

McGee, E. O., & Martin, D. B. (2011). "You would not believe what I have to go through to prove my intellectual value!" Stereotype management among academically successful Black mathematics and engineering students. *American Educational Research Journal, 48(6),* 1347-1389.

McGurk, D., Cotting, D. I., Britt, T. W., & Adler, A. B. (2006). Joining the Ranks: The Role of Indoctrination in Transforming Civilians to Service Members. In A. B. Adler, C. A. Castro, & T. W. Britt (Eds.), *Military life: The psychology of serving in peace and combat: Operational stress* (pp. 13–31). Praeger Security International.

McHugh Power, J. E., Steptoe, A., Kee, F., & Lawlor, B. A. (2019). Loneliness and social engagement in older adults: A bivariate dual change score analysis. *Psychology and Aging, 34(1)*, 152–162.

McIntosh, I., & Wright, S. (2019). Exploring what the notion of 'lived experience' offers for social policy analysis. *Journal of Social Policy, 48(3)*, 449-467.

McKinlay Gardener, R. J. M., Sutherland, G. R., & Shaffer, L. G. (2011). *Chromosome Abnormalities and Genetic Counseling* (4th ed.). New York: Oxford University Press.

McKnight, P. E., & Kashdan, T. B. (2009). Purpose in life as a system that creates and sustains health and well-being: An integrative, testable theory. *Review of General Psychology, 13(3),* 242-251.

McLaughlin, S. J.., Jette, A. M., & Connell, C. M. (2012). An Examination of Healthy Aging Across a Conceptual Continuum: Prevalence Estimates, Demographic Patterns, and Validity. *Journal of Gerontology: Medical Sciences, 67(7*), 783-789.

McLean, A. R., Adlen, E. K., Cardis, E., Elliott, A., Goodhead, D. T., Harms-Ringdahl,…Godfray, H. C. J. (2017). A restatement of the natural science evidence base concerning the health effects of low-level ionizing radiation. *Royal Society Publishing, 284,* 1-7.

McLeod, J., & Balamoutsou, S. (2001). A method for qualitative narrative analysis of psychotherapy transcripts. *Psychological Test and Assessment Modeling*, *43(3),* 128.

McMahan, E. A., & Estes, D. (2011). Hedonic versus eudaimonic conceptions of well-being: Evidence of differential associations with self-reported well-being. *Social Indicators Research*, *103(1),* 93-108.

McNamara, T. K., & Gonzales, E. (2011). Volunteer transitions among older adults: The role of human, social, and cultural capital in later life. *Journals of Gerontology Series B: Psychological Sciences and Social Sciences*, *66(4),* 490-501.

Measor, L., & Sikes, P. J. (1992). *Gender and schools* (Eds.). New York: Cassell.

Meisner, B. A. (2021). Are you OK, Boomer? Intensification of ageism and intergenerational tensions on social media amid COVID-19. *Leisure Sciences*, *43(1-2),* 56-61.

Metz-Flamant, C., Rogel, A., Caër, S., Samson, E., Laurier, D., Acker, A., & Tirmarche, M. (2009). Mortality Among Workers Monitored for Radiation Exposure at the French Nuclear Fuel Company. *Archives of Environmental & Occupational Health, 64(4),* 242-250.

Miles R., Green, S., Mynors, G., & Suppiah, J. (Miles & Green Associates Ltd.) (2011). British Nuclear Test Veterans Health Needs Audit, 1-117. Retrieved from https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/16592/20111027NTVsMODHealthNeedsAuditFinal.pdf Accessed on March 15 2018.

Miller, A. J., Jezewski, E. E., Harlow, E. N., & Potter, J. F. (2021). A Pen Pal Program During COVID-19 Pandemic Increases Student Interest for Careers in Geriatrics. *Gerontology & Geriatrics Education*, 1–15.

Miller, B., & Paola, S. (2004). *Tell it slant: Writing and shaping creative nonfiction*. Boston: McGraw-Hill.

Milligan, C., Gatrell, A., & Bingley, A. (2004). ‘Cultivating health’: therapeutic landscapes and older people in northern England. *Social science & medicine*, *58*(9), 1781-1793.

Mills, C. W. (1959). *The Sociological Imagination* (Eds). New York: Oxford University Press.

Mills, C. W. (2000). *The Sociological Imagination: Fortieth Anniversary Edition*. New York: Oxford University Press.

Ministry of Defence. (2015). Annual population survey: UK Armed Forces Veterans residing in Great Britain. Available from https://www.gov.uk/government/statistics/annual-population-survey-uk-armed-forces-veterans-residing-in-great-britain-2015 [last accessed June 2021]

Ministry of Defence. (2016). Policy paper: Armed Forces Covenant. Retrieved February 2021, from https://www.gov.uk/government/publications/armed-forces-covenant-2015-to-2020/armed-forces-covenant

Ministry of Defence. (2020). *Information for British Nuclear Test Veterans. https://www.gov.uk/government/news/new-guidance-for-british-nuclear-test-veterans.* Accessed October 2020.

Ministry of Defence. (2021). *UK Armed Forces Biannual Diversity Statistics* (pp. 1–17). https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1042421/UK_armed_forces_biannual_diversity_statistics_1_October_2021.pdf

Mirhosseini, S. A. (2020). The Quality of Qualitative Research. In *Doing Qualitative Research in Language Education* (pp. 177-198). Palgrave Macmillan, Cham.

Moen, P. (1996). A life course perspective on retirement, gender, and well-being. *Journal of occupational health psychology, 1(2),* 131.

Moonie, L. (2002). (UK Under-Secretary of State for Defence) British House of Commons Parliamentary Debate: Nuclear Test Veterans (Compensation). Retrieved from http://hansard.millbanksystems.com/westminster_hall/2002/dec/04/nuclear-test-veterans- compensation.

Moore, P. (2016). How Britain voted at the EU referendum. *YouGov.* Retrieved January 2021. from https://yougov.co.uk/topics/politics/articles-reports/2016/06/27/how-britain-voted,

Morato, J., Sanchez-Cuadrado, S., Iglesias, A., Campillo, A., & Fernández-Panadero, C. (2021). Sustainable technologies for older adults. *Sustainability, 13,* 8465.

Mosse, I. B. (2012). Genetic effects of ionizing radiation e some questions with no answers. *Journal of Environmental Radioactivity, 112,* 70-75.

Mueller, J. (2010). *Atomic Obsession: Nuclear Alarmism from Hiroshima to Al-Qaeda* (Eds.). New York: Oxford University Press.

Muirhead, C. R., Bingham, D., Haylock, R. G. E., O'Hagan, J. A., Goodill, A. A., Berridge, G. L. C.,… Kendall, G. M. (2003). *Mortality and cancer incidences 1952-1998 in UK* *participants in the UK atmospheric nuclear weapons tests and experimental programmes*. Oxon: National Radiological Protection Board.

Murakami, M., Nakatani, J., & Oki, T. (2016). Evaluation of risk perception and risk comparison information regarding dietary radionuclides after the 2011 Fukushima nuclear power plant accident. *PLoS One, 11,* e0165594.

Murphy, D., Palmer, E., & Busuttil, W. (2016). Mental health difficulties and help-seeking beliefs within a sample of female partners of UK Veterans diagnosed with Post-traumatic stress disorder. *Journal of clinical medicine, 5(8),* 68.

Murray, M., Holland, C., & Peel, E. (2018). The Psychologies of Ageing. In: E. Peel, C. Holland and M. Murray (Eds). *Psychologies of Ageing: Theory, Research and Practice* (pp.1-18) London: Palgrave Macmillan.

Murrison, A. (2010). *Fighting fit: A mental health plan for servicemen and veterans*. London: Department of Health.

Musick, M. A., & Wilson, J. (2003). Volunteering and depression: The role of psychological and social resources in different age groups. *Social science & medicine*, *56(2),* 259-269.

Naaldenberg, J., Vaandrager, L., Koelen, M., & Leeuwis, C. (2012). Aging Populations' Everyday Life Perspectives on Healthy Aging: New Insights for Policy and Strategies at the Local Level. *Journal of Applied Gerontology, 31(6),* 1-23.

Nagaratnam, N., Nagaratnam, K., & Cheuk, G. (2018). *Advanced Age Geriatric Care: A Comprehensive Guide* (eds.). Cham, Switzerland: Springer.

National Council for Voluntary Organisations (NCVO) (2016b) *Independence and Values* [Online]. Available at https://www.ncvo.org.uk/ policy-and-research/ independence-values (Accessed May 2020).

National Health Service (2018, July 13). X-ray. Retrieved November 19, 2020, from https://www.nhs.uk/conditions/x-ray/

National Health Service (NHS) (2010). Information for patients: Chromosome translocations. *The Leeds Teaching Hospitals,* 1-8.

National Human Genome Research Institute (NIH; 2015). "Chromosome Abnormalities Fact Sheet.", 6 Jan. 2015, www.genome.gov/11508982/chromosome-abnormalities-fact-sheet/

National Institute for Health and Care Excellence (NICE). (2015). Older people: independence and mental wellbeing. NICE guideline NG32. London: National Institute for Health and Care Excellence.

National Research Council. Committee to Assess Health Risks from Exposure to Low Levels of Ionizing Radiation, Nuclear and Radiation Studies Board, National Research Council of the National Academies. (2006). *Health Risks from Exposure to Low Levels of Ionizing Radiation: BEIR VII Phase 2.* Washington, DC: National Academies Press.

Nelson-Becker, H., Ai, A. L., Hopp, F. P., McCormick, T. R., Schlueter, J. O., & Camp, J. K. (2015). Spirituality and religion in end-of-life care ethics: The challenge of interfaith and cross-generational matters. *British Journal of Social Work, 45(1),* 104-119.

Nelson, T. D. (2005). Ageism: Prejudice against our feared future self. *Journal of social issues*, *61(2)*, 207-221.

Nesti, M. S. (2016). Exercise for health: Serious fun for the whole person? *Journal of Sport and Health Science, 5(2),* 135.

Newberry, J. J., & Stubbs, C. A. (1990). Advanced interviewing techniques. *Bureau of Alcohol, Tobacco, and Firearms National Academy: Glynco, Georgia.*

Newen, A. (2017). What are cognitive processes? An example-based approach. *Synthese, 194(11),* 4251-4268.

Newman, G. F., Maggott, C., & Alexander, D. G. (2015). Group drumming as a burnout prevention initiative among staff members at a child and adolescent mental health care facility. *South African Journal of Psychology, 45*, 439–451.

Nguyen, Q. D., Wu, C., Odden, M. C., & Kim, D. H. (2019). Multimorbidity patterns, frailty, and survival in community-dwelling older adults. *The Journals of Gerontology: Series A*, *74(8)*, 1265-1270.

NICE. (2008). Public health guidance 9, National Institute for Health and Clinical Excellence, London.

NICE. (2011). Behaviour change: Individual approaches. National Institute for Health and Care Excellence, London.

Nielsen, T. S., & Hansen, K. B. (2007). Do green areas affect health? Results from a Danish survey on the use of green areas and health indicators. *Health & place, 13(4),* 839-850.

North Atlantic Treaty Organisation (NATO). "A short history of NATO", n.d. Retrieved from https://www.nato.int/cps/su/natohq/declassified_139339.htm

O'Donnell, G. C., Deaton, A., Durand, M., Halpern, D. & Layard, R. (2014). *Wellbeing and policy,* (Eds.). London: Legatum Institute.

Oakes, J. M., & Rossi, P. H. (2003). The measurement of SES in health research: Current practice and steps toward a new approach. *Social Science & Medicine, 56,* 769–784.

Oakes, M. (2011). Formation of Identity in Wartime El Salvador: Protective and Harmful Factors. *Journal of Human Behavior in the Social Environment, 21,* 926–947.

Oatway, W. B., Jones, A. L., Holmes, S., Watson, S., Cabianca, T. (2010). *Ionising Radiation Exposure of the UK Population: 2010 Review.* Public Health England.

Office for National Statistics (2010). General Lifestyle Survey Overview. Retrieved from https://www.ons.gov.uk/ons/rel/ghs/general-lifestyle-survey/2010/general-lifestyle-survey-overview-report-2010.pdf. Accessed June 2018.

Office for National Statistics (ONS). (2015). UK Population Estimates 1851 to 2014. https://www.ons.gov.uk/peoplepopulationandcommunity/populationandmigration/populationestimates/adhocs/004356ukpopulationestimates1851to2014 Accessed October 2020.

Office for National Statistics. (2013). What does the 2011 Census tell us about older people? Retrieved from: https://www.ons.gov.uk/peoplepopulationandcommunity/birthsdeathsandmarriages/ageing/articles/whatdoesthe2011censustellusaboutolderpeople/2013-09-06. Accessed on 4th May 2019.

Office for National Statistics. (2018). *Population estimates by marital status and living arrangements, England and Wales: 2002 to 2017.* Newport, UK: Office for National Statistics.

Ogawa, M. M., & Sasaki, H. (2011). Hiroshima, an experience that can never be forgotten: long-term follow-up of Hiroshima survivors. *International Journal of Dermatology, 50,* 890-892.

Ohs, J. E., & Yamasaki, J. (2017). Communication and successful aging: challenging the dominant cultural narrative of decline. *Communication Research Trends, 36(1),* 4.

Oksuzyan, A., Juel, K., Vaupel, J. W., & Christensen, K. (2008). Men: good health and high mortality. Sex differences in health and aging. *Aging clinical and experimental research, 20(2),* 91-102.

Okun, M. A., & Michel, J. (2006). Sense of community and being a volunteer among the young-old. *Journal of Applied Gerontology, 25(2),* 173-188.

Olesen, K. R., Rod, N. H., Madsen, I. E. H., Bonde, J. P., & Rugulies, R. (2015). Does Retirement Reduce the Risk of Mental Disorders? A National Registry-Linkage Study of Treatment for Mental Disorders Before and After Retirement of 245,082 Danish Residents. *Occupational and Environmental Medicine, 72(5),* 366-72.

Onrust, S. A., & Cuijpers, P. (2006). Mood and anxiety disorders in widowhood: a systematic review. *Ageing & Mental Health, 10(4),* 327-334.

Ormston, R., Spencer, L., Barnard, M., & Snape, D. (2014). The foundations of qualitative research. *Qualitative research practice: A guide for social science students and researchers, 2(7),* 52-55.

Orr, K., Smith, B., Arbour-Nicitopoulos, K. P., & Wright, F. V. (2020). The café talk: a discussion of the process of developing a creative non-fiction. *Qualitative Research in Sport, Exercise and Health,* 1-17.

Östlund, B. (2010). Watching television in later life: A deeper understanding of TV viewing in the homes of old people and in geriatric care contexts. *Scandinavian Journal of Caring Sciences, 24(2),* 233–243.

Owen, R., Berry, K., & Brown, L. J. (2021). Enhancing Older Adults' Well-Being and Quality of Life through Purposeful Activity: A Systematic Review of Intervention Studies. *The Gerontologist,* 1-11.

Oyserman, D., Coon, H. M., & Kemmelmeier, M. (2002). Rethinking Individualism and Collectivism: Evaluation of Theoretical Assumptions and Meta-Analyses. *Psychological Bulletin, 128*, 3–72.

Pabst, A. (2021). Rethinking evidence-based policy. *National Institute Economic Review, 255,* 85–91.

Palmore, E. (1999). *Ageism: negative and positive* (Eds.). New York: Springer.

Papakitsou, V. (2020). Qualitative research: Narrative approaches in sciences. *Dialogues in Clinical Neuroscience & Mental Health, 3(1),* 63-70.

Papathomas, A. (2016). Narrative inquiry: From cardinal to marginal... and back? In B. Smith & A. C. Sparkes (Eds.), *Routledge handbook of qualitative research in sport and exercise* (pp. 59-70). London: Routledge.

Papoutsi, C., Shaw, J., Paparini, S., & Shaw, S. (2021). We need to talk about complexity in health research: Findings from a focused ethnography. *Qualitative Health Research, 31(2),* 338-348.

Park, C. L. (2005). Religion as a meaning-making framework in coping with life stress. *Journal of social issues, 61(4),* 707-729.

Park, C. L. (2013). Religion and meaning. In R. F. Paloutzian & C. L. Park (Eds.), *Handbook of the psychology of religion and spirituality* (pp. 357–379). The Guilford Press.

Park, P. (1993). What is participatory research? A theoretical and methodological perspective. In P. Park, M. Brydon-Miller, B. Hall, & T. Jackson (Eds.), *Voices of change: Participatory research in the United States and Canada* (pp. 1-19). Westport, CT: Bergin & Garvey.

Parker, N., & O'Reilly, M. (2013). “We are alone in the house”: a case study addressing researcher safety and risk. *Qualitative Research in Psychology, 10(4)*, 341-354.

Parry, J., & Evans, A. (2022, January 19). LGBT military ban: Veterans to share impact of rules in review, 20 years on. *BBC News*. https://www.bbc.co.uk/news/uk-60037103

Pascale, C. (2011). *Cartographies of knowledge: Exploring qualitative epistemologies* (Eds.). Thousand Oaks, CA: Sage

Pastel, R. H. (2002). Radiophobia: long-term psychological consequences of Chernobyl. *Military Medicine, 167*, 134–136.

Pasupathi, M., & Löckenhoff, C. E. (2002). Ageist behavior. In T. D. Nelson (Ed.), *Ageism: Stereotyping and prejudice against older persons* (pp. 201–246). The MIT Press.

Patiño, J. F., & Goulart, D. M. (2016). Qualitative Epistemology: A Scientific Platform for the Study of Subjectivity from a Cultural-Historical Approach. *International Research in Early Childhood Education, 7(1),* 161-181.

Paulson, D. (2005). *Walking the point: Male initiation and the Vietnam experience* (Eds.). New York, NY: Paraview.

Paylor, J. (2011). Volunteering and health: Evidence of impact and implications for policy and practice. *London: Institute for Volunteering Research*.

Payne, L. L., Mowen, A. J., & Montoro-Rodriguez, J. (2006). The role of leisure style in maintaining the health of older adults with arthritis. *Journal of Leisure Research, 38(1),* 20-45.

Peacock, S., Carless, D., & McKenna, J. (2018). Inclusive adapted sport and adventure training programme in the PTSD recovery of military personnel: A creative non-fiction. *Psychology of Sport and Exercise, 35*, 151-159.

Pearce, M. S., Salotti, J. A., Little, M. P., McHugh, K., Lee, C., Kim, K. P.,…de González, A. B. (2012). Radiation exposure from CT scans in childhood and subsequent risk of leukaemia and brain tumours: A retrospective cohort study. *The Lancet, 380(9840),* 499–505.

Peel, N., Bartlett, H., & McClure, R. (2004). Healthy Ageing: How Is It Defined and Measured? *Australasian Journal on Ageing, 23(3*): 115–19.

Pendlebury, J. (2019). Bourdieu in the Military: The Field of Officer Training in Three Air Forces (Eds.). In *Processes and Practices in Military Training and Education* (pp. 21–37). Department of Leadership and Military Pedagogy.

Penfield, T., Baker, M. J., Scoble, R., & Wykes, M. C. (2014). Assessment, evaluations, and definitions of research impact: A review. *Research Evaluation, 23(1),* 21–32.

Peplau, L. A., Bikson, T. K., Rook, K. S., & Goodchilds, J. D. (1982). Being old and living alone. In L. A. Peplau & D. Perlman, (Eds.), *Loneliness: A Sourcebook of Current Theory, Research and Therapy* (pp. 327-347). New York: Wiley.

Percival, J. (2002). Domestic spaces: uses and meanings in the daily lives of older people. *Ageing & Society, 22(6),* 729-749.

Perkins, R., & Williamon, A. (2014). Learning to make music in older adulthood: A mixed-methods exploration of impacts on wellbeing. *Psychology of Music*, *42(4),* 550-567.

Perkins, R., Ascenso, S., Atkins, L., Fancourt, D., & Williamon, A. (2016). Making music for mental health: how group drumming mediates recovery. *Psychology of Well-being, 6(11),* 1-17.

Perlman, D., & Peplau, L. A. (1981). Toward a social psychology of loneliness. *Personal Relationships*, *3*, 31-56.

Perren, K., Arber, S. & Davidson, K. (2004). Neighbouring in Later Life: The Influence of SocioEconomic Resources, Gender and Household Composition on Neighbourly Relationships. *Sociology*, *38(5),* 965-984.

Perry, M., & Medina, C. (2011). Embodiment and performance in pedagogy research: Investigating the possibility of the body in curriculum experience. *Journal of Curriculum Theorizing*, *27(3).*

Petkanopoulou, K., Willis, G. B., & Rodríguez-Bailón, R. (2017). The emotional side of power(lessness). In M. Bukowski, I. Fritsche, A. Guinote, & M. Kofta (Eds.), *Coping with lack of control in a social world* (pp. 203–219). London, UK: Routledge/Taylor & Francis Group.

Phoenix, C., & Grant, B. (2009). Expanding the agenda for research on the physically active aging body. *Journal of aging and physical activity*, *17(3),* 362-379.

Phoenix, C., & Sparkes, A. C. (2009). Being Fred: Big stories, small stories, and the accomplishment of a positive ageing identity. *Qualitative research*, *9(2),* 219-236.

Phoenix, C., & Tulle, E. (2017). Physical activity and ageing. In *Routledge Handbook of Physical Activity Policy and Practice* (pp. 264-273). Routledge.

Phoenix, C., Smith, B., & Sparkes, A. C. (2010). Narrative analysis in aging studies: A typology for consideration. *Journal of Aging Studies*, *24(1),* 1-11.

Picano, E., Vano, E., Domenici, L., Bottai, M., & Thierry-Chef, I. (2012). Cancer and non-cancer brain and eye effects of chronic low-dose ionizing radiation exposure. *Biomed Central*, *12(157),* 1-13.

Pickard, S. (2018). Health, illness, and frailty in old age: a phenomenological exploration. *Journal of Aging Studies*, *47,* 24-31.

Pickett, K. E., & Pearl, M. (2001). Multilevel Analyses of Neighbourhood Socioeconomic Context and Health Outcomes: A Critical Review. *Journal of Epidemiology and Community Health, 55,* 111-122.

Pillow, W. (2003). Confession, catharsis, or cure? Rethinking the uses of reflexivity as methodological power in qualitative research. *International journal of qualitative studies in education, 16(2),* 175-196.

Pinquart, M. (2002). Creating and maintaining purpose in life in old age: A meta-analysis. *Ageing International*, *27(2),* 90-114.

Pinquart, M., & Sorensen, S. (2001). Influences on loneliness in older adults: A meta-analysis. *Basic and applied social psychology, 23(4),* 245-266.

Plummer, C., Henderson, R. D., O'Sullivan, J. D., & Read, S. J. (2011). Ischemic Stroke and Transient Ischemic Attack After Head and Neck Radiotherapy: A Review. *Stroke, 42,* 2410–2418.

Plummer, K. (1983). *Documents of Life* (Eds). London: Allen Unwin.

Plummer, K. (1990). Herbert Blumer and the life history tradition. *Symbolic Interaction, 13(2),* 125-144.

Plummer, K. (1995). *Telling Sexual Stories: Power, Change and Social Worlds* (Eds.). London: Routledge.

Plummer, K. (2011). *Intimate Citizenship: Private Decisions and Public Dialogues* (4th Ed.). Washington: Washington University Press.

Polkinghorne, D. E. (1988). *Narrative knowing and the human sciences* (Eds.). Suny Press.

Polkinghorne, D. E. (1995). Narrative configuration in qualitative analysis. *International journal of qualitative studies in education, 8(1),* 5-23.

Pollack, J. D., & Reiss, M. B. (1988). *Without the Bomb: The politics of nonproliferation* (pp. 78-108). New York: Columbia University Press.

Polletta, F., Chen, P. C. B., Gardner, B. G., & Motes, A. (2011). The sociology of storytelling. *Annual review of sociology, 37*, 109-130.

Postol, T. (1986). Possible fatalities from superfires following nuclear attacks in or near urban areas. In F. Solomon & R. Q. Marston (Eds.). *The Medical Implications of Nuclear War* (pp. 15-72). Washington: National Academy of Sciences.

Poulton, E. (2012). If you had balls, you'd be one of us!' Doing gendered research: Methodological reflections on being a female academic researcher in the hyper-masculine subculture of 'football hooliganism. *Sociological research online*, *17(4),* 67-79.

Prăvălie, R. (2014). Nuclear Weapons Tests and Environmental Consequences: A Global Perspective. *Ambio, 43(6)*, 729–744.

Pressman, S. D., Matthews, K. A., Cohen, S., Martire, L. M., Scheier, M., Baum, A., & Schulz, R. (2009). Association of enjoyable leisure activities with psychological and physical well-being. *Psychosomatic medicine*, *71(7),* 725.

Preston, D. L., Ron. E., Tokuoka, S., Funamoto, S., Nishi, N., Soda, M., Mabuchi, K., & Kodama, K. (2007). Solid Cancer Incidence in Atomic Bomb Survivors: 1958–1998. *Radiation Research, 168(1)*, 1-64.

Priest, H., Roberts, P., & Woods, L. (2002). An overview of three different approaches to the interpretation of qualitative data. Part 1: Theoretical issues. *Nurse Researcher, 10,* 30–42.

Proctor, I., & Padfield, M. (1998). Young Adult Women, Work and Family. *Living a Contradiction.*

Pronovost, P., & Sexton, B. (2005). Assessing safety culture: Guidelines and recommendations. *Quality and Safety in Health Care, 14(4),* 231–233.

Public Health England. (2014). *Health inequalities: starting the conversation*. London: PHE.

Public Health England. (2020). Disparities in the risk and outcomes of COVID-19. Retrieved May 2021, from https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/908434/Disparities_in_the_risk_and_outcomes_of_COVID_August_2020_update.pdf

Puplampu, B. B. (2021). Tackling the behavioural antecedents of knowledge production: research culture, behavioural intentionality and proactive agenda setting by scholars in Africa. *Journal of the British Academy*, *9(1),* 183-213.

Pye, S. (2020). The power of nonfiction life story narratives to communicate conservation to a non-specialist audience. *The Anthropocene Review, 7(2)*, 113-124.

Pyer, M., & Campbell, J. (2012). Qualitative researching with vulnerable groups. *International Journal of Therapy and Rehabilitation, 19(6),* 311-316.

Quek, K. (2016). Nuclear Proliferation and the Use of Nuclear Options: Experimental Tests. *Political Research Quarterly, 69(2),* 195-206.

Quinlan, M. (1997). *Thinking about nuclear weapons*. *RUSI Journal* (Vol. 142).

Quinn-Scoggins, H. D., Cannings-John, R., Moriarty, Y., Whitelock, V., Whitaker, K. L.,…& Brain, K. (2021). Cancer symptom experience and help-seeking behaviour during the COVID-19 pandemic in the UK: a cross-sectional population survey. *BMJ Open*, *11(9),* e053095.

Rabbitt Roff, S. (2002). Blood money: The duty of care to veterans of UK nuclear weapons tests. *Medicine, Conflict and Survival, 18(3),* 311-322.

Rabbitt Roff, S. (2012). UK nuclear veterans timed out? *Bulletin of the Atomic Scientists (online).* Retrieved from https://thebulletin.org/uk-nuclear-veterans-timed-out Accessed on March 20, 2018.

Randall, W. (2007). Narrative and chaos acknowledging the novelty of lives-in-time. *Interchange, 38(4),* 367-389.

Randall, W., Baldwin, C., McKenzie-Mohr, S., McKim, E., & Furlong, D. (2015). Narrative and resilience: A comparative analysis of how older adults story their lives. *Journal of aging studies, 34,* 155-161.

Ranzijn, R. (2010). Active ageing—Another way to oppress marginalized and disadvantaged elders? Aboriginal elders as a case study. *Journal of Health Psychology, 15(5),* 716-723.

Rasmussen M.V. (2003) The Sinews of Peace, 1944–51. In: The West, Civil Society, and the Construction of Peace. Palgrave Macmillan, London.

Rasmussen, T. (2011). Knowledge production and social work. *Social Work and Social Sciences Review, 15(1),* 28-48.

REF. (2011). Assessment framework and guidance on submissions (updated to include addendum published in January 2012). Bristol: REF.

Repacholi, M. H., & Greenebaum, B. (1999). Interaction of Static and Extremely Low Frequency Electric and Magnetic Fields with Living Systems: Health Effects and Research Needs. *Bioelectromagnetics, 20,* 133-160.

Reza, M. (2007). Participatory action research (PAR): Revisiting the history, concept, and ethics. *BRAC University Journal, 4(2),* 27-34

Rhodes, C. (2001). *Writing organisation: (re) presentation and control in narratives at work*. Amsterdam and Philadelphia: John Benjamin.

Rhodes, C., & Brown, A. D. (2005). Narrative, organizations, and research. *International Journal of Management Reviews, 7(3),* 167-188.

Rhodes, R. (1995). *Dark Sun: The making of the hydrogen bomb.* New York: Simon & Schuster.

Richardson, E. V., & Motl, R. W. (2021). “Kicking and Screaming” or “Gracefully Conceding”: Creative Nonfiction Stories of Aging with Multiple Sclerosis. *Qualitative Health Research,* 1-14.

Richardson, E. V., Barstow, E. A., & Motl, R. W. (2019). A narrative exploration of the evolving perception of exercise among people with multiple sclerosis. *Qualitative*

Research in Sport, Exercise and Health, *11(1)*, 119-137.

Richardson, L. (1990). Narrative and sociology. *Journal of contemporary ethnography*, *19(1)*, 116-135.

Richardson, L. (1994). Nine poems: Marriage and the family. *Journal of Contemporary Ethnography*, *23*, 3-13.

Richardson, L. (1999). Dead again in Berkeley: An ethnographic happening. *Qualitative Inquiry, 5(1),* 141-144.

Richardson, L. (1999). Feathers in our cap. *Journal of contemporary ethnography*, *28(6),* 660-668.

Richardson, L., & St. Pierre, E. (2005). Writing: A method of inquiry. In N. Denzin & Y. Lincoln (3rd edition.), *Handbook of Qualitative Research* (pp. 959-978). London: SAGE.

Riessman, C. K. (1993). *Narrative analysis* (Vol. 30). London: SAGE.

Riessman, C. K. (2001). Personal troubles as social issues: A narrative of infertility in context. *Qualitative research in social work*, *42(5)*, 73-83.

Riessman, C. K. (2003). Performing identities in illness narrative: Masculinity and multiple sclerosis. *Qualitative Research, 3(1),* 5-33.

Riessman, C. K. (2005). Exporting ethics: A narrative about narrative research in South India. *Health*, *9(4)*, 473-490.

Riessman, C. K. (2008). *Narrative methods for the human sciences* (Eds.). SAGE.

Riessman, C. K., & Speedy, J. (2007). Narrative Inquiry in the Psychotherapy Professions: A Critical Review. In J. D. Clandinin (Eds.), *Handbook of Narrative Inquiry: Mapping a Methodology* (pp. 426–456). Thousand Oaks, CA: SAGE.

Riley, M. W. (1985). Age strata in social systems. In R. H. Binstock & E. Shanas (Eds.), *Handbook of aging and the social sciences* (Vol. 3, pp. 369-411). New York: Van Nostrand Reinhold.

Ring, J. P. (2004). Radiation risks and dirty bombs. *Health Physics, 86,* S42–S47.

Roberts, K. L., & Taylor, B. J. (1998). Qualitative interpretive methodologies. *Nursing Research Processes: An Australian Perspective. Melbourne: Nelson Australia Pty Limited*, 97-121.

Rockwood, K., Song, X., MacKnight C., Bergman, H., Hogan, D. B., McDowell, J., & Mitnitski, A. (2005). A global clinical measure of fitness and frailty in elderly people. *Canadian Medical Association Journal*, *173(5),* 489-495.

Rodríguez, L. F., & Brown, T. M. (2009). From voice to agency: Guiding principles for participatory action research with youth. *New directions for youth development*, *123,* 19-34.

Rodríguez-Bailón, R., Sánchez-Rodríguez, Á., García-Sánchez, E., Petkanopoulou, K., & Willis, G. B. (2020). Inequality is in the air: contextual psychosocial effects of power and social class. *Current Opinion in Psychology, 33*, 120–125.

Rojek, C. (2013). *Capitalism and Leisure Theory (Routledge Revivals)*. London: Routledge.

Rolfe, G. (2006). Validity, trustworthiness, and rigour: quality and the idea of qualitative research. *Journal of advanced nursing*, *53(3),* 304-310.

Ronkainen, N. J., & Wiltshire, G. (2019). Rethinking validity in qualitative sport and exercise psychology research: A realist perspective. *International Journal of Sport and Exercise Psychology, 19(1),* 13-28.

Rook, K. S., & Sorkin, D. H. (2003). Fostering social ties through a volunteer role: Implications for older-adults' psychological health. *The International Journal of Aging and Human Development*, *57(4),* 313-337.

Rosenfield, D., Catalan, J., & Ridge, D. (2018). Strategies for improving mental health and wellbeing used by older people living with HIV: A qualitative investigation. *AIDS Care, 30(2*), 102-107.

Rosenwald, G. C., & Ochberg, R. L. (1992). *Storied lives: The cultural politics of self-understanding*. Yale University Press.

Rowe, J. W., & Kahn, R. L. (1997). Successful aging. T*he Gerontologist*, *37(4)*, 433–440.

Rowland, R. E., Podd, J. V., Wahab, M. A., Nickless, E. M., Parmentier, C., & M'Kacher, R. (2007). New Zealand Nuclear Test Veterans' Study – a Cytogenetic Analysis. *Institute of Molecular BioSciences, 1-53.*

Royal British Legion. (2018). *Loneliness and Social Isolation in the Armed Forces Community*. Retrieved January 2021, from https://storage.rblcdn.co.uk/sitefinity/docs/default-source/campaigns-policy-and-research/social_isolation_report_full.pdf?sfvrsn=1212fbbe_0

Royal Society for Public Health. (2018). That age old question: How attitudes to ageing affect our health and wellbeing. Available at https://www.rsph.org.uk/static/uploaded/a01e3aa7-9356-40bc-99c81b14dd904a41.pdf [Accessed February 2021]

Ruff, T. A. (2017). Health implications of ionising radiation. In P. Van Ness & M. Gurtov (Eds.). *Learning from Fukushima: Nuclear Power in East Asia* (pp.221-260). Australia:

Australian National University Press.

Rüsch, N., Corrigan, P. W., Wassel, A., Michaels, P., Olschewski, M., Wilkniss, S., & Batlia, K. (2009). Self-stigma, group identification, perceived legitimacy of discrimination and mental health service use. *The British Journal of Psychiatry, 195(6),* 551–552.

Russell, A. R., Nyame-Mensah, A., de Wit, A., & Handy, F. (2018). Volunteering and wellbeing among ageing adults: A longitudinal analysis. *VOLUNTAS: International Journal of Voluntary and Non-profit Organizations,* 1-14.

Ruuskanen, J. M., & Ruoppila, I. (1995). Physical activity and psychological wellbeing among people aged 65 to 84 years. A*ge and Ageing 24(4),* 292–296.

Ryan, R. M., & Deci, E. L. (2001). On happiness and human potentials: A review of research on hedonic and eudaimonic well-being. *Annual review of psychology, 52(1),* 141-166.

Rycroft-Malone, J., Seers, K., Titchen, A., Harvey, G., Kitson, A., & McCormack, B. (2003). What counts as evidence in evidence-based practice? *Journal of Advanced Nursing, 47(1),* 81-90.

Ryff, C. D. (1989). Happiness is everything, or is it? Explorations on the meaning of psychological well-being. *Journal of personality and social psychology, 57(6),* 1069.

Sackett, D. L., Richardson, W. S., Rosenberg, W., & Haynes, R. B. (1997). *Evidence Based Medicine: How to practice and teach EBM* (Eds.). Edinburgh: Churchill Livingstone.

Sala, G., Jopp, D., Gobet, F., Ogawa, M., Ishioka, Y., Masui, Y., ... & Gondo, Y. (2019). The impact of leisure activities on older adults' cognitive function, physical function, and mental health. *PloS one, 14(11),* e0225006.

Sallis, J. F., Johnson, M. F., & Calfas, K. J. (1997). Assessing perceived physical environmental variables that may influence physical activity. *Research Quarterly for Exercise and Sport, 68,* 345-351.

Sallis, R. (2015). Exercise is medicine: a call to action for physicians to assess and prescribe exercise. *The Physician and Sports Medicine, 43(1),* 22–26.

Sameshima, P., & Vandermause, R. (2009). Methamphetamine addiction and recovery: Poetic inquiry to feel. In *Poetic Inquiry* (pp. 273-285). Brill Sense.

Sampson, E. E. (1977). Psychology and the American ideal. *Journal of Personality and social Psychology, 35(11),* 767.

Sancho, M., & Cline, T. (2012). Fostering a sense of belonging and community as children start a new school. *Educational and Child Psychology, 29(1),* 64.

Sandelowski, M. (1998). Writing a good read: Strategies for re-presenting qualitative data. *Research in nursing & health, 21(4),* 375-382.

Saracchini, R., Catalina, C., & Bordoni, L. (2015). A Mobile Augmented Reality Assistive Technology for the Elderly. *Comunicar - Media Education Research Journal*, 65-83.

Sasse T., & Haddon C (2018) How government can work with academia. Institute for Government. Retrieved September 2021, from: https://www.instituteforgovernment.org.uk/sites/default/files/publications/IfG_government_academia_June_2018_vb.pdf.

Saunders, P. (1990). *Social class and stratification* (Eds.). Oxon, UK: Routledge.

Savin-Baden, M., & Wimpenny, K. (2007). Exploring and implementing participatory action research. *Journal of Geography in Higher Education*, *31(2),* 331-343.

Savolainen, I., Oksanen, A., Kaakinen, M., Sirola, A., & Paek H, J. (2020). The Role of Perceived Loneliness in Youth Addictive Behaviors: Cross-National Survey Study. *Journal of Medical Internet Research: Mental Health, 7(1),* e14035.

Sawada, A., Chaitin, J., & Bar-On, D. (2004). Surviving Hiroshima and Nagasaki--Experiences and Psychosocial Meanings. *Psychiatry: Interpersonal and Biological Processes, 67(1)*, 43–60.

Schinke, R. J., Smith, B., & McGannon, K. R. (2013). Pathways for community research in sport and physical activity: criteria for consideration. *Qualitative Research in Sport, Exercise and Health, 5(3)*, 460-468.

Schöllnberger, H., Kaiser, J. C., Jacob, P., & Walsh, L. (2012). Dose-responses from multi-model inference for the non-cancer disease mortality of atomic bomb survivors. *Radiation and Environmental Biophysics*, *51(2)*, 165–178.

Schröder-Butterfill, E., & Marianti, R. (2006). A framework for understanding old-age vulnerabilities. *Ageing & Society*, *26(1)*, 9-35.

Schull, W. J., Otake, M., & Neel, J. V. (1981). Genetic effects of the atomic bombs: a reappraisal. *Science, 213,* 1220-1227.

Schultz, E. S., Hallberg, J., Bellander, T., Bergström, A., Bottai, M., Chiesa, F., ... & Melén, E. (2016). Early-life exposure to traffic-related air pollution and lung function in adolescence. *American journal of respiratory and critical care medicine, 193(2),* 171-177.

Schwall A. R . (2012). Defining age and using age-relevant constructs. In Hedge J. W. Borman W. C. (Eds.), *The Oxford handbook of work and aging* (pp. 169–186). New York, NY: Oxford University Press.

Schwartz, N. B. (1981). Anthropological views of community and community development. *Human Organization*, 313-322.

Scott, S. D., Albrecht, L., O'Leary, K., Ball, G. D., Hartling, L., Hofmeyer, A., & Dryden, D. (2012). Systematic review of knowledge translation strategies in the allied health professions. *Implementation Science, 7,* 70.

Seidman, I. E. (1991). *Interviewing as Qualitative Research* (Eds.). New York: Teachers College Press.

Seinfeld, S., Figueroa, H., Ortiz-Gil, J., & Sanchez-Vives, M. V. (2013). Effects of music learning and piano practice on cognitive function, mood, and quality of life in older adults. *Frontiers in Psychology, 4,* 810.

Seligowski, A. V., Pless Kaiser, A., King, L. A., King, D. W., Potter, C., & Spiro III, A. (2012). Correlates of life satisfaction among aging veterans. *Applied Psychology: Health and Well-Being, 4(3),* 261-275.

Seltzer, C. C., & Jablon, S. (1974). Effects of selection on mortality 1. *American Journal of Epidemiology, 100(5),* 367–372.

Serrat, R., Scharf, T., Villar, F., & Gómez, C. (2020). Fifty-five years of research into older people's civic participation: Recent trends, future directions. *The Gerontologist, 60(1),* e38-e51.

Setterson Jr, R. A. (2006). When Nations Call: How wartime military service matters for the life course and ageing. *Research on Aging, 28(1),* 12-36.

Shaw, M. P., & McNamara, S. W. T. (2021). "I can just get all the bits that I need": Practitioners' Use of Open-Access Sport Science Podcasts. *Frontiers in Education, 6,* 1-10.

Shaw, S., & Barrett, G. (2006). Research governance: regulating risk and reducing harm? *Journal of the Royal Society of Medicine, 99(1),* 14-19.

Shi, L., & Tashiro, S. (2018). Estimation of the effects of medical diagnostic radiation exposure based on DNA damage. *Journal of Radiation Research,* 1-9.

Shilling, C. (2003). *The Body and Social Theory* (2nd edition). London, Sage.

Shilling, C. (2007). Sociology and the body: classical traditions and new agendas. *Sociological Review Monograph, 55,* 1-18.

Shiovitz-Ezra, S., Shemesh, J., & McDonnell, M. (2018). Pathways from ageism to loneliness. In *Contemporary perspectives on ageism* (pp. 131-147). Springer, Cham.

Shuman, A. (2017). The Afterlife of Stories: Proverb and the Relationship between Form and Stance. *Narrative Culture, 4(1),* 32-48.

Sibley R. F., Moscato, B. S., Wilkinson, G. S., & Natarajan, N. (2003). Nested case–control study of external ionizing radiation dose and mortality from dementia within a pooled cohort of female nuclear weapons workers. *American Journal of Industrial Medicine, 44,* 351–358.

Silber, L. (2005). Bars behind bars: the impact of a women's prison choir on social harmony. *Music Education Research, 7(2),* 251-271.

Silverman, S. W. (2008). The meandering river: an overview of the subgenres of creative nonfiction. *The Writer's Chronicle*, 3-15.

Simon, N. M., Saxe, G. N., & Marmar, C. R. (2020). Mental health disorders related to COVID-19–related deaths. *Jama*, *324(15),* 1493-1494.

Simon, S. L., & Bouville, A. (2015). Health effects of nuclear weapons testing. *The Lancet*, *386(9992),* 407–409.

Sinkovics, R. R., & Alfoldi, E. A. (2012). Progressive focusing and trustworthiness in qualitative research. *Management International Review 52(6)*, 817-845.

Smith, B. (2013). Sporting spinal cord injuries, social relations, and rehabilitation narratives: An ethnographic creative non-fiction of becoming disabled through sport. *Sociology of Sport Journal, 30(2)*, 132-152.

Smith, B. (2016). Narrative analysis in sport and exercise: How can it be done? In B. Smith & A. C. Sparkes (Eds.), *Routledge Handbook of Qualitative Research in Sport and Exercise* (pp. 260-273). Routledge.

Smith, B. (2016). Narrative analysis. In E. Lyons, A. Coyle (2nd Edition.), *Analyzing qualitative data in psychology* (pp. 202-221). London: Sage.

Smith, B., & Caddick, N. (2012). Qualitative methods in sport: A concise overview for guiding social scientific sport research. *Asia Pacific journal of sport and social science, 1(1)*, 60-73.

Smith, B., & McGannon, K. R. (2018). Developing rigor in qualitative research: Problems and opportunities within sport and exercise psychology. *International review of sport and exercise psychology, 11(1),* 101-121.

Smith, B., McGannon, K. R., & Williams, T. L. (2015). Ethnographic creative nonfiction. In G. Molnar & L. Purdy (Eds.), *Ethnographies in sport and exercise research* (pp. 49-73). Routledge.

Smith, B., & Sparkes, A. C. (2006). Narrative inquiry in psychology: Exploring the tensions within. *Qualitative research in psychology, 3(3),* 169-192.

Smith. B., & Sparkes, A. C. (2016). Interviews: Qualitative interviewing in the sport and exercise sciences. In B. Smith & A. C. Sparkes (Eds.), *Routledge Handbook of Qualitative Research in Sport and Exercise* (pp.37-48). Routledge.

Smith, C. A., & Gallo, A. M. (2007). Applications of performance ethnography in nursing. *Qualitative Health Research, 17(4),* 521-528.

Smith, J. L., & Hollinger-Smith, L. (2015). Savoring, resilience, and psychological well-being in older adults. *Aging & mental health, 19(3),* 192-200.

Smith, K. E., & Stewart, E. (2017). We Need to Talk about Impact: Why Social Policy Academics need to Engage with the UK's Research Impact Agenda. *Journal of Social Policy, 46(1),* 109-127.

Smith, K. E., Bandola-Gill, J., Meer, N., Stewart, E., & Watermeyer, R. (2020). *The Impact Agenda: Controversies, Consequences and Challenges* (Eds.). Bristol: The Policy Press.

Smith, L. M. (1994). Biographical method. In N. K. Denzin, & Y. Lincoln (Eds.), *Handbook of Qualitative Research Methodology* (pp. 286–305). London: Sage.

Smith, N. (2014). More than White, Heterosexual Men: Intersectionality as a Framework for Understanding the Identity of Student Veterans. *Journal of Progressive Policy and Practice, 2(3),* 229–238.

Smith, R. T., & True, G. (2014). Warring identities: Identity conflict and the mental distress of American veterans of the wars in Iraq and Afghanistan. *Society and Mental Health, 4(2),* 147-161.

Smoll, N. R., Brady, Z., Scurrah, K., & Mathews, J. D. (2016). Exposure to ionizing radiation and brain cancer incidence: The Life Span Study cohort. *Cancer epidemiology, 42,* 60-65.

Snape, D. and Spencer, L. (2003) 'Introduction to Research Method' in Ritchie, J. and Lewis, J. (eds.) *Qualitative Research Practice: A Guide for Social Science Students and Researchers*. London: SAGE.

Söderström, J. (2020). Life diagrams: A methodological and analytical tool for accessing life histories. *Qualitative Research, 20(1),* 3-21.

South, J. (2015). A guide to community-centred approaches for health and wellbeing: Full report. Public Health England Publications. Accessed June 2018 https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/417515/A_guide_to_community-centred_approaches_for_health_and_wellbeing__full_report_.pdf

Southby, K., & South, J. (2016). Volunteering, inequalities, and barriers to volunteering: a rapid evidence review. Project Report. Volunteering Matters.

Southwick, S. M., Litz, B. T., Charney, D., & Friedman, M. J. (Eds.). (2011). *Resilience and mental health: Challenges across the lifespan*. Cambridge University Press.

Sparkes, A. C. (1995). Writing people: Reflections on the dual crises of representation and legitimation in qualitative inquiry. *Quest*, *47(2),* 158-195.

Sparkes, A. C. (2002). *Telling tales in sport and physical activity: A qualitative journey* (Eds.). Champaign, IL: Human Kinetics.

Sparkes, A. C. (2015). Ageing and embodied masculinities in physical activity settings: From flesh to theory and back again. In E. Tulle & C. Phoenix (Eds.), *Physical Activity and Sport in Later Life* (pp. 137-148). London: Palgrave Macmillan.

Sparkes, A. C. (2015). When bodies need stories. Dialogical narrative analysis in action. In M. O'Neill, B. Roberts, & A.C. Sparkes (Eds.*), Advances in Biographical Methods* (pp. 30-42). London: Routledge.

Sparkes, A. C., & Smith, B. (2002). Sport, spinal cord injury, embodied masculinities, and the dilemmas of narrative identity. *Men and masculinities, 4(3),* 258-285.

Sparkes, A. C., & Smith, B. (2009). Judging the quality of qualitative inquiry: Criteriology and relativism in action. *Psychology of Sport and Exercise, 10,* 491-497.

Sparkes, A. C., & Smith, B. (2012). Embodied research methodologies and seeking senses in sport and physical culture: A fleshing out of problems and possibilities. In K. Young & M. Atkinson (Eds.), *Qualitative Research on Sport and Physical Culture* (pp. 169-192). Emerald Press.

Sparkes, A. C., & Smith, B. (2013). *Qualitative research methods in sport, exercise, and health: From process to product* (Eds.). Routledge.

Sparks H. (2020). Morbid "boomer remover" coronavirus meme only makes millennials seem more awful. *New York Post*. Retrieved January 2021, from https://nypost.com/2020/03/19/morbid-boomer-remover-coronavirus-meme-only-makes-millennials-seem-more-awful/

Springer, K. W., & Mouzon, D. M. (2011). "Macho men" and preventive health care: Implications for older men in different social classes. *Journal of Health and Social Behavior, 52(2),* 212-227.

Srinivasan, S. G., Hecker, S. S., Follansbe, P. S., & Baskes, M. I. (2006). Dr Smith goes to Los Alamos - Cyril Stanley Smith, Plutonium Metallurgy, and the Manhattan Project. *Resonance – Journal of Science Education, 11(6),* 8-25.

Srivarathan, A., Jensen, N. A., & Kristiansen, M. (2019). Community-based interventions to enhance healthy aging in disadvantaged areas: perceptions of older adults and health care professionals. *BMC Health Services Research, 19(7),* 1-9.

St. Pierre, E. A. (2013). The posts continue: Becoming. *International Journal of Qualitative Studies in Education, 26(6),* 646–657.

St. Pierre, E. A. (2016). The long reach of logical positivism/logical empiricism. In N.K. Denzin & M. D. Giadina (Eds), *Qualitative inquiry through a critical lens* (pp. 27-38). London: Routledge.

Stana, A., Flynn, M. A., & Almeida, E. (2017). Battling the stigma: Combat veterans' use of social support in an online PTSD forum. *International Journal of Men's Health, 16(1),* 20.

Stanley, L. (2010). To the letter: Thomas and Znaniecki's The Polish peasant and writing a life, sociologically. *Life Writing, 7(2),* 139-151.

Steans, J. (1998). *Gender and International Relations: An Introduction* (Eds.). New Brunswick, NJ: Rutgers University Press.

Stein, J. Y., & Tuval-Mashiach, R. (2015). The social construction of loneliness: An integrative conceptualization. *Journal of Constructivist Psychology*, *28(3),* 210-227.

Stephens, C., Breheny, M., & Mansvelt, J. (2015). Volunteering as reciprocity: Beneficial and harmful effects of social policies to encourage contribution in older age. *Journal of Aging Studies*, *33*, 22-27.

Stephens, T. (1988). Physical activity and mental health in the United States and Canada: Evidence from four population surveys. *Preventive Medicine 17(1)*, 35–47.

Steptoe, A., Deaton, A., & Stone, A. A. (2015). Subjective wellbeing, health, and ageing. *The Lancet*, *385(9968),* 640-648.

Stern, C., & Munn, Z. (2010). Cognitive leisure activities and their role in preventing dementia: a systematic review. *International Journal of Evidence-Based Healthcare*, *8(1)*, 2-17.

Stern, M. J., Briske, D. D., & Meadow, A. M. (2021). Opening learning spaces to create actionable knowledge for conservation. *Conservation Science and Practice, 3(5),* 1-12.

Stevens, R. J., Roddam, A. W., Spencer, E. A., Pirie, K. L., Reeves, G. K., Green, J., Beral, V., & on behalf of the Million Women Study Collaborators. (2009). Factors associated with incident and fatal pancreatic cancer in a cohort of middle-aged women. *International Journal of Cancer, 124(10),* 2400–2405.

Stewart-Withers, R., Banks, G., McGregor, A., & Meo-Sewabu, L. (2014). *Qualitative Research* (Eds.). London: Sage Publications Ltd.

Stine, D. D. (2009). The Manhattan Project, the Apollo Program, and Federal Energy Technology R&D Programs: A Comparative Analysis. *Congressional Research Service, 7-5700,* 1-13.

Stoll, L. (2014). A Short History of Wellbeing Research. In C. L. Cooper (Ed.), *Wellbeing* (pp. 1–19). John Wiley & Sons, Ltd.

Strauss, A. (1956). *The Social Psychology of George Herbert Mead*, (Eds.). Chicago: University of Chicago Press.

Stringer, E. T. (2014). *Action research* (4th Edition). Thousand Oaks, CA: Sage.

Stroebe, M., Schut, H., & Stroebe, W. (2007). Health outcomes of bereavement. *The Lancet, 370*, 1960–1978.

Stypińska, J., & Nikander, P. (2017). Ageism and age discrimination in the labour market: A macrostructural perspective. In *Contemporary perspectives on ageism* (pp. 91-108). Springer, Cham.

Sudom, K., Zamorski, M., & Garber, B. (2012). Stigma and barriers to mental health care in deployed Canadian forces personnel. *Military Psychology*, *24(4)*, 414-431.

Sullivan, H. (1953). *The Interpersonal Theory of Psychiatry* (Eds.). New York: WW Norton.

Sundström, M., Edberg. A. K., Rämgård, M., & K. Blomqvist. (2018). Encountering existential loneliness among older people: perspectives of health care professionals. *International Journal of Qualitative Studies on Health and Well-being. 13,* 1.

Sung, K. (2001). Elder respect: Exploration of ideals and forms in East Asia. *Journal of Aging Studies*, 15, 13–26.

Suzuki, Y., Yabe, H., Yasumura, S., Ohira, T., Niwa, S., Ohtsuru, A.,…Abe, M. (2015). Mental health group of the Fukushima health management survey. Psychological distress and the perception of radiation risks: The Fukushima health management survey. *Bulletin of the World Health Organization, 93,* 598–605.

Swain, S., Sarmanova, A., Coupland, C., Doherty, M., & Zhang, W. (2020). Comorbidities in Osteoarthritis: A systematic review and meta-analysis of observational studies. *Arthritis care & research*, *72(7),* 991-1000.

Szymendera, S. D. (2016). *Who Is a 'Veteran'? Basic Eligibility for Veterans' Benefits*. The U.S. Department of Veterans Affairs.

Tabassum, F., Mohan, J., & Smith, P. (2016). Association of volunteering with mental well-being: a lifecourse analysis of a national population-based longitudinal study in the UK. *BMJ open*, *6(8),* e011327.

Tarzia, L., Bauer, M., Fetherstonhaugh, D., & Nay, R. (2013). Interviewing older people in residential aged care about sexuality: Difficulties and challenges. *Sexuality and Disability*, *31(4),* 361-371.

Taylor, J., & Patterson, M. (2010). Autonomy and compliance: How qualitative sociologists respond to institutional ethical oversight. *Qualitative Sociology, 33(2),* 161-183.

Tesch-Römer, C., & von Kondratowitz, H. J. (2006). Comparative ageing research: a flourishing field in need of theoretical cultivation. *European Journal of Ageing, 3(3),* 155–167.

The Marmot Review (2010). Fair Society, Healthy Lives. *The Marmot Review.*

Thoits, P. A., & Hewitt, L. N. (2001). Volunteer work and well-being. *Journal of health and social behavior,* 115-131.

Thomas, G. A., & Symonds, P. (2016). Radiation Exposure and Health Effects: is it time to reassess the real consequences? *Clinical Oncology, 28,* 231-236

Thomas, J. (2009). Working paper: Current measures and the challenges of measuring children's wellbeing. Newport: Office for National Statistics.

Thomas, W. I., & Znaniecki, F. (1958). *The Polish peasant in Europe and America, Volumes I and II.* New York: Dover Publications.

Thompson, E. H. (1994). Older Men as Invisible Men in Contemporary Society. In E. H. Thompson (Eds.), *Older Men's Lives.* (Vol. Six, pp. 1-21). Thousand Oaks, CA: SAGE Publications, Inc.

Thompson, J. (1986). Psychological Consequences of Disaster: Analogies for the Nuclear Case. In F. Solomon & R. Q. Marston (Eds.). *The Medical Implications of Nuclear War* (pp. 290-316). Washington: National Academy of Sciences.

Thompson-Coon, J., Boddy, K., Stein, K., Whear, R., Barton, J., & Depledge, M. H. (2011). Does participating in physical activity in outdoor natural environments have a greater effect on physical and mental wellbeing than physical activity indoors? A systematic review. *Environmental science & technology, 45(5),* 1761-1772.

Thorne, M. C. (2003). Background radiation: natural and man-made. *Journal of Radiological Protection, 23,* 29–42.

Thorsen, D. E., & Lie, A. (2006). What is neoliberalism. *Oslo, University of Oslo, Department of Political Science, Manuscript,* 1-21.

Tierney, W. G. (2000). Undaunted courage: Life history and the postmodern challenge. *Handbook of qualitative research, 2,* 537-553.

Tierney, W. G. (2002). Get real: Representing reality. *International Journal of Qualitative Studies in Education, 15(4),* 385–398.

Todres, L., Holloway, I. (2006). Phenomenological research. In Gerrish, K., Lacey, A. (Eds.), *The research process in nursing* (pp. 177-187). Oxford, England: Blackwell.

Torres, S. (2006). Elderly immigrants in Sweden: 'Otherness' under construction. *Journal of ethnic and migration studies, 32(8),* 1341-1358.

Tracy, S. J. (2010). Qualitative quality: Eight "big-tent" criteria for excellent qualitative research. *Qualitative inquiry, 16(10),* 837-851.

Tracy, S. J., & Hinrichs, M. M. (2017). Big tent criteria for qualitative quality. *The international encyclopaedia of communication research methods*, 1-10.

Treaty Series No.72 (1959) Amendment to the Agreement between the Government.

Truman, H. S. (1965). *Memoirs: A year of decisions (Volume 1)*. New York: Signet Books, The New American Library of World Literature, Inc.

Trundle, C., & Scott, B. I. (2013). Elusive Genes: Nuclear Test Veterans' Experiences of Genetic Citizenship and Biomedical Refusal. *Medical Anthropology, 32(6), 501-517.*

Truusa, T. T., & Castro, C. A. (2019). Definition of a veteran: The military viewed as a culture. In C. Castro & S. Dursun (Eds.), *Military veteran reintegration: Approach, management, and assessment of military veterans transitioning to civilian life* (pp. 5–19). Academic Press.

Tsimtsiou, Z., Haidich, A.-B., Drontsos, A., Dantsi, F., Sekeri, Z., Drosos, E., Trikilis, N., Dardavesis, T., Nanos, P., & Arvanitidou, M. (2017). Pathological Internet use, cyberbullying and mobile phone use in adolescence: A school-based study in Greece. *International Journal of Adolescent Medicine and Health, 30(6),* 20160115.

Tulle, E. (2008). The ageing body and the ontology of ageing: athletic competence in later life. *Body and Society, 14(3),* 1–19.

Tulle, E. (2015). Theorising embodiment and ageing. In J. Twigg & W. Martin (Eds.), *Routledge handbook of cultural gerontology* (pp. 147-154). London: Routledge.

Tullis Owen, J. A., McRae, C., Adams, T. E., & Vitale, A. (2009). Truth troubles. *Qualitative Inquiry, 15(1),* 178-200.

Tuohy, D., & Cooney, A. (2019). Older Women's Experiences of Aging and Health: An Interpretive Phenomenological Study. *Gerontology & Geriatric Medicine, 5,* 1-10.

Turner, B. S. (2001). Disability and the sociology of the body. In G. L. Albrecht, K. D. Seelman, & M. Bury (Eds.), *Handbook of disability studies* (pp. 252-266). London: Sage Publications.

Tynan, E. (2011). Maralinga and the journalists: covering the bomb tests over generations. *LiNQ, 38,* 131-145.

Tynan, E. (2016). *Atomic Thunder: The Maralinga Story* (Eds.). Sydney: New South Publishing.

Um, S. G., Laher, N., & Roche, B. (2019). The Changing Face of Home and Community Care. Retrieved September 2021, from https://www.wellesleyinstitute.com/wp-content/uploads/2019/06/Findings-from-Focus-Groups-with-Older-Women-from-Diverse-Ethnocultural-Communities-in-the-GTA.pdf

United Nations. (2020). World population ageing 2020 highlights: Living arrangements of older persons. Retrieved February 2021, from https://www.un.org/development/desa/pd/sites/www.un.org.development.desa.pd/files/undesa_pd-2020_world_population_ageing_highlights.pdf

UNSCEAR (2008): Sources and effects of ionizing radiation.In United Nations Scientific Committee on the Effects of Atomic Radiation.

UNSCEAR. (2000). Report to the general assembly (Annex C— Exposures to the public from man-made sources of radiation). http://www.unscear.org/docs/reports/annexc.pdf. Retrieved February 03, 2018.

Van der Bij, A., Laurant, M., & Wensing, M. (2002). Effectiveness of Physical Activity Interventions for Older Adults. *American Journal Preventative Medicine*, *22*, 120–33.

Van Houwelingen-Snippe, J., Allouch, S. B., & Van Rompay, T. J. (2021). Virtual Reality Representations of Nature to Improve Well-Being amongst Older Adults: A Rapid Review. *Journal of Technology in Behavioral Science,* 1-22.

Van't Veer-Tazelaar, P. J., van Marwijk, H. W. J., Jansen, A. P. D., Rijmen, F., Kostense, P. J., van Oppen, P.,…& Beekman, A. T. (2008). Depression in old age (75þ), the PIKO study. *Journal of Affective Disorders*, *106*, 295–299.

Vanclay, F. (2002). Conceptualising social impacts. *Environmental impact assessment review*, *22(3),* 183-211.

Varki, A., & Brower, D. (2013). *Denial: Self-deception, false beliefs, and the origins of the human mind*. Hachette UK.

Vaughan-Horrocks, H., Reagon, C., & Seymour, A. (2020). The experiences of veterans with mental health problems participating in an occupational therapy and resilience workshop intervention: An exploratory study. *British Journal of Occupational Therapy,* 0308022620977818.

Vickers, M. H. (2010). The creation of fiction to share other truths and different viewpoints: A creative journey and an interpretive process. *Qualitative Inquiry, 16(7),* 556-565.

Victor, C. R., & Bowling, A. (2012). A Longitudinal Analysis of Loneliness Among Older People in Great Britain. *Journal of Psychology, 146(3),* 313-331.

Victor, C. R., Bond, J., & Bowling, A. (2003). Loneliness, social isolation and living alone in later life. *ESRC GO Findings, 17,* 1-4.

Victor, C., Burholt, V., & Martin, W. (2012). Loneliness and ethnic minority elders in Great Britain: An exploratory study. *Journal of Cross-Cultural Gerontology, 27(1),* 65–78.

Victor, C., Mansfield. L., Kay, T., Daykin, N., Lane, J., Duffy, L. G., Tomlinson, A., & Meads, C. (2018). An overview of reviews: The effectiveness of interventions to address loneliness at all stages of the life-course. *What Works for Wellbeing,* 2-87.

Victor, C., Scambler, S., Bond, J., & Bowling, A. (2000). Being alone in later life: loneliness, social isolation and living alone. *Reviews in Clinical Gerontology, 10(4),* 407-417.

Vincent, J. A. (2000). *Politics, Power and Old Age* (Eds.). Buckingham, UK and Philadelphia: Open University Press.

Wade, D., Vaughn, C., & Long, W. (2009). The power of fiction: a novel approach to presenting research findings. *Journal of Thought, 44(1-2),* 37-58.

Wagemakers, A., Corstjens, R., Koelen, M., Vaandrager, L., van't Riet, H., & Dijkshoorn, H. (2008). Participatory approaches to promote healthy lifestyles among Turkish and Moroccan women in Amsterdam. *Promotion & Education, 15(4),* 17-23.

Wahab, M. A., Nickless, F. M., Najar, M., Kacher, R., Parmentier, C., Podd, J. V., & Rowland, R. E. (2008). Elevated chromosome translocation frequencies in New Zealand nuclear test veterans. *Cytogenetic and Genome Research, 12(2*), 79–87.

Walker, A. (2002). A strategy for active ageing. *International social security review, 55(1),* 121-139.

Walker, A. (2006). Aging and politics: An international perspective. In R. H. Binstock, L. K. George, S, J. Cutler, J. Hendricks, & J. H. Schulz, (Eds.), *Handbook of aging and the social sciences* (pp. 339-359). Massachusetts: Academic Press.

Waller, M., & McGuire, A. C. (2011). Changes over time in the" healthy soldier effect". *Population Health Metrics, 9(1),* 1-9.

Walsh, K., O'Shea, E., Scharf, T., & Murray, M. (2012). Ageing in changing community contexts: Cross-border perspectives from rural Ireland and Northern Ireland. *Journal of Rural Studies, 28(4),* 347-357.

Wang, H. X., Xu, W., & Pei, J. J. (2012). Leisure activities, cognition, and dementia. *Biochimica et Biophysica Acta (BBA)-Molecular Basis of Disease, 1822(3),* 482-491.

War Pensions and Armed Forces Compensation Chamber (WPAFCC). (2016). Tribunal procedure (first-tier tribunal) (war pensions and armed forces compensation chamber) rules (December).

Ward, L., Barnes, M., & Gahagan, B. (2012). *Well-being in old age: findings from participatory research*. Brighton. University of Brighton, Age Concern Brighton, Hove and Portslade. (https://www.brighton.ac.uk/_pdf/research/ssparc/wellbeing-in-oldage-full-report.pdf, accessed 1st May 2019)

Waterman, A. S. (1993). Two conceptions of happiness: Contrasts of personal expressiveness (eudaimonia) and hedonic enjoyment. *Journal of personality and social psychology, 64(4),* 678.

Watermeyer, R. (2012). From Engagement to Impact? Articulating the Public Value of Academic Research. *Tertiary Education and Management*, *18(2)*, 115–130.

Watson, A. C., Corrigan, P., Larson, J. E., & Sells, M. (2007). Self-stigma in people with mental illness. *Schizophrenia Bulletin, 33(6),* 1312-1318.

Wearing, B. (1995). Leisure and resistance in an ageing society. *Leisure studies*, *14(4)*, 263-279.

Weir, P. L., Meisner, B. A., & Baker, J. (2010). Successful aging across the years: Does one model fit everyone? *Journal of health psychology*, *15(5)*, 680-687.

Weiss, R. S. (1973). *The experience of emotional and social isolation* (Eds.). Cambridge: MIT Press.

Wen, C., Albert, C., & Von Haaren, C. (2018). The elderly in green spaces: Exploring requirements and preferences concerning nature-based recreation. *Sustainable cities and society*, *38*, 582-593.

Westwood, S. (2018). *Ageing, Diversity and Equality: Social Justice Perspectives* (Eds.). Oxon, UK: Routledge.

White, H. (1980). The value of narrativity in the representation of reality. *Critical Inquiry, 7(1)*, 5-27.

Whittemore, R., Chase, S. K., & Mandle, C. L. (2001). Validity in qualitative research. *Qualitative health research*, *11(4)*, 522-537.

Whittemore, R., Langness, L. L., & Koegel, P. (1986). The life history approach to mental retardation. In *Culture and retardation* (pp. 1-18). Springer, Dordrecht.

Widdershoven, G. A. M., & Smits, M. J. (1996). Ethics and narratives. In R. Josselson (Ed.), *Ethics and process in the narrative study of lives* (pp. 275–287). Thousand Oaks, CA: Sage.

Wight, D., Wimbush, E., Jepson, R., & Doi, L. (2015). Six steps in quality intervention development (6SQuID). *Journal of Epidemiology and Community Health, 70(5),* 520-525.

Wijeyesinghe, C. L., & Jones, S. R. (2014). Intersectionality, identity, and systems of power and inequality. *Intersectionality and higher education: Theory, research, and praxis,* 9-19.

Wiles, J., Morgan, T., Moeke-Maxwell, T., Black, S., Park, H. J., Dewes, O., ... & Gott, M. (2019). Befriending services for culturally diverse older people. *Journal of gerontological social work, 62(7),* 776-793.

Wilkinson, P. J., & Coleman, P. G. (2010). Strong beliefs and coping in old age: A case-based comparison of atheism and religious faith. *Ageing & Society, 30(2),* 337-361.

Williams, K., & Grant, J. (2018). A comparative review of how the policy and procedures to assess research impact evolved in Australia and the UK. *Research Evaluation, 27(2),* 93–105.

Williams, O. (2017). Identifying adverse effects of area-based health policy: an ethnographic study of a deprived neighbourhood in England. *Health & place, 45,* 85–91.

Williams, O., & Gibson, K. (2019). Exercise as a poisoned elixir: inactivity, inequality, and intervention. *Qualitative research in sport, exercise, and health, 10(4),* 412-428.

Williams, R. K., Allen-Collinson, J., Evans, A. B., & Briggs, J. (2018). 'We may be falling apart but we still keep going': retired servicemen's experiences of their ageing bodies. *Qualitative Research in Sport, Exercise and Health, 10(2),* 190-205.

Wilson, G., Hill, M., & Kiernan, M. D. (2018). Loneliness and social isolation of military veterans: systematic narrative review. *Occupational Medicine, 68(9),* 600–609.

Wilson, G., Leslie, C., McGill, G., & Kiernan, M. (2019). Understanding unique factors of social isolation and loneliness of military veterans: A Delphi study. Northumbria University.

Wilson, W. (2007). The Winning Weapon?: Rethinking Nuclear Weapons in Light of Hiroshima. *International Security, 31*(4), 162-179.WPAFCC. (2016). Tribunal procedure (first-tier tribunal) (war pensions and armed forces compensation chamber) rules (December).

Windle, G., Hughes, D., Linck, P., Russell, I., & Woods, B. (2010). Is exercise effective in promoting mental wellbeing in older age? A systematic review. *Aging & Mental Health, 14(6),* 652-669.

Windsor, T. D., Anstey, K. J., & Rodgers, B. (2008). Volunteering and psychological well-being among young-old adults: How much is too much? *The Gerontologist, 48(1),* 59-70.

Winter, R. (2002). Truth or fiction: Problems of validity and authenticity in narratives of action research. *Educational Action Research, 10(1),* 143-154.

Wittels, P., & Mansfield, L. (2021). Weight stigma, fat pedagogy and rediscovering the pleasures of movement: Experiencing physical activity and fatness in a public health weight management programme. *Qualitative Research in Sport, Exercise and Health, 13(2),* 342-359.

Wolcott, H. (1997). Validating Reba: a commentary on "Teaching about validity". *Qualitative Studies in Education, 10(2),* 157-159.

Wong, G., & Breheny, M. (2018). Narrative analysis in health psychology: A guide for analysis. *Health Psychology and Behavioral Medicine*, *6(1),* 245-261.

Woodward, R., & Neil Jenkings, K. (2011). Military Identities in the Situated Accounts of British Military Personnel. *Sociology, 45(2),* 252–268.

World Health Organisation. (1948). *Constitution of the World Health Organisation.* Retrieved from http://apps.who.int/gb/bd/PDF/bd47/EN/constitution-en.pdf?ua=1. Accessed June 2018.

World Health Organisation. (2017). Urban Green Space Interventions and Health – A review of impacts and effectiveness. Retrieved June 2019, from https://www.euro.who.int/__data/assets/pdf_file/0010/337690/FULL-REPORT-for-LLP.pdf

World Health Organization (2010). *Global recommendations on physical activity for health*. Switzerland: WHO Press.

World Health Organization. (2002). Active Ageing-A Policy Framework. A contribution of the World Health Organization to the Second United Nations World Assembly on Ageing. Madrid: WHO.

World Health Organization. (2015). *World Report on Ageing and Health*; WHO: Geneva, Switzerland.

World Health Organization. (2021). *Global Report on Ageism;* WHO: Geneva, Switzerland.

Wright, R. K. (2018). ‘Doing it for Dot’: exploring active ageing sport tourism experiences through the medium of creative analytical practice. *Journal of Sport & Tourism, 22(2),* 93-108.

Wróblewska, M. N. (2021). Research impact evaluation and academic discourse. *Humanities and Social Sciences Communications*, *8(1)*, 58.

Wyles, K. J., Pahl, S., Thomas, K., & Thompson, R. C. (2016). Factors that can undermine the psychological benefits of coastal environments: exploring the effect of tidal state, presence, and type of litter. *Environment and Behavior, 48(9),* 1095-1126.

Yamada, M., Kasagi, F., Mimori, Y., Miyachi, T., Ohshita, T., & Sasaki, H. (2009). Incidence of dementia among atomic-bomb survivors. Radiation Effects Research Foundation Adult Health Study. *Journal of Neurological Sciences, 281*, 11–14.

Yamada, M., Kodama, K., Wong, F. (1991). The long-term psychological sequelae of atomic bomb survivors in Hiroshima and Nagasaki (pp. 155-163). In: Ricks R, Berger ME, O'Hara RM (Eds.), *The medical basis for radiation preparedness III: the psychological perspective*. New York: Elsevier.

Yamada, M., Naito, K., Kasagi, F., Masunari, N., & Suzuki, G. (2005). Prevalence of atherosclerosis in relation to atomic bomb radiation exposure: an RERF Adult Health Study. *International Journal of Radiation Biolology, 81*, 821–826.

Yamasaki, J. (2020). Old friends make the best friends: A counter-narrative of aging for people and pets. *Journal of Aging Studies, 54*, 100873.

Yao, X. (2001). Who is a Confucian today? A critical reflection on the issues concerning Confucian identity in modern times. *Journal of Contemporary Religion, 16(3),* 313-328.

Yen, I. H., Michael, Y. L., & Perdue, L. (2009). Neighborhood environment in studies of health of older adults: a systematic review. *American Journal of Preventive Medicine, 37(5),* 455-463.

Yeung, J. W., Zhang, Z., & Kim, T. Y. (2018). Volunteering and health benefits in general adults: Cumulative effects and forms. *BMC Public Health, 18(1),* 1–8.

Yong, H.-H., Gibson, S. J., de L. Horne, D. J., & Helme, R. D. (2001). Development of a Pain Attitudes Questionnaire to Assess Stoicism and Cautiousness for Possible Age Differences. *The Journals of Gerontology: Series B, 56*(5), 279–284.

Yoo, J. (2017). Writing out on a limb: Integrating the creative and academic writing identity. *New Writing, 14(3),* 444-454.

Young, J. E. (1982). Loneliness, depression, and cognitive therapy: Theory and application. *Loneliness: A sourcebook of current theory, research, and therapy*, 379-406.

Younger, J. B. (1995). The alienation of the sufferer. *Advances in Nursing Science, 17(4),* 53–72.

Ysseldyk, R., Haslam, S. A., & Haslam, C. (2013). Abide with me: religious group identification among older adults promotes health and well-being by maintaining multiple group memberships. *Aging & Mental Health, 17(7),* 869-879.

Zafer-Smith, S. (2021). A sheltered place, a sheltered person? Ordering wellbeing in a time between wars in the northern Galilee. *Anthropology & Medicine, 28(1),* 28-46.

Zamanian, A., & Hardiman, C. (2005). High Frequency Design. *High Frequency Electronics: EMR & HUMAN HEALTH,* 16-26.

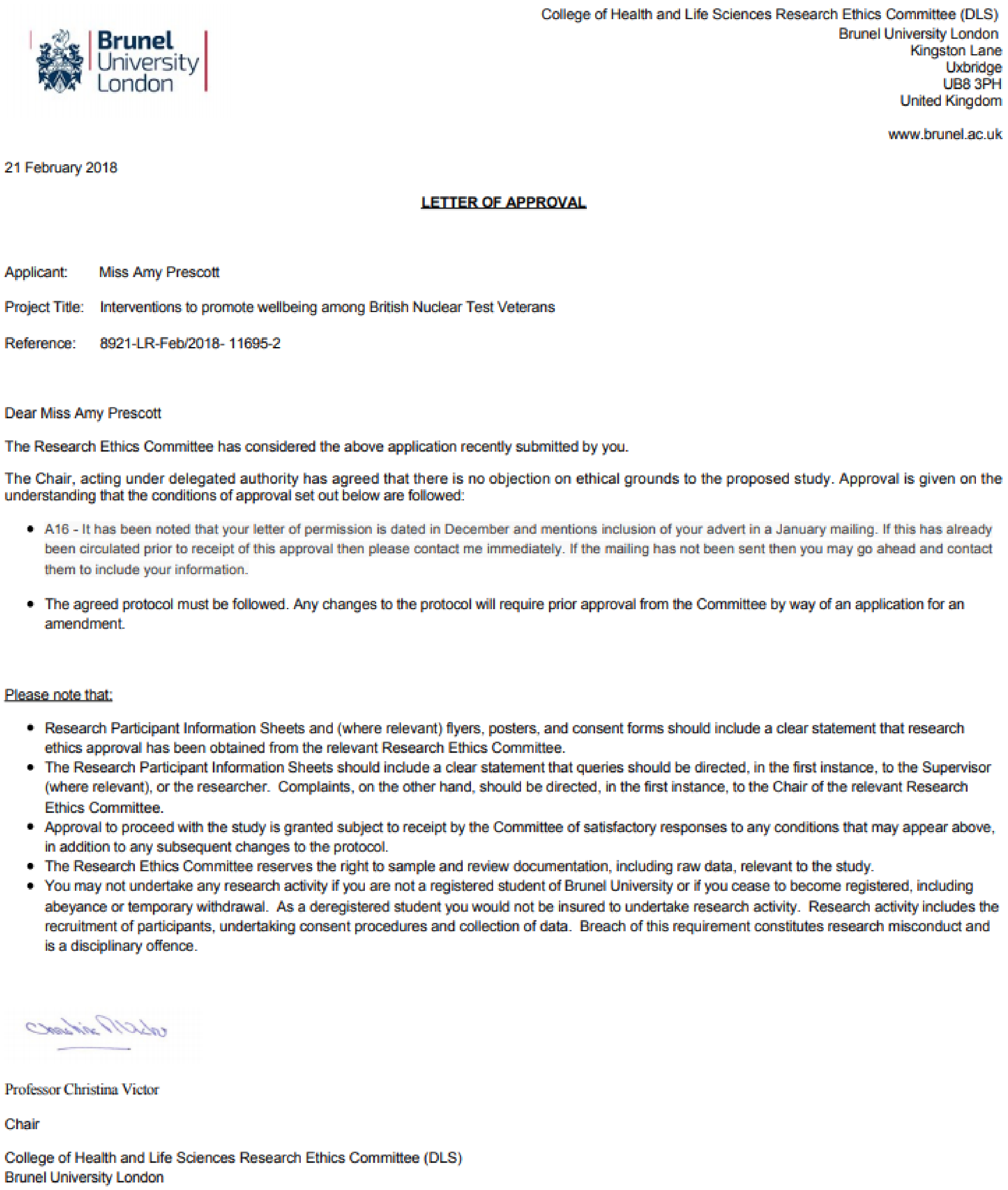
Zammito, J. H. (2004). *A nice derangement of epistemes: Post-positivism in the study of science from Quine to Latour*. University of Chicago Press.

Zeman, E. M. (2000). Biologic basis of radiation oncology. In L.L. Gunderson & J.E. Tepper (Eds.), *Clinical radia-tion oncology* (pp. 1–41). Philadelphia: Churchill Livingstone.

Zimmer, Z., Hickey, T., & Searle, M. S. (1995). Activity participation and well-being among older people with arthritis. *The Gerontologist, 35(4),* 463-471.

Appendices

Appendix 1: Letter of ethical approval (21/02/18)



College of Health and Life Sciences Research Ethics Committee (DLS)
Brunel University London
Kingston Lane
Uxbridge
UB8 3PH
United Kingdom

www.brunel.ac.uk

21 February 2018

LETTER OF APPROVAL

Applicant: Miss Amy Prescott

Project Title: Interventions to promote wellbeing among British Nuclear Test Veterans

Reference: 8921-LR-Feb/2018- 11695-2

Dear Miss Amy Prescott

The Research Ethics Committee has considered the above application recently submitted by you.

The Chair, acting under delegated authority has agreed that there is no objection on ethical grounds to the proposed study. Approval is given on the understanding that the conditions of approval set out below are followed:

- A16 - It has been noted that your letter of permission is dated in December and mentions inclusion of your advert in a January mailing. If this has already been circulated prior to receipt of this approval then please contact me immediately. If the mailing has not been sent then you may go ahead and contact them to include your information.

- The agreed protocol must be followed. Any changes to the protocol will require prior approval from the Committee by way of an application for an amendment.

Please note that:

- Research Participant Information Sheets and (where relevant) flyers, posters, and consent forms should include a clear statement that research ethics approval has been obtained from the relevant Research Ethics Committee.
- The Research Participant Information Sheets should include a clear statement that queries should be directed, in the first instance, to the Supervisor (where relevant), or the researcher. Complaints, on the other hand, should be directed, in the first instance, to the Chair of the relevant Research Ethics Committee.
- Approval to proceed with the study is granted subject to receipt by the Committee of satisfactory responses to any conditions that may appear above, in addition to any subsequent changes to the protocol.
- The Research Ethics Committee reserves the right to sample and review documentation, including raw data, relevant to the study.
- You may not undertake any research activity if you are not a registered student of Brunel University or if you cease to become registered, including abeyance or temporary withdrawal. As a deregistered student you would not be insured to undertake research activity. Research activity includes the recruitment of participants, undertaking consent procedures and collection of data. Breach of this requirement constitutes research misconduct and is a disciplinary offence.

Professor Christina Victor

Chair

College of Health and Life Sciences Research Ethics Committee (DLS)
Brunel University London

Appendix 2: Letter of ethical approval (31/08/18)

College of Health and Life Sciences Research Ethics Committee (DLS)
Brunel University London
Kingston Lane
Uxbridge
UB8 3PH
United Kingdom

www.brunel.ac.uk

31 August 2018

LETTER OF APPROVAL

Applicant: Miss Amy Prescott

Project Title: Community approaches to promote wellbeing among British Nuclear Test Veterans

Reference: 11536-MHR-Aug/2018- 14031-4

Dear Miss Amy Prescott

The Research Ethics Committee has considered the above application recently submitted by you.

The Chair, acting under delegated authority has agreed that there is no objection on ethical grounds to the proposed study. Approval is given on the understanding that the conditions of approval set out below are followed:

- Please submit your second interview guide following the first round of interviews via the amendment tile in BREO, as stated in your correspondence feedback.
- A18 – PIS – In the section 'Why have I been invited to participate?' please add your inclusion criteria re the number of participants you are seeking.
- The agreed protocol must be followed. Any changes to the protocol will require prior approval from the Committee by way of an application for an amendment.

Please note that:

- Research Participant Information Sheets and (where relevant) flyers, posters, and consent forms should include a clear statement that research ethics approval has been obtained from the relevant Research Ethics Committee.
- The Research Participant Information Sheets should include a clear statement that queries should be directed, in the first instance, to the Supervisor (where relevant), or the researcher. Complaints, on the other hand, should be directed, in the first instance, to the Chair of the relevant Research Ethics Committee.
- The Research Ethics Committee reserves the right to sample and review documentation, including raw data, relevant to the study.
- You may not undertake any research activity if you are not a registered student of Brunel University or if you cease to become registered, including abeyance or temporary withdrawal. As a deregistered student you would not be insured to undertake research activity. Research activity includes the recruitment of participants, undertaking consent procedures and collection of data. Breach of this requirement constitutes research misconduct and is a disciplinary offence.

Professor Christina Victor

Chair

College of Health and Life Sciences Research Ethics Committee (DLS)
Brunel University London

Appendix 3: Advertisement/flyer

Brunel University London

NCCF Aged Veterans Fund
Funded by the Chancellor using LIBOR funds

Centre for Health Effects of Radiological and Chemical Agents

"Sport, Culture & Wellbeing: Developing interventions to promote wellbeing among British Nuclear Test Veterans and their families"

Were you actively involved in Great Britain's nuclear testing programme during 1952-1967?

We are looking to speak to people about their role during the British nuclear testing campaign in the Pacific islands and Australia. We want to understand the health and wellbeing of the nuclear community. We then want to explore how culture and sport may help to improve your wellbeing.

If you would like to get involved, please call the CHRC office, situated at Brunel University,

and leave your name and number so the research team can get in touch with you on:

01895266018

Alternatively, you can email Amy Prescott directly:

amy.prescott@brunel.ac.uk

This study is part of a PhD project at Brunel University London and that it has been approved by the College of Health and Life Sciences Research Ethics (Feb/2018) Committee (February 2018).

Appendix 4: Expression of interest form

Sport, culture & wellbeing: Developing interventions to promote wellbeing among British Nuclear Test Veterans and their families

Thank you for expressing an interest in this study. In order to ensure we are recruiting participants effectively for the project, we would be grateful if you could provide us with some details about you.

1. Full Name	
2. Contact number	
3. Email address	
4. Home address	
5. Date of Birth	
6. What is your sex?	☐ Male ☐ Female ☐ Prefer not to say
7. How would you describe your national identity?	☐ English ☐ Welsh ☐ Scottish ☐ Northern Irish ☐ British ☐ Other, please specify ________
8. What is your ethnic group?	**White** ☐ English ☐ Welsh ☐ Scottish ☐ Northern Irish ☐ British ☐ Other, please specify ___________________ **Mixed/multiple ethnic groups:** ☐ White & Black Caribbean ☐ White & Black African

	☐ White & Asian ☐ Other please specify ___________________ **Asian/Asian British:** ☐ Indian ☐ Pakistani ☐ Bangladeshi ☐ Chinese ☐ Other, please specify ___________________ **Black/African/Caribbean/Black British:** ☐ African ☐ Caribbean ☐ Other please specify ___________________ **Other ethnic group:** ☐ Arab ☐ Other, please specify ___________ ☐ Prefer not to say
9. What is your religion?	☐ No religion ☐ Christian (including Church of England, Catholic Protestant and all other Christian denominations) ☐ Buddhist ☐ Hindu ☐ Jewish ☐ Muslim ☐ Sikh ☐ Other, please specify ___________________ ☐ Prefer not to say
10. Are you a member of the BNTVA?	☐ Yes ☐ No
11. Are you a British Nuclear Test Veteran?	☐ Yes ☐ No
12. Are you a descendent of a British Nuclear Test Veteran?	☐ Yes ☐ No
13. If you answered yes to Q12 how are you related to a Nuclear Test Veteran?	☐ Son ☐ Daughter ☐ Grandchild ☐ Great-grandchild ☐ Other, please specify _____________________
14. Have you or your family had any health consequences of being involved in the Nuclear Testing?	☐ Yes ☐ No ☐ Prefer not to say

15. Are you physically active?	☐ Yes ☐ No ☐ Prefer not to say
16. How is your health in general?	☐ Very good ☐ Good ☐ Fair ☐ Bad ☐ Very Bad ☐ Prefer not to say
17. Are your day-to-day activities limited because of a health problem or disability?	☐ Yes, limited a lot ☐ Yes, limited a little ☐ No ☐ Prefer not to say
18. Would you also be willing to speak to the researcher about being a BNTV in a one-to-one interviews?	☐ Yes ☐ No

Appendix 5: Participant information sheet

College of Health and Life Sciences
Life Sciences

Study title

Sport, Culture & Wellbeing: Community approaches to promote wellbeing among British Nuclear Test Veterans and their families.

Invitation paragraph

You are being invited to take part in a research study. Before you decide, it is important for you to understand why the research is being done and what it will involve. Please take time to read the following information carefully and discuss it with others if you wish. Ask me/us if there is anything that is not clear or if you would like more information. Take time to decide whether or not you wish to take part. The possible effects of military service, both good and bad, can affect different parts of a person once this service has ended (e.g. physical and mental health, rational thinking, personal and social life and finances). It is important for research to explore how communities can live well despite experiencing a range of issues. Between 1952 and 1958, the British government conducted 21 atmospheric nuclear bomb tests in Australia on Monte Bello Island, Emu Field and Maralinga, Malden Island and Christmas Island. Despite Ministry of Defence (MOD) claims that the trials were planned with 'meticulous care', Veterans from the UK, Australia and New Zealand have questioned the adequacy of radiological safety standards, resulting in a continuing legal battle on the basis of the health of the Veterans and their families.

What is the purpose of the study?

This study examines wellbeing among the nuclear community to create meaningful and effective methods of improving wellbeing using sport and culture, based upon the research findings.

Why have I been invited to participate?

You have been chosen on the basis that you were involved during the Nuclear Testing era (1952-1958) and were stationed in the Pacific Islands or Australia or another Nuclear Testing site. You may have also been chosen by being a current or former member of the British Nuclear Test Veteran Association. Alternatively, you may have been chosen to participate because you are a direct descendant of a nuclear veteran or a partner of a nuclear veteran.

Do I have to take part?

Involvement is voluntary, if you do decide to take part you will be given this information sheet to keep and be asked to sign a consent form. If you decide to take part, you are still free to leave at any time and without giving a reason. Your participation in one element of the study does not bind you to participating in the rest of the study, should you wish not to. If you decide to take part you are still free to withdraw your data, without giving a reason, until the point at which your data is anonymised. After this point it will no longer be possible to identify your data.

What do I have to do?

The study will require you to be involved for approximately 12 months. In that time, you should expect to be asked to participate in one telephone interview lasting for approximately 30-45 minutes. You will also be asked to participate in up to two face-to-face interviews lasting for approximately 60-90 minutes. You may also be contacted to participate in a focus group which would be expected to last for 2-3 hours. Please ensure to let the researcher know if there are any issues you have with mobility or travel. Please note, travelling expenses will not be available to claim back. You will be asked questions about your involvement during the Nuclear Tests, questions about your health in later years following these tests, and finally how your health and wellbeing are in the present day. All interviews will be recorded; notes may also be taken by the researcher during the interviews. You need to be as open and truthful as you feel you can and it is expected that you will share information appropriate to the study.

What will happen to me if I take part?

You do not need to make any change to your daily life or activities. You will only be required to answers questions by the researcher in an interview-format or engage within a focus group. Although the present study could be considered ‘low risk’, there is the possibility that you may feel uncomfortable or emotional by sharing information relating to the Nuclear Testing and subsequent health/wellbeing issues. The researcher will do their best to help you feel at ease, within a safe and confidential environment. Information will be recorded and used for reporting and publishing.

What are the possible disadvantages and risks of taking part?

While there is no financial benefit to taking part in the study, you will be providing valuable insight and knowledge into understanding wellbeing within the Nuclear Veteran community. The outcome of the research will be a collaboratively designed intervention with the use of sport, culture and/or leisure activities.

What if something goes wrong?

If you are harmed by taking part in this research project, there are no special compensation arrangements. If you are harmed due to someone's negligence, then you may have grounds for a legal action but you may have to pay for it. You will need to contact Professor Christina Victor at christina.victor@brunel.ac.uk.

Will my taking part in this study be kept confidential?

All information which is collected about you during the course of the research will be kept strictly confidential. Any information about you which leaves the University, will have your name and address removed so that you cannot be identified from it.

What will happen to the results of the research study?

The research data will be made anonymous and analysed by the researcher(s) before being reported. The results will be used primarily for a PhD thesis and may be later reported at a conference or in a scientific journal. No uniquely identifiable data be shared. The data will be stored by the lead researcher for a period of at least ten years from completion of the project (subject to any legal, ethical or other requirements by the university). If you take part in this research, you can obtain a copy of the publication by contacting the researcher.

Who is organising and funding this research?

This research has been funded by the Centre for Health Effects of Radiological and Chemical Agents and organized by Brunel University.

What are the indemnity arrangements?

Brunel University London holds insurance policies which apply to this study. If you can demonstrate that you experienced harm as a result of your participation in this study, you may be able to claim compensation. Please contact Prof Peter Hobson, the Chair of the University Research Ethics committee (Peter.hobson@brunel.ac.uk) if you would like further information about the insurance arrangements which apply to this study.

Who has reviewed the study?

This study has been reviewed by the College Research Ethics Committee.

Passage on the University’s commitment to the UK concordat on Research Integrity.

Brunel University is committed to compliance with the Universities UK Research Integrity Concordat. You are entitled to expect the highest level of integrity from our researchers during the course of their research. Further information can be found on the Brunel University London research integrity webpage.

Contact details for further information and complaints

For general information
For further information, please contact the CHRC on 01895266018 or email amy.prescott@brunel.ac.uk.

For complaints and questions about the conduct of the Research

For complaints, please contact Prof Peter Hobson, the Chair of the University Research Ethics committee (Peter.hobson@brunel.ac.uk).

You will be given a copy of this information sheet and a signed consent form to keep. Thank you for taking the time to participate in this study.

Appendix 6: Participant consent form

College of Health and Life Sciences
Department of Life Sciences

Informed consent form

Sport, Culture & Wellbeing: Community approaches to promote wellbeing among British Nuclear Test Veterans and their families

The participant should complete the whole of this sheet	***Please tick the appropriate box***
Have you read the Research Participant information sheet?	☐ Yes ☐ No
Have you had the opportunity to ask questions and discuss this study?	☐ Yes ☐ No
Have you received satisfactory answers to all your questions?	☐ Yes ☐ No
Who have you spoken to? (Please specify a name)	
Do you understand that you will not be referred to by name in any report concerning the study?	☐ Yes ☐ No
Do you understand that you are free to withdraw from the study:	
• At any time	☐ Yes ☐ No
• Without having to give a reason for withdrawing?	☐ Yes ☐ No
I agree to my interview being recorded	☐ Yes ☐ No
I agree to the use of non-attributable (not named) direct quotes when the study is written up or published	☐ Yes ☐ No
Do you agree to take part in this study?	☐ Yes ☐ No
Participant name (in capitals):	Signature: Date:
Researcher name:	Signature:
Supervisor name:	Signature:

Appendix 7: Telephone interview schedule (round 1)

Sport, Culture & Wellbeing: Community approaches to promote wellbeing among British Nuclear Test Veterans and their families

Interview Schedule (telephone interview)

The following schedule is an example for what may be used during the telephone interviews with the participants. This is ‘unstructured’ whereby there are no set questions. The purpose of this interview is to build trust and rapport with the participant, as well as gather background information about their serving history, daily life, and relationship with the nuclear testing. Examples of possible topics that may be explored have been listed below. The face-to-face interview guide will be based on the themes which may emerge through thematic analysis from these telephone interviews.

Thank you for participating in this study about wellbeing within the British Nuclear Test Veteran community. Thank you for taking the time to do a telephone interview today, it should last no longer that 30-45 minutes.

- Introducing the researcher and the purpose of the study
- Verbal consent will be asked for
- Reminder that they can stop the interview at any time and are free to withdraw

Introductory questions will be used (examples include)
- I know we spoke initially regarding the expression of interest form that you kindly completed, but could you please tell me about yourself?
- Who do you live with?
- What is daily life like?

Examples of possible topics to be explored:

<u>(1): Nuclear Testing Experience</u>

1. Armed forces history (Age upon entering, what branch and role)

2. Nuclear testing experience

(2): Health and wellbeing

1. Current health
2. Nuclear testing and health effects – beliefs
3. NHS/GP access

(3): Politics of the BNTVA

1. BNTVA membership
2. Political beliefs

(4): Family

1. Relationships (e.g., marriage)
2. Current living situation

(5): Daily living/activities

1. Activity level and engagement
2. Day-to-day life

Thank you for participating in this telephone interview today. I would just like to ask, is there anything else you would like to add before we finish?

Appendix 8: Risk assessment

University Research Ethics Committee

RESEARCH ETHICS RISK ASSESSMENT AND MANAGEMENT

This form should be used to support the assessment of risks associated with your research project and their mitigation. This must be completed and submitted where relevant within the BREO form.

Prior to completion, if there is any aspect of the risks or risk management process associated with your proposed research that you feel unsure about then it is **your responsibility** (as the researcher) to seek further guidance.

For Completion by the Researcher:

Identified Risks	**Likelihood**	**Potential Impact/Outcome**	**Risk Management/Mitigating Factors**
Identify the risks/hazards present	High/Medium/Low	Who might be harmed and how?	Evaluate the risks and decide on the precautions, e.g., Health & Safety
Travel risks to location of research project: • Road/rail accident • Physical assault	Low	Researcher: • Physical injury • Psychological harm	• Travel with companion (where possible) • Awareness of options for mode of travel

			• · Awareness of physical environment, e.g., alleyways, open spaces • • Researcher to be aware of health and safety policies of research location: ○ Fire bells ○ Location of fire alarms & exit
Discussion of a sensitive topic in an interview has potential to cause distress to participant	Medium-High	Researcher: • Anxiety about dealing with a complex situation	Researcher: • Keeping a reflexive diary • Debriefing with supervisor
Data collection taking place in an unfamiliar location with people not already known to researcher	Researcher: low	Researcher: • Researcher: physical injury or psychological harm	• Telephone interviews will be conducted prior to the face-to-face interviews. This will allow for the participants to be familiar with the researcher and the project itself • A photograph of the researcher will be sent to the participants in advance to reassure them of who is coming to speak to them. • It will not be possible to visit the location prior to the face-to-face interview but an appropriate location will be chosen (e.g. the participant's home or local community centre) • Conducting the interviews in the participant's homes will allow for the feeling of familiarity from the perspective of the participant. The participants are likely to be 75yrs and over, so this must be considered

			• The Researcher will have contact details and means of making timely contact with their supervisor
Working alone/conducting interviews at the participants’ homes	High	• Researcher: Risk of verbal abuse/ assault	• Researcher will keep their mobile phone charged and ready to use. • Although arranged for a time suitable for the participant, these will be conducted (where possible) during daylight hours). • If travelling by car, the car will be parked close to the site of the interview • If the researcher feels uncomfortable at any time during a visit, they will make an excuse and leave (politely). • Knowing where the door is should you need to leave. • Ensuring the researcher is aware of the organisations (if being conducted in a community centre) fire procedures/ know where the building exits are/ ensure building exits are clear before starting work. • The supervisor will be contacted to let them know the interview has started, and will receive another text upon completion. • If the supervisor has not received a message 90 minutes after the interview start time, they will make contact with the researcher to ensure they are well.

Conducting an interview: Organisational hazard, loss of reputation for Brunel University London.	Low	• Brunel University- Poor conduct of researchers can damage the integrity of work at BUL/ lead to complaints/ disciplinary actions.	• Researcher has been trained how to behave when conducting interviews. • The researcher has been trained to respect cultural sensitivities. • Researcher will have received ethical approval prior to data collection • Any and all adverse events must be reported. BUL procedures must be followed.
Any activity being conducted outside	Low/Medium	• Both the researcher and participant may get ill following exposure to cold/ wet weather. Conversely the researcher may also suffer sunburn/ heat stroke following exposure to hot weather conditions.	• Researchers have been trained and advised to dress appropriately for the weather conditions they may encounter. • The researcher will ensure the participants are appropriately dressed for the weather conditions. • If researchers are going to be outdoors for a prolonged period of time they are encouraged to take water/ drinks to keep them hydrated.
Transport of information relevant to the study and participants (e.g. informed consent forms, expression of interest forms and recordings of the interviews)	Data protection issues (medium) Transport Accident (low).	• The student/ researcher. • Participants with personal information on the questionnaire • Drivers and passengers of the transport. Harm ranging from minor injury to death.	• Researcher will not carry more than they can carry. • Researcher will observe data protection guidelines. • Questionnaires/ documentation with personal information are NOT to be left unattended and out where they can be interfered with. • Information will be anonymised/ coded where possible.

			• Drive carefully and safely observing British highway law. • Only use licensed taxi’s, travel with known people (where possible)

Appendix 9: Interview schedule (round 2)

Interview guide for participants

Thank you for your continued participation in this study about health and wellbeing within the British Nuclear Test Veteran community. Thank you for taking the time to meet me OR to take part in another telephone interview today. This should take between/around 60 (telephone) - 90 minutes (face-to-face).

It was interesting to talk to you on [**DATE**], but I thought I would just remind you of:

- The purpose of the study
- Verbal consent will then be asked for
- Reminder that they can stop the interview at any time and are free to withdraw
- If you need a break from the questions, please do let me know, I want you to be as comfortable as possible
- The interview would be audio recorded for the purposes of the research; do you consent for it to be recorded?

During our last phone conversation, we discussed topics such as:

- Armed forces history
- Involvement in the nuclear tests
- The Impact of the nuclear tests on health
- Your family and relationships
- Current health and wellbeing
- Daily life
- Opinions of the British gov't and NHS
- BNTVA membership
- Activities that you engage yourself with on a daily/weekly basis

It was very interesting to discuss these topics and see how the nuclear testing programme has had a continued impact, to an extent, on your lives. What struck me most from you all as a group was a feeling of betrayal from the MoD and British gov't due to their lack of acknowledgement for the British veterans and a general lack of respect. Another point which I hope to explore further with you, is the ageing process and how there appears to be a need to keep busy and active.

For this interview, I would like to discuss 3 key topics:

1. The potential consequences involvement in the nuclear tests: family health, possible health concerns for the future, government attitude and whether the tests have a legacy for those who were part of them.
2. The health and wellbeing issues you shared with me in our phone conversation and the impact these have on your daily life.
3. The activities/hobbies you are involved with (or would like to get involved with), the enjoyment they bring you and why.

Before we start, do you have any questions for me?

Let's begin this conversation by exploring the impact of the nuclear tests.

Legacy of the nuclear tests

- Can you describe how being a nuclear test veteran has shaped your life? What has the impact been on the life of your family? Why?
- During our previous conversation I asked you to describe the experience of witnessing a nuclear test. Aside from this, do you ever think back to the tests you witnessed? When do you tend to think about them? Does it evoke emotion in you to recall the blasts of the bombs?
- Have you ever felt feelings of fear, guilt or shame in relation to being part of the nuclear tests? If yes, can you explain why?
- Has your role in the testing given you a continued feeling of worry? If so, what is it that you worry about?
- When meeting or reuniting with others who were at the tests at the same time as you, have you had to hide your true emotions about the nuclear testing to others? If so, why?
- You were part of a very select group of people who witnessed nuclear testing, do you feel it was a privilege or have you grown to feel it as a punishment? Do you feel 'exploited' by being sent to take part in these tests?
- Do you ever feel as though you can't talk about your experiences and feelings to others, despite wanting to? Do you ever feel isolated because of it?
- The BNTVA is a key group for nuclear test veterans, but do you feel there is a value in being part of the BNTV community? Do you ever speak to anyone in a similar position to you? If not, is this something you would like to do?
- Often the armed forces are accused of recruiting people in the prime of their lives, using them as required and then abandoning them when they are unfit for duty. Would you agree with this statement? If so, can you explain why you think this.
- Has your armed forces experience positively shaped your life? If you joined up voluntarily, are you glad you did it? **OR** If you were sent as part of national service, do you wish you had been assigned to another task? Would you bring national service back?
- We briefly discussed the attitude of the gov't and MoD during our last conversation, do you feel as though you have been betrayed by the armed forces and /or the government? Can you explain why you feel this way. What do you think the British gov't should do for the BNTV's?

Thank you for answering these questions on the nuclear tests. Let's move onto the topic of ageing. If you need a break, please let me know.

Ageing

- How would you describe your current health? How would you describe your mental health and wellbeing? How has your health been since we last spoke?
- As an older person, how important is it to be independent? How do you maintain this independence?
- Can you describe to be how has your body has changed over time? How has it felt to witness these changes? Do you think there is a fear of ageing? If so, why?
- What does it mean to age well to you?

- Have advances in technology (the use of computers, the internet, mobile phones etc.) helped you? Have these advances been daunting to you? Everyday tasks, such as banking, have moved to being conducted online – has this been difficult to adapt to?
- As an older person, how do you feel you are treated by society as a whole?
- Do you feel older people are portrayed negatively by the media?
- Recently there was debate about a House of Lords report regarding the removal of free TV licenses, winter fuel allowance and free bus passes in order to help younger people economically. What are your feelings about this?
- Do you have enough support as an older person? If no, what would you like to help you? Do you have much help from members of your family?
- Do you feel valued as an older person? Can you explain to me why you feel this way?
- Do you ever experience feelings of loneliness or isolation? Can you describe how that feels?
- Are there certain traditions or activities which you feel have been lost on the younger generations? Why is this?
- How do you think being a nuclear test veteran makes you different to other people of a similar age? Do you consider yourself different to those of a similar age to you?

Thank you for answering my questions around ageing, I'd now like to move onto the final topic for this interview which is going to explore activities/hobbies you enjoy to do. As this study is looking to understand your health and wellbeing as a BNTV, I'd like to know more about the activities you are involved with and why. Ultimately, I would like to understand what value these activities have for your wellbeing. Are you comfortable to continue?

Activities for health & wellbeing

- What are your activity levels like on a daily basis? Would you like to do more if you could?
- Do the health issues you've described prevent you from taking part in certain activities or do they inspire you to continue moving and being active?
- As you have aged, have your interests and hobbies changed? How so?

(**LINK TO INDIVIDUAL QUESTIONS BELOW**)

- You've told me that you enjoy ________, how long have you been involved with that? Do you have any other specific hobbies and pastimes? Why do these activities bring you enjoyment? In what way do you think these activities makes your life better?
- Is there a need to stay active to reduce the presumed side-effects of getting older?
- How would it impact you if you couldn't take part in these activities anymore? Why?
- Would you like to have the opportunity to be more sociable?
- Have you got access to green spaces (e.g. parks/common land) in your local area? Do you use them? How important is it to have these for people to access?
- Does your local community offer activities for older people to get involved with? Are you interested in becoming more involved with your local community? Have you considered joining in with them?
- Can it be intimidating as an older person to join in with new activities? How important to you is it to be sociable?
- What do you feel is needed to improve your health and wellbeing?

- Do you think there would be value in activities designed specifically for the BNTV community without association with the BNTVA? Why?
- Are there activities or hobbies you would like to try? What has stopped you getting involved with them?
- What is the value/reward in volunteering or working in your community? Why?
-

Before we finish, I would just like to ask if you have any questions for me? I would like to take this opportunity to thank you for your continued participation in this study, it is valued and appreciated. It is likely that there will be a final follow-up phone call in September regarding what we have discussed today. Is this something you would be comfortable to do? If you have any questions once I have left, please call the CHRC or you can of course email me using the contact details on your information sheet.

Specific participant questions – (1) Mandy (face-to-face)

- Last time you suggested that wellbeing in the forces is poor, can you go into a bit of detail about this?
- Do you think that your husband's role in the RAF had a lasting impact on his mental health?
- What activities/hobbies did your husband enjoy to do before he became ill?
- What was the impact on you as a carer for your husband?
- Has caring for your husband had a lasting impact on you presently?
- How has life been since your husband passed away?
- Can you describe to me how being a widow has affected you?
- What is your living situation now? The last time we spoke you mentioned you were having difficulty with the landlord of the property.
- Do you feel financially stable? Have you requested more help from social care services or the government?

Specific participant questions – (2) Marvin (phone)

- How has having prostate cancer impacted your daily life and health?
- You mentioned that you had COPD and use an inhaler if you become anxious – how often do you feel anxious? Have you ever been diagnosed with anxiety?
- You spoke about the Minister of War admitting there was an element of risk for those witnessing the tests – how does it make you feel to know your life was possibly put at risk for the gov't?
- How important is it to you to be active and mobile?
- Is your daughter still living with you?
- How has life been since your wife passed away?
- Can you describe to me how being a widower has affected you?
- How important is being a Freemason to you? Why?

Specific participant questions – (3) Jerry (face-to-face).

- You mentioned that your wife experienced several miscarriages and your daughter had no enamel on her baby teeth – are these things you have attributed to the tests?
- How is daily life impacted by your back problems?
- Do you feel your back issues are due to being present at the tests?
- Do you feel that you were misled with your involvement in the tests; do you feel you were put in harm's way?
- Have your children experienced any poor health which you think the tests are responsible for?
- Do you have any hobbies/interests?
- I know you mentioned your back issues, does this severely impact your ability to be active?
- Do you think you could become more involved with your local community?

Specific participant questions – (4) Jeremy (face-to-face)

- You described yourself as 'lucky' due to not experiencing many health worries unlike others who were also at the tests – does this ever make you feel 'guilty'?
- You also mentioned that you were waiting for something to happen to you or your children, is this a daily worry?
- What was the impact on you as a carer for your wife?
- Has caring for your wife had a lasting impact on you?
- How was life when your first wife passed away?
- I know that you have since remarried but can you describe to me how being a widower affected you?
- You told me that you enjoy to go dancing – what is it that you enjoy about it?
- How important to you is staying active and mobile?
- You also mentioned you enjoyed cooking, why is that?
- You told me that you now enjoy life, what changed for you to allow you to feel this way?
- Do you do any volunteer work within the community – is that something that might interest you?

Specific participant questions – (5) Bernard (face-to-face)

- You mentioned that you had experienced 71 incidences of skin cancer – does this worry you? Do you ever worry it could transpire into something else?
- Are you close with all of your children?
- What impact did it have on you to lose your son?
- You said you had been married twice, did your first marriage end in divorce?
- Do you believe that all of the health issues with your children/grandchildren are attributed to your time on Christmas Island?
- You mentioned that you liked to help people feel less anxious about skin cancer, have you ever considered doing something like that in a community role?
- How important is for you to remain active and independent?
- You mentioned you enjoyed to cook and bake – what benefit does this have for you?
- How important is it to be sociable?
- What do you enjoy about line dancing? Physically, mentally and socially?

Specific participant questions – (6) David (Phone)

- When we last spoke you told me about your mother leaving you and subsequently being told that she had died as a child– how did this impact you growing up?
- How did it feel to then be reunited with her?
- What made you want to move to Canada? Why were the prospects better there?
- How did it feel to get a divorce?
- Why do you think you didn't want to continue serving in the Navy after 2 years?
- Did you attribute your daughter's miscarriages to Christmas Island?
- Would you like to see more of your children and grandchildren?
- Does your age ever hold you back from doing what you want to do?
- How important is it to be active?
- What makes you want to do volunteer work in your community? What benefits do you get from it physically, mentally and socially?
- How important is religion to you? What benefit is there to being involved with the church?

Specific participant questions – (7) Philip (phone)

- You mentioned that you haven’t been able to walk for 4 years – how did this occur?
- How has this impacted your mental health?
- How does having such a high dependency on your wife feel?
- Is there anything you would like to be able to do?
- What do you do on a daily basis? Can you give me an example of a typical day?

Specific participant questions – (8) Malcolm (phone)

- You said you had been married for 65 years – what’s the secret to a successful marriage?
- How important is marriage and companionship when you’re an older person?
- What made the tests so terrifying to witness?
- You mentioned your daughter had breast cancer – how is she doing now?
- You mentioned that you were waiting to go back into hospital, how has that been since we last spoke?
- How is your hip and knee currently?
- How does it feel to delegate certain jobs to others when you are not physically able to do them?
- You said you enjoyed gardening, what is it about gardening that gives you pleasure?
- You said that if you don’t fight you can be ill, is that something you’re afraid of?
- Last time we spoke you told me about the young man you buried at sea – is that something that has stayed with you all these years? What impact has it had?
- You told me about the miscarriage you and your wife went through, what impact has that had on you?
- What impact has worrying about the effect of radiation had on you overall?

Specific participant questions – (9) Jim (face-to-face)

- The BNTVA tends to focus on the tests which took place on Christmas Island – as someone who was at Maralinga, how does that feel?
- You mentioned that you developed heart disease at a young age, have you considered it to be down to lifestyle rather than witnessing nuclear tests?
- You told me that you worked for a charity in a volunteer position, what benefit do you think this has for you?
- Do you think more people so volunteer their time for the community?
- How would you rate your activity levels?
- Do you think there is anything else you could do to improve your health or fitness levels?
- You mentioned that you were working the Southampton Uni. – are you still doing this?

Specific participant questions – (10) Paul (Face-to-face)

- You had a long career in the RAF, spanning 22 years, what was it that made you stay in for so long?
- How have your headaches been since we last spoke?
- You had a dangerous electric shock of 37,000 volts – would you consider that a near death experience? Has that had a lasting impact on you?
- How has your heart condition been since we last spoke?
- Your heart condition causes issues such as chest pain, headaches and risk of fainting and falls – is it difficult to manage?
- How does this heart condition impact daily life?
- You mentioned that physical activity is restricted because of your heart condition, has that been difficult to accept?
- Have you considered engaging with voluntary work in the local community?
- You spoke last time of the possible radiation effects on your grandchildren, is this something that worries you?
- You told me you were writing a life story – how is that going?

Specific participant questions – (11) Earl (Phone)

- When we last spoke you mentioned that you had heart disease and underwent a triple by-pass operation - how has your health been since then?
- You also attributed this to your lifestyle – can you go into more detail about that?
- You mentioned you had been married twice, did these both end in divorce?
- How have you found single life as an older person?
- Would you have liked to have had children?
- You said that you walk your dog 3 times a day, apart from the scenery of where you live, what other benefits do you think come from being active?
- Do you do anything else to stay active – mentally and physically?
- You mentioned that you socialized with former colleagues – how regularly do you meet up?
- Have you considered volunteering or doing some work in the local community?

Specific participant questions – (12) Henry (phone)

- Do you feel any bitterness towards the gov't for sending you to Christmas Island while on national service – do you think there would be difference if you had voluntarily signed up for the forces?
- How did life change after your prostate cancer diagnosis?
- You mentioned that you were challenging the MoD on the basis of your cancer diagnosis – have you heard anything back from them?
- Do you think that worrying about radiation effects on your children and grandchildren has had a lasting impact on you?
- How has it felt as an older person to rely on your family more for help? Are they very supportive of you and your wife?
- You mentioned before that you enjoy reading as a pastime – why is that? What impact does it have on you?
- Is there anything that you would like to get involved with if you had the opportunity? Is there anything in the local community that might be of interest to you?

Specific participant questions – (13) Matthew (face-to-face)

- What is your opinion on the British armed forces?
- Last time we spoke you mentioned that your wife was unwell, how is she doing now?
- You told me that you were still working 2 days a week, is that still the case?
- If so, does the prospect of fully retiring scare you? Why?
- What do you think the impact of retirement is?
- Is being self-sufficient and independent important to you?
- You mentioned that you go to the gym with your son, are you still doing that? What benefit do you think this has?
- Your cat was unwell when we last spoke, is your cat better now?
- Do you find it difficult or emotional to talk about the possible consequences of the nuclear testing?
- Last time we spoke you questioned why your health was seemingly OK yet others suffered – do you think this could be considered survivor guilt?

Specific participant questions – (14) Muriel (face-to-face)

- You mentioned last time that your husband had a dependency on alcohol, as a wife how did that impact you?
- What hobbies and pastimes did you husband enjoy? Did he have any physical activity preferences?
- Do you think these had a positive effect on his health and wellbeing prior to his diagnosis?
- How difficult was it to deal with your husband's cancer diagnosis?
- Has caring for your husband had a lasting impact on you?
- How has life been since your husband passed away?
- Can you describe to me how being a widow has affected you?
- Have you considered the prospect of getting involved in another relationship?
- You are involved in a lot of activities during the week, why do you keep yourself so busy?
- You also mentioned you were still working – how has that been going since we spoke?

Specific participant questions – (15/16) Percy & Judy (face-to-face)

Wife

- What made you decide to join the BNTVA?
- You are both involved in a lot of activities during the week, why do you keep yourselves so busy?
- As an older person, how important is it to keep busy and active? Why?
- How important is the church/religion to you both?

Husband

- How would you say your health is currently?
- What made you decide to stay in the forces after completing national service?
- You mentioned your son was born 12 weeks premature, do you attribute this to the nuclear testing?
- Do you ever worry about the possible consequences of being involved with the nuclear tests?
- Do you think the nuclear tests were vital to keep the country safe from nuclear war?

Specific participant questions – (17) Phil (face-to-face)

- You mentioned that you felt ‘exploited’ by being sent to Christmas Island – how does it feel to live with such a strong feeling?
- How difficult was it to deal with your wife’s passing?
- How has life been since your wife passed away?
- Can you describe to me how being a widower has affected you?
- In the 10 years since your wife’s passing, did you ever consider the prospect of getting involved in another relationship?
- How important is having autonomy and independence as an older person?
- You told me about your weekly routine the last time we spoke, how important is that to you? Why do you think you have such a regular routine?
- Do you have any physical activities or exercise-related activity that you engage with?

Specific participant questions – (18) Sam (face-to-face)

- Do you think that life might have been different if you had witnessed the tests at Christmas Island?
- You said before that you considered yourself to be ‘lucky’ – can you expand on that?
- One of your pastimes is embroidery – what is it about that that you enjoy the most? What does it allow you to do?
- How difficult was it to deal with your wife’s cancer diagnosis?
- Has caring for your wife had a lasting impact on you?
- How has life been since your wife passed away?
- Did you write that letter to Mr. Gove?
- Can you describe to me how being a widower has affected you?
-

Specific participant questions – (19) Ike (face-to-face)

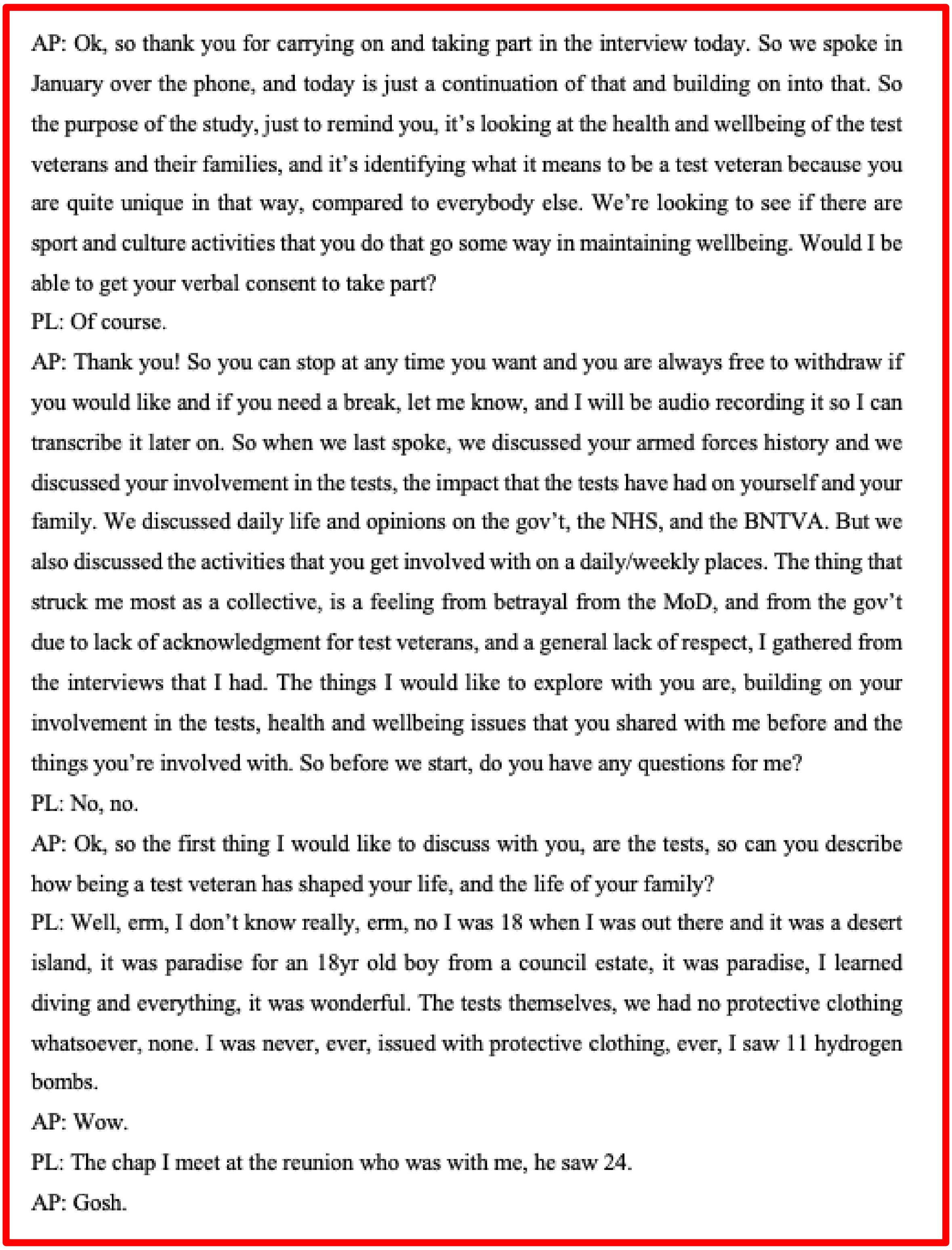
- Why do you think participating in the Good neighbours scheme is important to you?
- Do you think more should be done to help older people within society?
- Gardening – what aspects do you enjoy most?
- How has your heart been since your operation just before Christmas?
- Are you still playing boules? How does it make you feel to play – despite calling it an ‘old man’s game’?
- How does it feel to have your travel insurance denied due to your health conditions?
- Is there anything you feel limited to doing? Would you like to be able to do more?

Specific participant questions – (20) Gladys (Face-to-face)

- What hobbies and pastimes did you husband enjoy? Did he have any physical activity preferences?
- Do you think these had a positive effect on his health and wellbeing prior to his diagnosis?
- How difficult was it to deal with your husband’s cancer diagnosis?
- Has caring for your husband had a lasting impact on you?
- How has life been since your husband passed away?
- Can you describe to me how being a widow has affected you?
- Last time we spoke about your trips abroad, what is it about going abroad alone that you enjoy? How was your recent trip to Egypt?
- You spoke about being involved with University of 3rd Age – can you tell me what you enjoy about it? How much of your time does it take up?
- You mentioned that living where you do limits your access to getting to appointments, have you found a way to get to where you need to be?
- You mentioned that you were looking to sell your house – is this still something you’re looking to do?

Appendix 10: Narrative analysis process

Immersion underpins this analysis begins by transcribing each interview. Becoming immersed within the worlds and stories of the participants was critical and required the researcher to connect with each participants' story. This immersion began during the transcription process



AP: Ok, so thank you for carrying on and taking part in the interview today. So we spoke in January over the phone, and today is just a continuation of that and building on into that. So the purpose of the study, just to remind you, it's looking at the health and wellbeing of the test veterans and their families, and it's identifying what it means to be a test veteran because you are quite unique in that way, compared to everybody else. We're looking to see if there are sport and culture activities that you do that go some way in maintaining wellbeing. Would I be able to get your verbal consent to take part?

PL: Of course.

AP: Thank you! So you can stop at any time you want and you are always free to withdraw if you would like and if you need a break, let me know, and I will be audio recording it so I can transcribe it later on. So when we last spoke, we discussed your armed forces history and we discussed your involvement in the tests, the impact that the tests have had on yourself and your family. We discussed daily life and opinions on the gov't, the NHS, and the BNTVA. But we also discussed the activities that you get involved with on a daily/weekly places. The thing that struck me most as a collective, is a feeling from betrayal from the MoD, and from the gov't due to lack of acknowledgment for test veterans, and a general lack of respect, I gathered from the interviews that I had. The things I would like to explore with you are, building on your involvement in the tests, health and wellbeing issues that you shared with me before and the things you're involved with. So before we start, do you have any questions for me?

PL: No, no.

AP: Ok, so the first thing I would like to discuss with you, are the tests, so can you describe how being a test veteran has shaped your life, and the life of your family?

PL: Well, erm, I don't know really, erm, no I was 18 when I was out there and it was a desert island, it was paradise for an 18yr old boy from a council estate, it was paradise, I learned diving and everything, it was wonderful. The tests themselves, we had no protective clothing whatsoever, none. I was never, ever, issued with protective clothing, ever, I saw 11 hydrogen bombs.

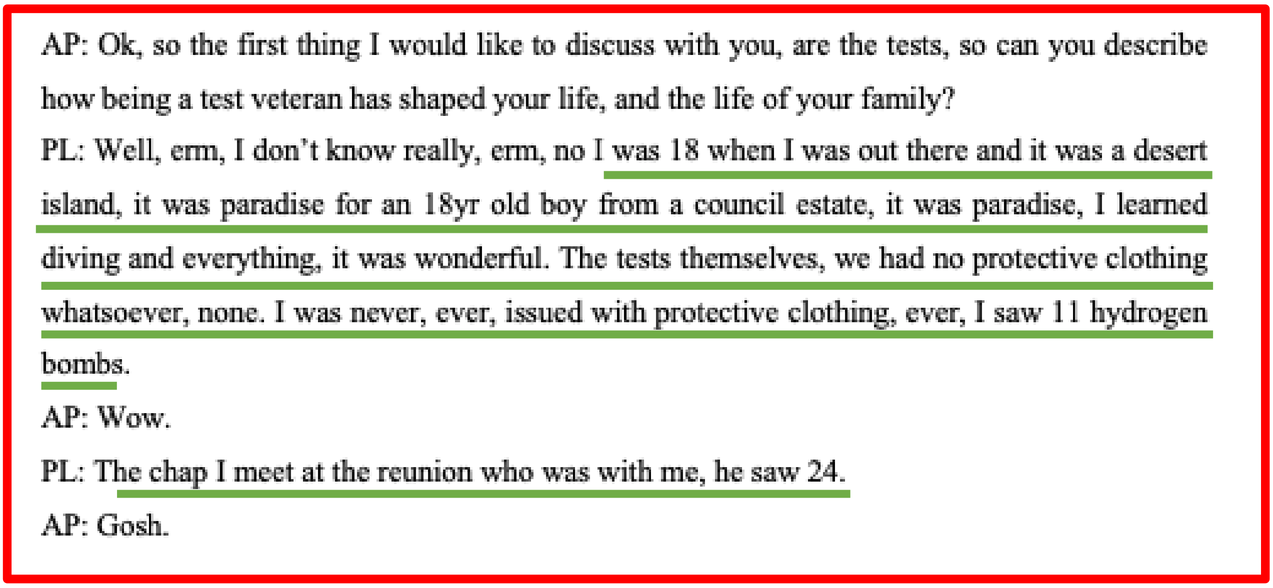
AP: Wow.

PL: The chap I meet at the reunion who was with me, he saw 24.

AP: Gosh.

(± 10-12 hours per audio file). This is a time-consuming but essential part of the analysis. The interviews were listened to four times to enhance the familiarity with the data

Life history scrutiny and identifying key stories: the significant life events, contextual features (e.g., norms and values), the embodied nature of the participant (e.g., personal goals and concerns), the influence of significant others, the choices and actions they have made over their life course, historical continuity and temporal sequencing (beginning, middle and end) were all scrutinised. To achieve this, the transcripts were re-read, and significant portions of the text were highlighted. After scrutinising the life events, it became evident that the transcripts were brimming with ‘big stories’, ‘small stories’, shared experiences and exceptional life events. Each were colour-coded accordingly (e.g., stories of loss, embodiment of witnessing the nuclear explosions, ageing process).



AP: Ok, so the first thing I would like to discuss with you, are the tests, so can you describe how being a test veteran has shaped your life, and the life of your family?

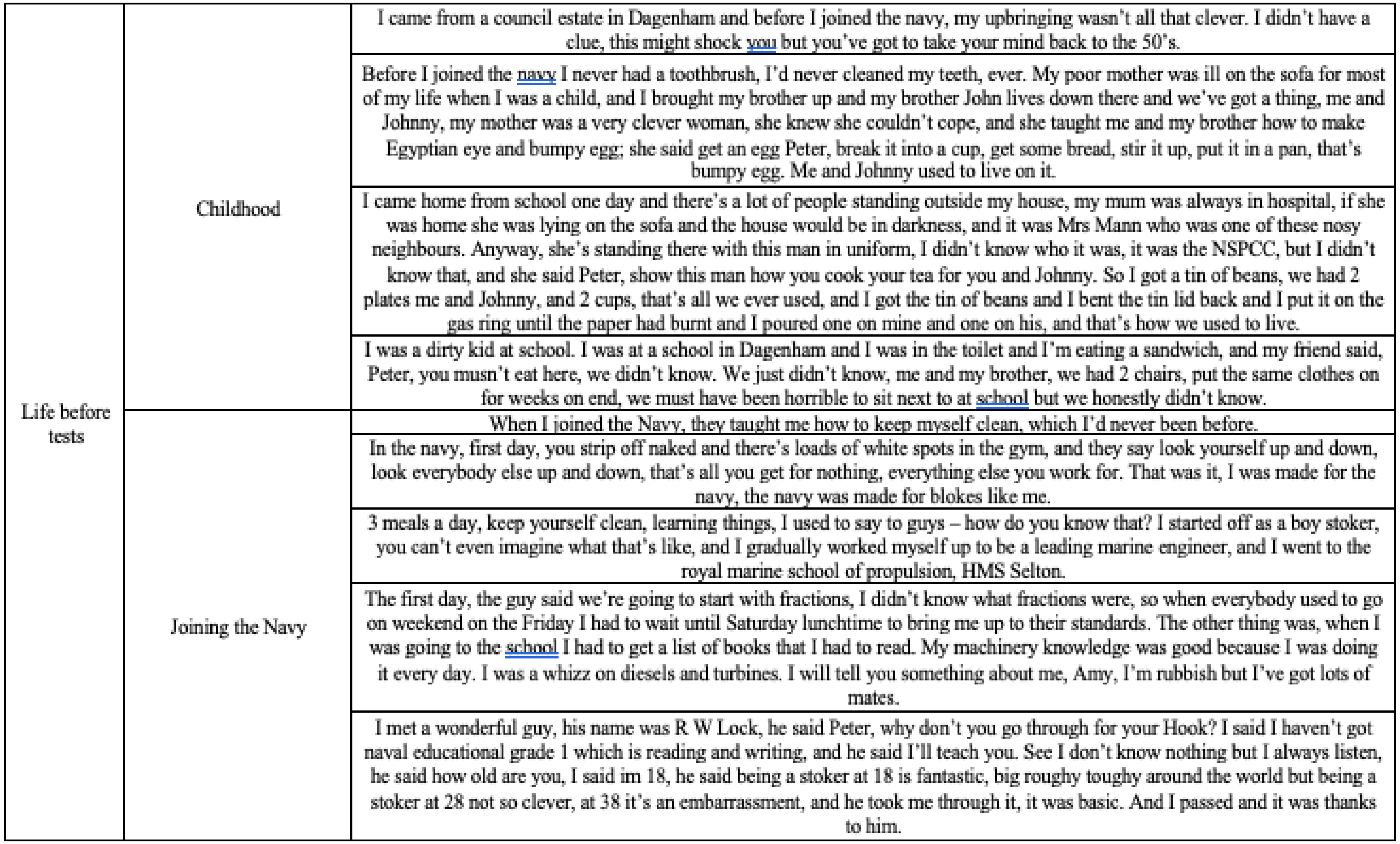
PL: Well, erm, I don’t know really, erm, no I was 18 when I was out there and it was a desert island, it was paradise for an 18yr old boy from a council estate, it was paradise, I learned diving and everything, it was wonderful. The tests themselves, we had no protective clothing whatsoever, none. I was never, ever, issued with protective clothing, ever, I saw 11 hydrogen bombs.

AP: Wow.

PL: The chap I meet at the reunion who was with me, he saw 24.

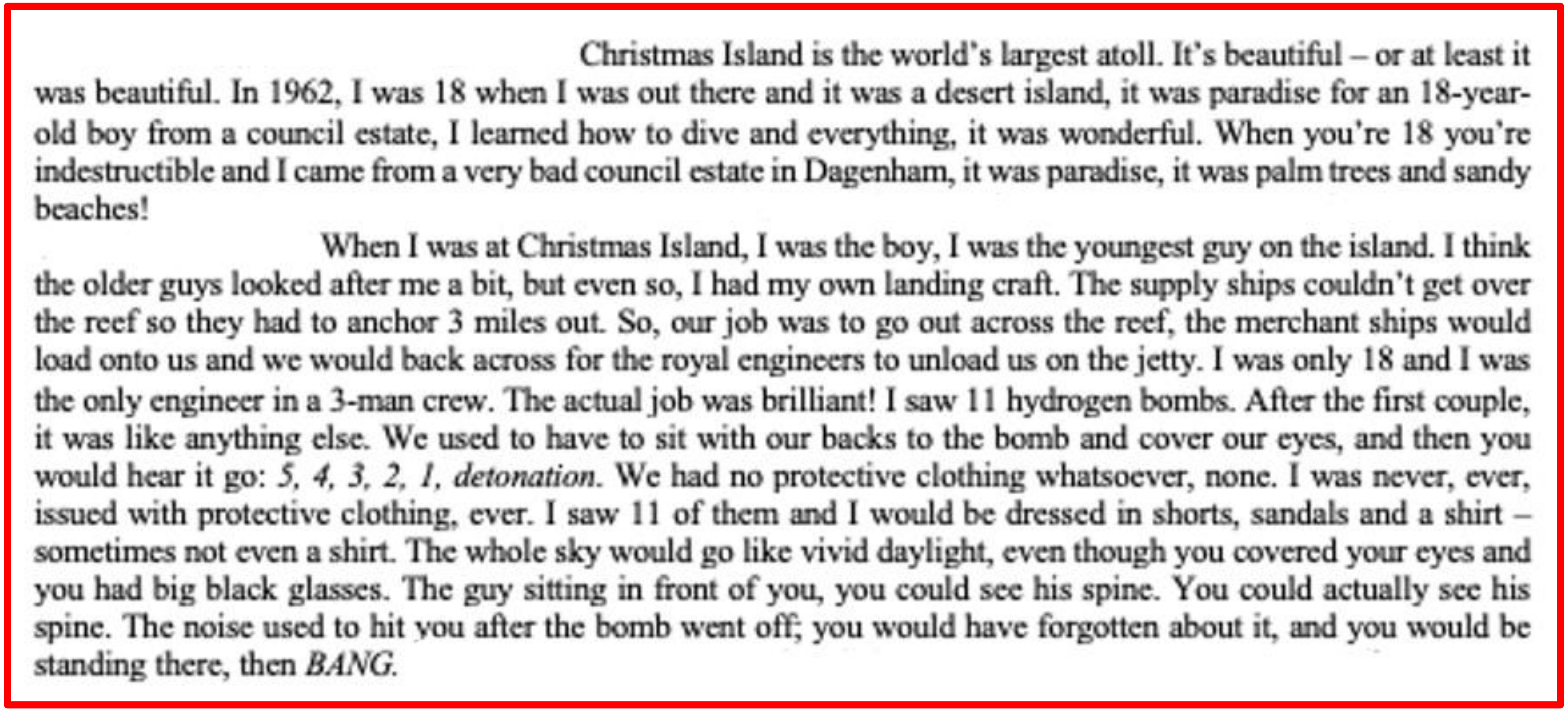
AP: Gosh.

Chronological ordering: creating a temporal framework so key stories can be placed in chronological order. A story requires the data to be organised within a chronological order with a beginning, middle and end (Polkinghorne 1995; Riessman 1993; Seidman 1991). A template was developed using headings of ‘before nuclear test involvement’, ‘during nuclear test involvement’, and ‘after nuclear test involvement’. The events highlighted in stage two were then placed under the applicable headings to ensure they were in chronological order. By the end of this stage, the modified transcript consisted of the text, the researcher’s comments, and events. For this study, a template was made to organise the transcript. The time markers used were life before the tests, life during the tests, and life after the tests**.**



Life before tests	Childhood	I came from a council estate in Dagenham and before I joined the navy, my upbringing wasn't all that clever. I didn't have a clue, this might shock you but you've got to take your mind back to the 50's.
		Before I joined the navy I never had a toothbrush, I'd never cleaned my teeth, ever. My poor mother was ill on the sofa for most of my life when I was a child, and I brought my brother up and my brother John lives down there and we've got a thing, me and Johnny, my mother was a very clever woman, she knew she couldn't cope, and she taught me and my brother how to make Egyptian eye and bumpy egg; she said get an egg Peter, break it into a cup, get some bread, stir it up, put it in a pan, that's bumpy egg. Me and Johnny used to live on it.
		I came home from school one day and there's a lot of people standing outside my house, my mum was always in hospital, if she was home she was lying on the sofa and the house would be in darkness, and it was Mrs Mann who was one of these nosy neighbours. Anyway, she's standing there with this man in uniform, I didn't know who it was, it was the NSPCC, but I didn't know that, and she said Peter, show this man how you cook your tea for you and Johnny. So I got a tin of beans, we had 2 plates me and Johnny, and 2 cups, that's all we ever used, and I got the tin of beans and I bent the tin lid back and I put it on the gas ring until the paper had burnt and I poured one on mine and one on his, and that's how we used to live.
		I was a dirty kid at school. I was at a school in Dagenham and I was in the toilet and I'm eating a sandwich, and my friend said, Peter, you musn't eat here, we didn't know. We just didn't know, me and my brother, we had 2 chairs, put the same clothes on for weeks on end, we must have been horrible to sit next to at school but we honestly didn't know.
	Joining the Navy	When I joined the Navy, they taught me how to keep myself clean, which I'd never been before.
		In the navy, first day, you strip off naked and there's loads of white spots in the gym, and they say look yourself up and down, look everybody else up and down, that's all you get for nothing, everything else you work for. That was it, I was made for the navy, the navy was made for blokes like me.
		3 meals a day, keep yourself clean, learning things, I used to say to guys – how do you know that? I started off as a boy stoker, you can't even imagine what that's like, and I gradually worked myself up to be a leading marine engineer, and I went to the royal marine school of propulsion, HMS Selton.
		The first day, the guy said we're going to start with fractions, I didn't know what fractions were, so when everybody used to go on weekend on the Friday I had to wait until Saturday lunchtime to bring me up to their standards. The other thing was, when I was going to the school I had to get a list of books that I had to read. My machinery knowledge was good because I was doing it every day. I was a whizz on diesels and turbines. I will tell you something about me, Amy, I'm rubbish but I've got lots of mates.
		I met a wonderful guy, his name was R W Lock, he said Peter, why don't you go through for your Hook? I said I haven't got naval educational grade 1 which is reading and writing, and he said I'll teach you. See I don't know nothing but I always listen, he said how old are you, I said im 18, he said being a stoker at 18 is fantastic, big roughy toughy around the world but being a stoker at 28 not so clever, at 38 it's an embarrassment, and he took me through it, it was basic. And I passed and it was thanks to him.

Core story creation and plot structuring: Following Emden's (1998) procedure, each participant had a core story using the chronological arrangements undertaken during step 3. This included deleting all questions and subsequent comments spoken by the researcher, and words that detract from the flow of the sentence by the participant. By completion of stage five, each core story was approximately a quarter of the length of the full transcript, was in the words exclusively of the participants and formed a monologue detailing life before, during and after involvement in the nuclear testing programme.



Christmas Island is the world's largest atoll. It's beautiful – or at least it was beautiful. In 1962, I was 18 when I was out there and it was a desert island, it was paradise for an 18-year-old boy from a council estate, I learned how to dive and everything, it was wonderful. When you're 18 you're indestructible and I came from a very bad council estate in Dagenham, it was paradise, it was palm trees and sandy beaches!

When I was at Christmas Island, I was the boy, I was the youngest guy on the island. I think the older guys looked after me a bit, but even so, I had my own landing craft. The supply ships couldn't get over the reef so they had to anchor 3 miles out. So, our job was to go out across the reef, the merchant ships would load onto us and we would back across for the royal engineers to unload us on the jetty. I was only 18 and I was the only engineer in a 3-man crew. The actual job was brilliant! I saw 11 hydrogen bombs. After the first couple, it was like anything else. We used to have to sit with our backs to the bomb and cover our eyes, and then you would hear it go: *5, 4, 3, 2, 1, detonation*. We had no protective clothing whatsoever, none. I was never, ever, issued with protective clothing, ever. I saw 11 of them and I would be dressed in shorts, sandals and a shirt – sometimes not even a shirt. The whole sky would go like vivid daylight, even though you covered your eyes and you had big black glasses. The guy sitting in front of you, you could see his spine. You could actually see his spine. The noise used to hit you after the bomb went off; you would have forgotten about it, and you would be standing there, then *BANG*.

Emplotted whole narrative: The finished monologue is read for flow, plot, character creation and focus of specific events. By the end of this stage, nineteen whole narratives (in the form of stories/monologues) were created. These were shortened to sharpen the focus of important events.

Phil's Story

I came from a council estate in Dagenham and before I joined the navy, my upbringing wasn't all that clever. I didn't have a clue; this might shock you but you've got to take your mind back to the 50's. I was a dirty kid at school. I was at school and I was in the toilet and I'm eating a sandwich, and my friend said, "*Phil, you mustn't eat here,*" we just didn't know. Me and my brother, we used to put the same clothes on for weeks on end; we must have been horrible to sit next to at school but we honestly didn't know. My poor mother was ill on the sofa for most of my life when I was a child; I brought my brother up, Jimmy lives down the road there. My mother was a very clever woman, she knew she couldn't cope, and she taught me and my brother how to make Egyptian eye and bumpy egg. She said, "*get an egg, Phil, break it into a cup, get some bread, stir it up, put it in a pan, that's bumpy egg*". Me and Jimmy used to live on it. I came home from school one day and there were a lot of people standing outside my house. My mum was always in hospital, or if she was home she was lying on the sofa and the house would be in darkness. Mrs Mann, one of these nosy neighbours, was standing there with this man in uniform, it was the NSPCC, but I didn't know that. Mrs. Mann said, "*Phil, show this man how you cook your tea for you and Jimmy.*" So I got a tin of beans, we had 2 plates, me and Jimmy, and 2 cups, that's all we ever used, and I got the tin of beans and I bent the tin lid back and I put it on the gas ring until the paper had burnt and I poured one on mine and one on his, and that's how we used to live. Before I joined the navy I never had a toothbrush, I'd never cleaned my teeth, ever; they taught me how to keep myself clean, which I'd never been before.

In the navy, on your first day, you strip off naked and they say, "*look yourself up and down, look everybody else up and down, that's all you get for nothing, everything else you work for.*" That was it, I was made for the navy, and the navy was made for blokes like me. I was 16 years old and the first watch I ever kept, I got in my hammock after and couldn't get out, I just seized up and I've got to go back down there again, you can't imagine. So I was a stoker and stokers drink, and they fight and they swear and they're all covered in tattoos and silly nonsense like that. I don't like alcohol, I tried it, I tried to like it. It's the same as smoking a pipe, smoke a pipe to give you time to think, I bought myself a Peterson which is a very expensive pipe which is like a Sherlock Holmes jobby, bought myself some tobacco, I used to smoke more matches, I could never light the bloody thing and all the spit! It's rubbish. You get 3 meals a day, keep yourself clean, learning things, I used to say to guys – "*how do you know that?*" I started off as a boy stoker, you can't even imagine what that's like, and I gradually worked myself up to be a leading marine engineer, and I went to the royal marine school of propulsion, HMS Selton. The first day, the guy said we're going to start with fractions, I didn't know what fractions were, so when everybody used to go on weekend on the Friday I had to wait until Saturday lunchtime to bring me up to their standards. The other thing was, when I was going to the school I had to get a list of books that I had to read. My machinery knowledge was good because I was doing it every day. I was a whizz on diesels and turbines. I will tell you something about me, I'm rubbish but I've got lots of mates. I met a wonderful guy, his name was R. W. Lock, he said, "*Phil, why don't you go through for your Hook?*" I said, "*I haven't got naval educational grade 1 which is reading and writing*", and he said, "*I'll teach you. How old are you?*", I said, "*I'm 18,*" he said, "*being a stoker at 18 is fantastic, big roughy-toughy around the world but being a stoker at 28 not so clever, at 38 it's an embarrassment*", and he took me through it, it was basic but I passed - thanks to him. I've got a matchbox education, all the things I know, people have told me around the world, I've never been formally educated which I regret very much.

I was on the Ganges, the training ship, then from there I went to the Ark Royal, then from there I went onto the Wizard, then I went to Christmas Island. Christmas Island is the world's largest atoll. It's beautiful – or at least it was beautiful. In 1962, I was 18 when I was out there and it was a desert island, it was paradise for an 18-year-old boy from a council estate, I learned how to dive and everything, it was wonderful. When you're 18 you're indestructible and I came from a very bad council estate in Dagenham, it was paradise, it was palm trees and sandy beaches! The living was a bit basic, we lived with the field kitchen and the accommodation was almost as bad as Weston-Super-Mare. When I was at Christmas Island, I was the boy, I was the youngest guy on the island. I think the older guys looked after me a bit, but even so, I had my own landing craft. The supply ships couldn't get over the reef so they had to anchor 3 miles out. So, our job was to go out across the reef, the merchant ships would load onto us and we would back across for the royal engineers to unload us on the jetty. I was only 18 and I was the only engineer in a 3-man crew. The actual job was brilliant! I saw 11 hydrogen bombs. After the first couple, it was like anything else. We used to have to sit with our backs to the bomb and cover our eyes, and then you would hear it go: *5, 4, 3, 2, 1, detonation*. We had no protective clothing whatsoever, none. I was never, ever, issued with protective clothing, ever. I saw 11 of them and I would be dressed in shorts, sandals and a shirt – sometimes not even a shirt. The whole sky would go like vivid daylight, even though you covered your eyes and you had big black glasses. The guy sitting in front of you, you could see his spine. You could actually see his spine. The noise used to hit you after the bomb went off; you would have forgotten about it, and you would be standing there, then *BANG*. They would say, "*do not take off dark goggles until fireball dissipates,*" then you'd

Appendix 11: Creative nonfiction process example

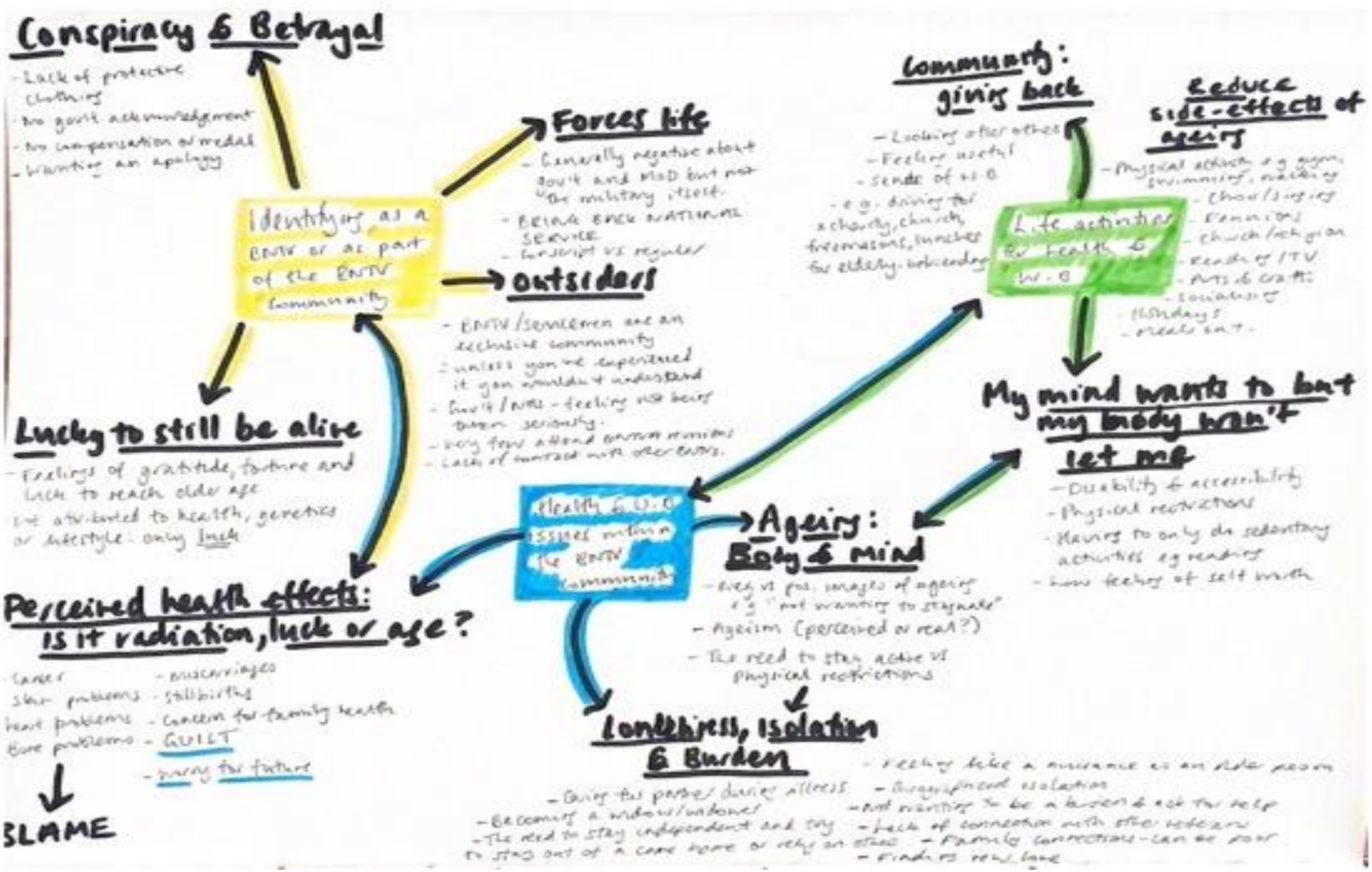
Immersion: The writer needs to continue to be immersed in the stories of the participants. It is therefore recommended that each of the emplotted narratives are re-read.

Encapsulating all stories and character amalgamation: Due to having 19 whole stories from 26 individuals (six whole narratives were designed as a husband-and-wife conversation), there was a need to cluster the participants into categories to create amalgamations of characters for the three stories. The stories also needed to encapsulate the 'big' stories, 'small' stories, shared experiences, and exceptional experiences from all of the participants (Phoenix & Sparkes, 2009). The mundane, everyday interactions were considered just as important as the more impactful life events. To do this, each of the emplotted narratives should be analysed to identify similar or exceptional experiences/characteristics and common threads. In so doing, the foundations for the encapsulation of stories can begin. It will also help to note down every participant (using pseudonyms) with key characteristics as shown below.

Stories

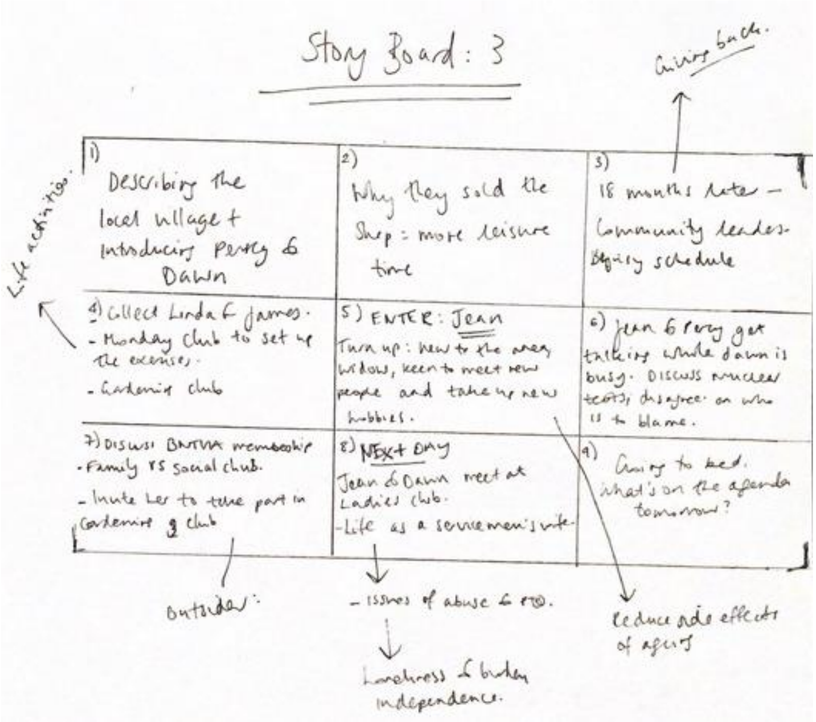
- Mandy
  - 83 yrs old
  - Widow
  - RAF-Maralinga
  - Regular
- Sam
  - 87 yrs old
  - Widower
  - Army (8 yrs)
  - Montebello
- Philip & Jenny
  - 79 yrs old
  - RAF
  - NS (2yrs)
  - Xmas Island
- Muriel
  - Widow
  - 72 yrs old
  - Navy - (9 yrs)
  - Maralinga
- Earl
  - 76 yrs old
  - RAF - Reg (15 yrs)
  - x2 divorced
  - Xmas Island / US Texas
- Phil
  - 76 yrs old
  - Widower
  - Navy - Reg (37 yrs)
  - Xmas Island
- Ike & Fern
  - 85 yrs old
  - Navy - Reg (9 yrs)
  - Cleanup - Xmas Island
- Jerry & Dawn
  - 83 yrs old
  - RAF
  - 2yrs NS
  - Xmas Island
- Paul & Alice
  - 80 yrs old
  - RAF - Reg (22 yrs)
  - Xmas Island
- Marvin
  - 83 yrs old
  - RAF
  - 3 yrs NS
  - Xmas Island
  - married
- Malcolm
  - 85 yrs old
  - RAF
  - 3 yrs NS
  - Xmas Island
- David
  - 80 yrs old
  - Navy
  - NS (2yrs)
  - Xmas Island
  - divorced with partner
- Matthew
  - 81 yrs old
  - Widower
  - Army
  - NS - (3 yrs)
  - Xmas Island
- Percy & Judy
  - 86 yrs old
  - RAF
  - (18 yrs)
  - Xmas Island
- Jeremy & Myra
  - 83 yrs old
  - RAF Regular - (28 yrs)
  - Maralinga
- Jim & Beatrice
  - 80 yrs old
  - Army - Reg (12 yrs)
  - Maralinga
- Gladys
  - Widow 76 yrs
  - RAF Regular
  - Xmas Island
  - Telegrapher
- Henry
  - 83 yrs old
  - Army
  - NS
  - Xmas Island
  - Married
- Bernard & Moira
  - 81 yrs old
  - RAF - Cook (30 yrs)
  - Xmas Island

Mapping of key issues within each emplotted story



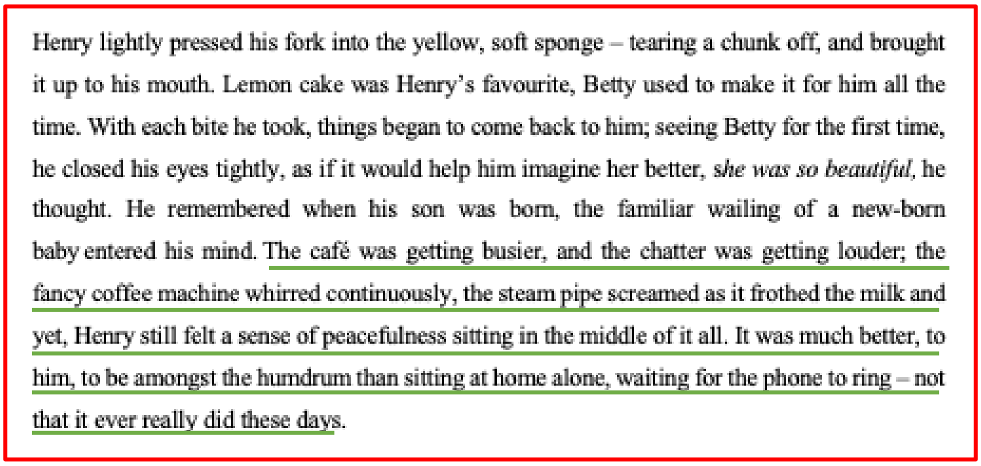
Concept map of the key stories among all participants; this allows stories to be developed as the focus narrows to specific issues or topics.

Setting the scene: locations for the story need to be chosen, characters designed, and their back stories were devised. To do this, storyboards were made to plot out the progression of the story. Each scene was then built on, adding the necessary details. It allowed ideas to be developed and flow to be established.



Story Board: 3

1) Describing the local village + introducing Percy & Dawn	2) Why they sold the shop: more leisure time	3) 18 months later – Community leader. Busy schedule
4) Collect Linda & James. - Monday club to set up the exercises. - Gardening club	5) ENTER: Jean Turn up: new to the area, widow, keen to meet new people and take up new hobbies.	6) Jean & Percy get talking while dawn is busy. Discuss nuclear tests, disagree on who is to blame.
7) Discuss BNTVA membership - Family vs social club. - Invite her to take part in Gardening club	8) NEXT DAY Jean & Dawn meet at Ladies club. - Life as a servicemen's wife.	9) Going to bed. What's on the agenda tomorrow?

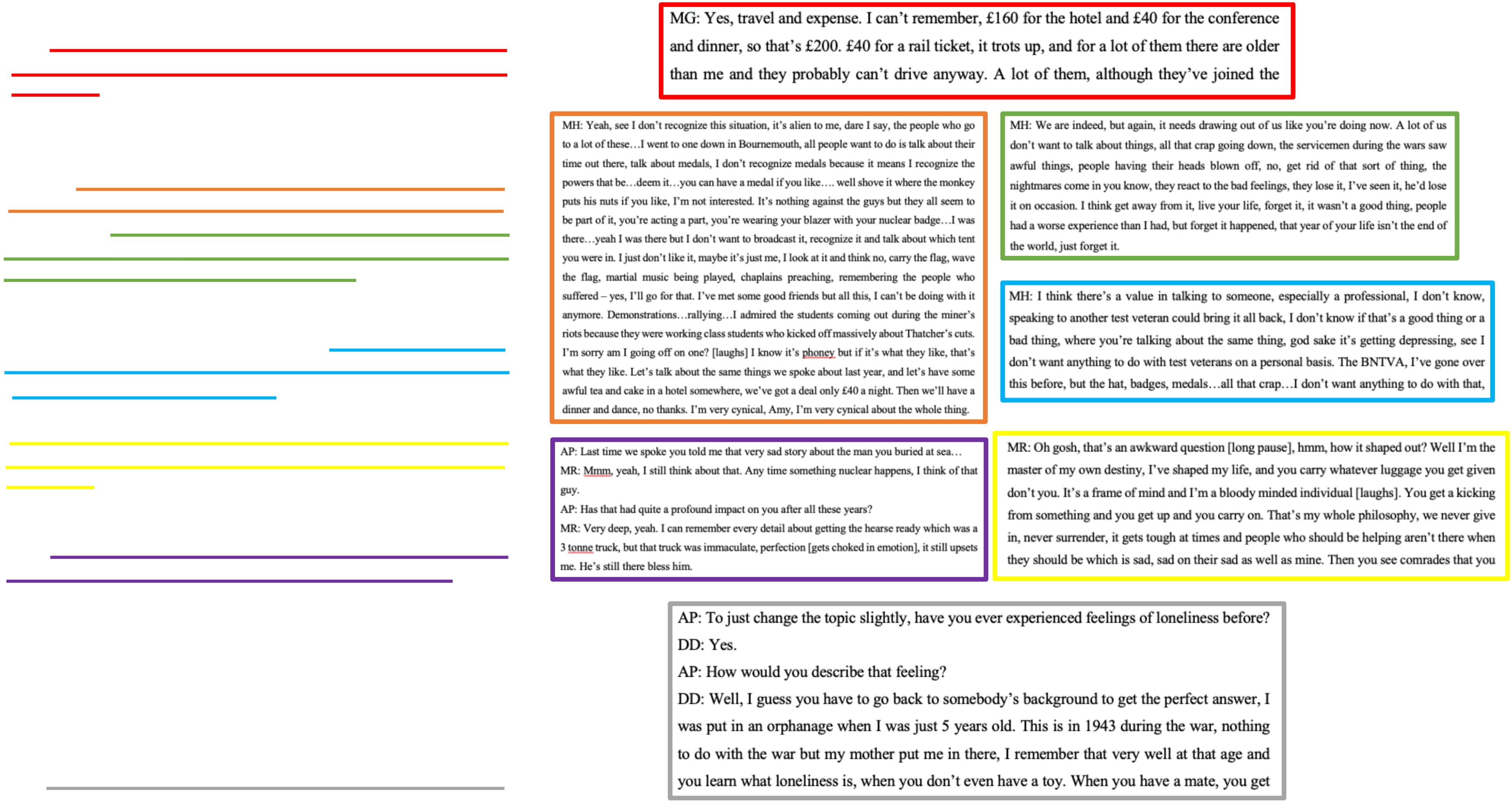


Henry lightly pressed his fork into the yellow, soft sponge – tearing a chunk off, and brought it up to his mouth. Lemon cake was Henry's favourite, Betty used to make it for him all the time. With each bite he took, things began to come back to him; seeing Betty for the first time, he closed his eyes tightly, as if it would help him imagine her better, *she was so beautiful,* he thought. He remembered when his son was born, the familiar wailing of a new-born baby entered his mind. The café was getting busier, and the chatter was getting louder; the fancy coffee machine whirred continuously, the steam pipe screamed as it frothed the milk and yet, Henry still felt a sense of peacefulness sitting in the middle of it all. It was much better, to him, to be amongst the humdrum than sitting at home alone, waiting for the phone to ring – not that it ever really did these days.

As can be seen in the above example, 'small' stories, 'big' stories and the setting are described.

- Lemon cake, Henry's favourite, came from during the interviews and the sharing of cake with the participants
- Flashbacks to his wife, as the reader we can make the assumption that Henry is a widower
- Henry has a son
- The café setting is easily imagined with details such as 'the steam pipe screamed'
- 'Waiting for the phone to ring – not that it ever really did these days' – inferences to loneliness and real verbatim from an interview.

Using realistic details: The final process of the framework is to use realistic details (Caulley, 2008; Gregg, 2011) when creating the story and the scenes within them. This step uses evidence-based details to conjure emotion, imagery and understanding using literary techniques (e.g., metaphors, similes, flashbacks, onomatopoeia and hyperbole). The dialogue for the characters were taken from the original interview transcripts and the individual core life stories.



MG: Yes, travel and expense. I can't remember, £160 for the hotel and £40 for the conference and dinner, so that's £200. £40 for a rail ticket, it trots up, and for a lot of them there are older than me and they probably can't drive anyway. A lot of them, although they've joined the

MH: Yeah, see I don't recognize this situation, it's alien to me, dare I say, the people who go to a lot of these…I went to one down in Bournemouth, all people want to do is talk about their time out there, talk about medals, I don't recognize medals because it means I recognize the powers that be…deem it…you can have a medal if you like…. well shove it where the monkey puts his nuts if you like, I'm not interested. It's nothing against the guys but they all seem to be part of it, you're acting a part, you're wearing your blazer with your nuclear badge…I was there…yeah I was there but I don't want to broadcast it, recognize it and talk about which tent you were in. I just don't like it, maybe it's just me, I look at it and think no, carry the flag, wave the flag, martial music being played, chaplains preaching, remembering the people who suffered – yes, I'll go for that. I've met some good friends but all this, I can't be doing with it anymore. Demonstrations…rallying…I admired the students coming out during the miner's riots because they were working class students who kicked off massively about Thatcher's cuts. I'm sorry am I going off on one? [laughs] I know it's phoney but if it's what they like, that's what they like. Let's talk about the same things we spoke about last year, and let's have some awful tea and cake in a hotel somewhere, we've got a deal only £40 a night. Then we'll have a dinner and dance, no thanks. I'm very cynical, Amy, I'm very cynical about the whole thing.

MH: We are indeed, but again, it needs drawing out of us like you're doing now. A lot of us don't want to talk about things, all that crap going down, the servicemen during the wars saw awful things, people having their heads blown off, no, get rid of that sort of thing, the nightmares come in you know, they react to the bad feelings, they lose it, I've seen it, he'd lose it on occasion. I think get away from it, live your life, forget it, it wasn't a good thing, people had a worse experience than I had, but forget it happened, that year of your life isn't the end of the world, just forget it.

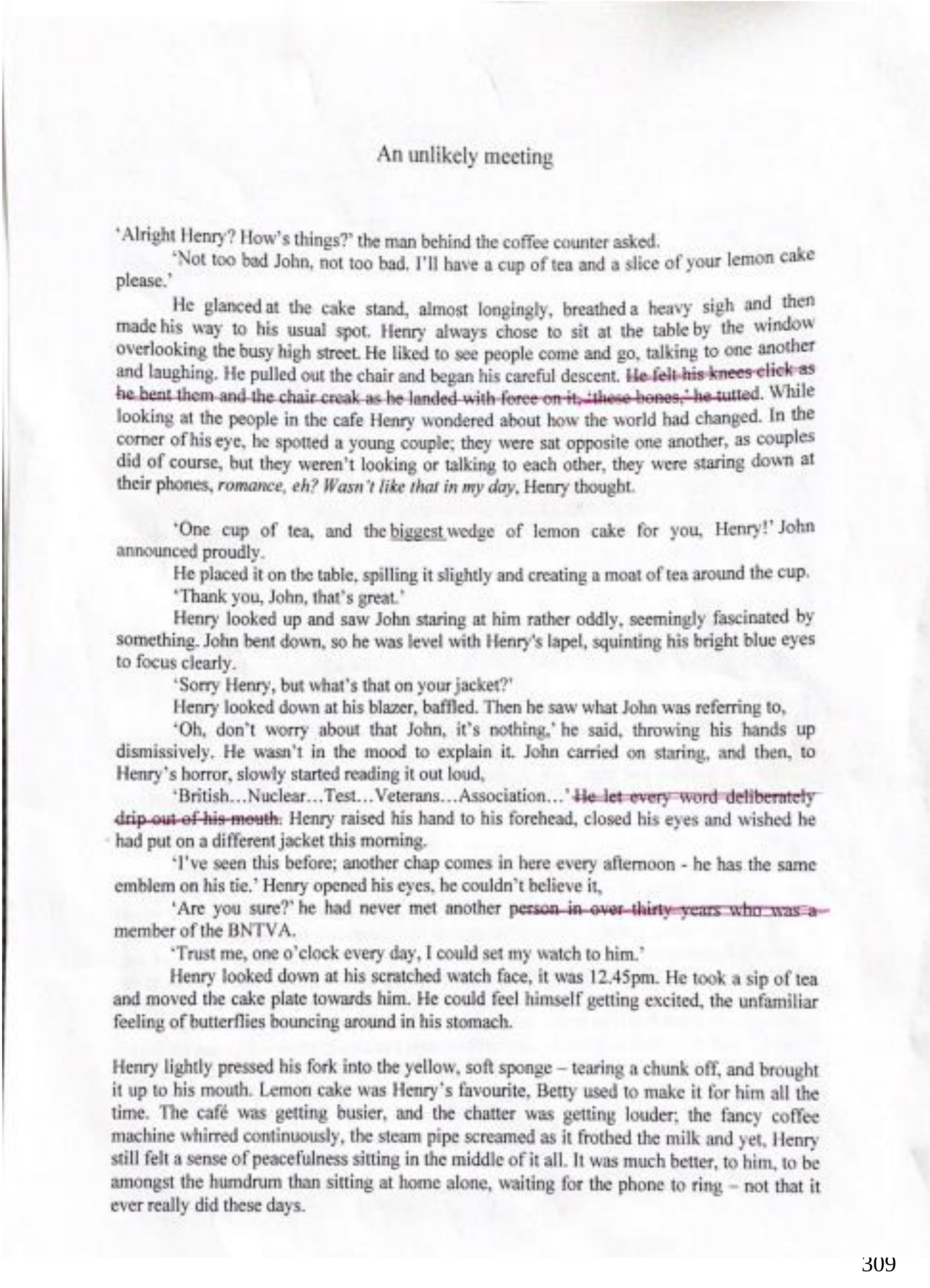
MH: I think there's a value in talking to someone, especially a professional, I don't know, speaking to another test veteran could bring it all back, I don't know if that's a good thing or a bad thing, where you're talking about the same thing, god sake it's getting depressing, see I don't want anything to do with test veterans on a personal basis. The BNTVA, I've gone over this before, but the hat, badges, medals…all that crap…I don't want anything to do with that,

AP: Last time we spoke you told me that very sad story about the man you buried at sea…
MR: Mmm, yeah, I still think about that. Any time something nuclear happens, I think of that guy.
AP: Has that had quite a profound impact on you after all these years?
MR: Very deep, yeah. I can remember every detail about getting the hearse ready which was a 3 tonne truck, but that truck was immaculate, perfection [gets choked in emotion], it still upsets me. He's still there bless him.

MR: Oh gosh, that's an awkward question [long pause], hmm, how it shaped out? Well I'm the master of my own destiny, I've shaped my life, and you carry whatever luggage you get given don't you. It's a frame of mind and I'm a bloody minded individual [laughs]. You get a kicking from something and you get up and you carry on. That's my whole philosophy, we never give in, never surrender, it gets tough at times and people who should be helping aren't there when they should be which is sad, sad on their sad as well as mine. Then you see comrades that you

AP: To just change the topic slightly, have you ever experienced feelings of loneliness before?
DD: Yes.
AP: How would you describe that feeling?
DD: Well, I guess you have to go back to somebody's background to get the perfect answer, I was put in an orphanage when I was just 5 years old. This is in 1943 during the war, nothing to do with the war but my mother put me in there, I remember that very well at that age and you learn what loneliness is, when you don't even have a toy. When you have a mate, you get

Appendix 12: CNF reading at BNTVA reunion event



An unlikely meeting

'Alright Henry? How's things?' the man behind the coffee counter asked.

'Not too bad John, not too bad. I'll have a cup of tea and a slice of your lemon cake please.'

He glanced at the cake stand, almost longingly, breathed a heavy sigh and then made his way to his usual spot. Henry always chose to sit at the table by the window overlooking the busy high street. He liked to see people come and go, talking to one another and laughing. He pulled out the chair and began his careful descent. ~~He felt his knees click as he bent them and the chair creak as he landed with force on it, 'these bones,' he tutted~~. While looking at the people in the cafe Henry wondered about how the world had changed. In the corner of his eye, he spotted a young couple; they were sat opposite one another, as couples did of course, but they weren't looking or talking to each other, they were staring down at their phones, *romance, eh? Wasn't like that in my day*, Henry thought.

'One cup of tea, and the biggest wedge of lemon cake for you, Henry!' John announced proudly.

He placed it on the table, spilling it slightly and creating a moat of tea around the cup.

'Thank you, John, that's great.'

Henry looked up and saw John staring at him rather oddly, seemingly fascinated by something. John bent down, so he was level with Henry's lapel, squinting his bright blue eyes to focus clearly.

'Sorry Henry, but what's that on your jacket?'

Henry looked down at his blazer, baffled. Then he saw what John was referring to,

'Oh, don't worry about that John, it's nothing,' he said, throwing his hands up dismissively. He wasn't in the mood to explain it. John carried on staring, and then, to Henry's horror, slowly started reading it out loud,

'British…Nuclear…Test…Veterans…Association…' ~~He let every word deliberately drip out of his mouth~~. Henry raised his hand to his forehead, closed his eyes and wished he had put on a different jacket this morning.

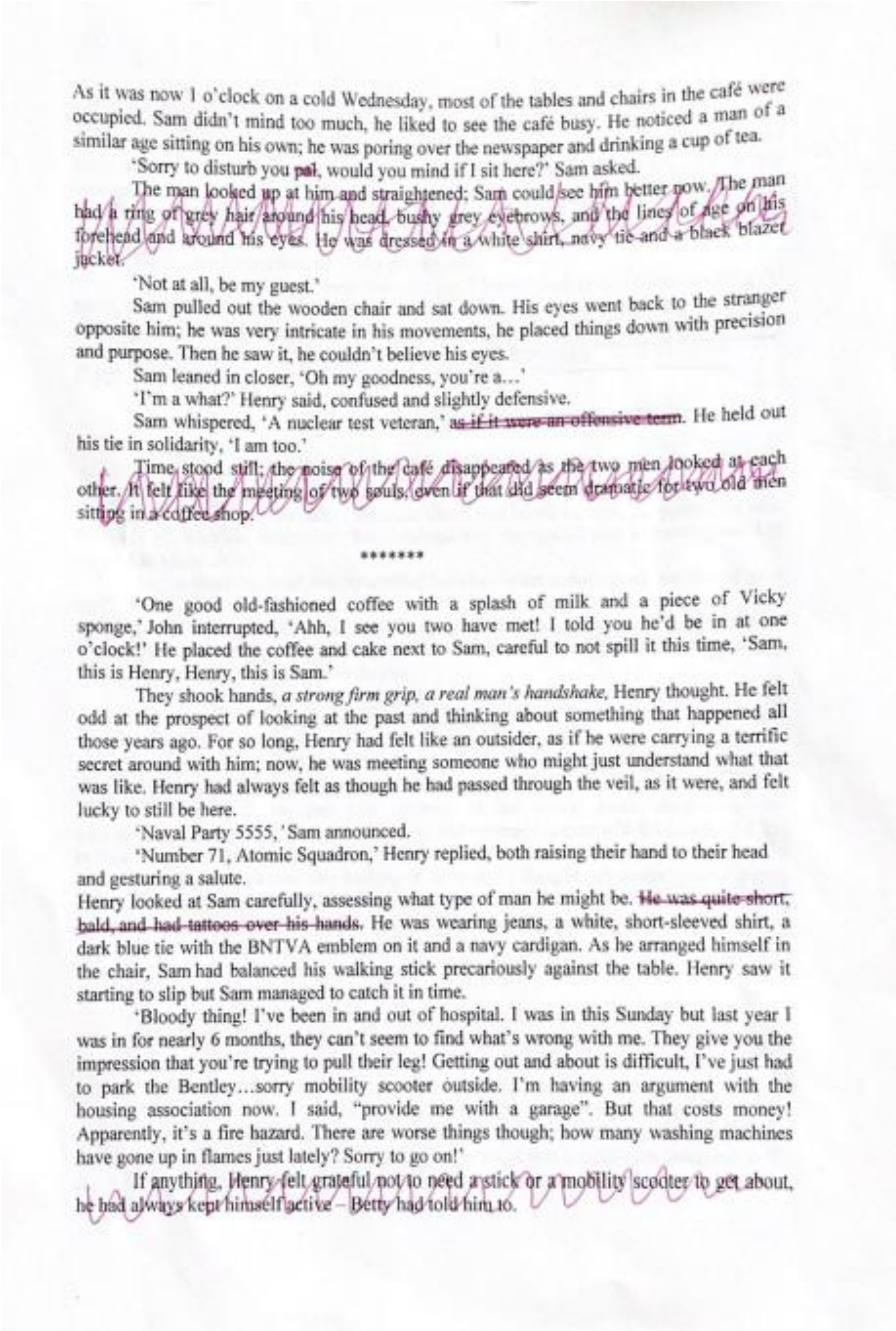
'I've seen this before; another chap comes in here every afternoon - he has the same emblem on his tie.' Henry opened his eyes, he couldn't believe it,

'Are you sure?' he had never met another ~~person in over thirty years who was a~~ member of the BNTVA.

'Trust me, one o'clock every day, I could set my watch to him.'

Henry looked down at his scratched watch face, it was 12.45pm. He took a sip of tea and moved the cake plate towards him. He could feel himself getting excited, the unfamiliar feeling of butterflies bouncing around in his stomach.

Henry lightly pressed his fork into the yellow, soft sponge – tearing a chunk off, and brought it up to his mouth. Lemon cake was Henry's favourite, Betty used to make it for him all the time. The café was getting busier, and the chatter was getting louder; the fancy coffee machine whirred continuously, the steam pipe screamed as it frothed the milk and yet, Henry still felt a sense of peacefulness sitting in the middle of it all. It was much better, to him, to be amongst the humdrum than sitting at home alone, waiting for the phone to ring – not that it ever really did these days.



As it was now 1 o'clock on a cold Wednesday, most of the tables and chairs in the café were occupied. Sam didn't mind too much, he liked to see the café busy. He noticed a man of a similar age sitting on his own; he was poring over the newspaper and drinking a cup of tea.

'Sorry to disturb you ~~pal~~, would you mind if I sit here?' Sam asked.

~~The man looked up at him and straightened; Sam could see him better now. The man had a ring of grey hair around his head, bushy grey eyebrows, and the lines of age on his forehead and around his eyes. He was dressed in a white shirt, navy tie and a black blazer jacket.~~

'Not at all, be my guest.'

Sam pulled out the wooden chair and sat down. His eyes went back to the stranger opposite him; he was very intricate in his movements, he placed things down with precision and purpose. Then he saw it, he couldn't believe his eyes.

Sam leaned in closer, 'Oh my goodness, you're a…'

'I'm a what?' Henry said, confused and slightly defensive.

Sam whispered, 'A nuclear test veteran,' ~~as if it were an offensive term~~. He held out his tie in solidarity, 'I am too.'

~~Time stood still; the noise of the café disappeared as the two men looked at each other. It felt like the meeting of two souls, even if that did seem dramatic for two old men sitting in a coffee shop.~~

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'One good old-fashioned coffee with a splash of milk and a piece of Vicky sponge,' John interrupted, 'Ahh, I see you two have met! I told you he'd be in at one o'clock!' He placed the coffee and cake next to Sam, careful to not spill it this time, 'Sam, this is Henry, Henry, this is Sam.'

They shook hands, *a strong firm grip, a real man's handshake,* Henry thought. He felt odd at the prospect of looking at the past and thinking about something that happened all those years ago. For so long, Henry had felt like an outsider, as if he were carrying a terrific secret around with him; now, he was meeting someone who might just understand what that was like. Henry had always felt as though he had passed through the veil, as it were, and felt lucky to still be here.

'Naval Party 5555,' Sam announced.

'Number 71, Atomic Squadron,' Henry replied, both raising their hand to their head and gesturing a salute.

Henry looked at Sam carefully, assessing what type of man he might be. ~~He was quite short, bald, and had tattoos over his hands.~~ He was wearing jeans, a white, short-sleeved shirt, a dark blue tie with the BNTVA emblem on it and a navy cardigan. As he arranged himself in the chair, Sam had balanced his walking stick precariously against the table. Henry saw it starting to slip but Sam managed to catch it in time.

'Bloody thing! I've been in and out of hospital. I was in this Sunday but last year I was in for nearly 6 months, they can't seem to find what's wrong with me. They give you the impression that you're trying to pull their leg! Getting out and about is difficult, I've just had to park the Bentley…sorry mobility scooter outside. I'm having an argument with the housing association now. I said, "provide me with a garage". But that costs money! Apparently, it's a fire hazard. There are worse things though; how many washing machines have gone up in flames just lately? Sorry to go on!'

~~If anything, Henry felt grateful not to need a stick or a mobility scooter to get about, he had always kept himself active – Betty had told him to.~~

~~'Don't sit down for too long, Henry. If you don't move it, you lose it,' he heard her say, a smile flashing across his face.~~

'My hip tends to come out, it's a painful nuisance! I have to use the stick because I never know when it's going to happen.' Now that he was satisfied with his seating arrangement and his walking stick was propped up, Sam took a sip of his coffee and was ready to begin talking about something both these men had kept hidden for over fifty years.

'Conscript or regular?' Sam asked as he took a bite of his cake.

'Conscripted into the Army. How about you?'

'Joined the Navy of my own free will, me, I loved being at sea. I was made for the Navy, and the Navy was made for blokes like me,' Sam said. 'I was in the Navy for over 15 years. ~~I enjoyed it at the time, but it wasn't quite straightforward when I went in. I enjoyed the travel and things like that, there were certain things I didn't enjoy~~. When I look back now, I'm glad I went in because I saw the world it and enlightened me a lot.'

****

'I was at Monte Bello in Australia, 3rd October 1952, I remember the date as if it were yesterday. This was the first British nuclear test – they called it Operation Hurricane.'

Henry sucked the air into his chest, 'We hadn't been told where we were going until we were two days out from our destination. We wondered why they hadn't told us sooner, was it so we couldn't jump ship?'

Sam nodded his head, ~~'None of us knew, pal.~~ What happened on the day of your test?'

Henry took a sip of his tea, which was now rather disappointing and cold. Knowing the discussion was going to take a while, he looked to catch the eye of John – who at this point was rearranging the biscuits in the jar.

'Could I get another when you're ready? Thanks John. Well, on countdown day I was tasked with starting up the generators - luckily, they all started! I got back to the Zeebrugge and we were told that we weren't allowed to put anything on; so, we all just had on a pair of shorts, a hat, socks and working boots.' Henry sighed, 'I would have thought that we should have had some sort of protection, given that we were working with atomics. We all had to be above deck as well, no one was allowed in the lower decks; then came the countdown.' Henry put his elbows on the table, and covered his eyes with his hands, 'We had to face away, and all of a sudden, there was an immense flash. I could see the bones of the bloke in front of me, it was like looking at an x-ray. I thought, no Henry, you're seeing things, but everyone said it.' Sam nodded, Henry continued, 'Everyone was talking about the end of the world; obviously it wasn't, but Sam, ~~when you've seen an atomic bomb go off~~, it stays in your mind forever, you can't get it out.'

~~'What did you think of national service? Are you glad that you did it?' Sam asked.~~

~~'I suppose it was quite interesting to see. We went somewhere exciting and travelled abroad to somewhere you probably wouldn't have been able to. if you'd not been part of national service.' Sam took another forkful of his cake, his eyes not shifting from Henry's. 'I learned many things in the first few months in the Army; it taught me self-respect, how to sew, how to wash and iron clothes, you know, things like that. The only positive thing about national service, although you're dependent on the army, is that it makes you independent. I don't know why that is because you're obeying orders.'~~

The two men took a break from talking and looked out of the window. It had started to rain and was, from the way people on the street were scrambling to find somewhere to hide, coming down quite heavily.

Henry took his gaze away from the window, 'Tell me about you, Sam. Give me a break from talking, ~~my~~ wife used to say I could talk the hind leg off a donkey!'

Sam looked at Henry and saw sadness in his eyes, even though he was trying his best to disguise it with laughter. He barely knew this man, but he could sense loss and loneliness.

'Well, I joined the Navy when I was 16 ~~– I had come from a bad council estate and didn't have a very good upbringing, not by today's standards anyway~~. I was 18 and was shipped off to Christmas Island; did you know, Henry, that's the world's largest atoll?' Henry nodded, 'it was beautiful, it was paradise for an 18-year-old boy from a council estate. I learned how to dive and everything, it was wonderful; it was palm trees and sandy beaches!' He could picture it now~~; it was almost as though he could taste the salt on his lips~~.

'While I was there, I saw eleven hydrogen bombs. Eleven!' Henry's mouth fell open. 'After the first couple, it just became like anything else, normal almost. ~~We used to have to sit with our backs to the bomb, cover your eyes, and then you would hear it go: 5, 4, 3, 2, 1.~~ Like you Henry, I was dressed in shorts, sandals, and a shirt – sometimes not even a shirt. The whole sky would go like vivid daylight, even though you covered your eyes and you had big black glasses. The guy sitting in front of you, you could see his spine. So no, ~~chap~~, you weren't imagining it.'

Henry could feel his eyes prickling, ~~no one had ever believed him before~~.

'It was just for an instant, a tenth of a second or less, then it was gone. We were told to wait, then turn around. You know on a hot day when the sky is clear, and you look at the sun and it's shimmering? That's exactly what you saw when you looked at the sky. Then it turned into blood red ball, beautifully round; suddenly, it erupted like a volcano, in the sky. The mushroom cloud appeared, the shockwave and the heat were quick, then it vanished, but the actual shockwave was really powerful – it felt like an earthquake.'

Henry took a gulp of tea, 'Be honest with me Sam, were you scared?'

Sam looked to the ceiling, 'I wasn't scared because I was young. Knowing what I know now, of course, I would have been scared. That bomb was supposedly a thousand times more powerful than the Hiroshima bomb. I don't know, Henry, no one usually believes me when I tell them about it.'

This was something Henry knew all too well, 'I do feel at times that people look at you with a blank stare. They haven't got a clue what you're talking about. Until today, I'd never spoken to any other nuclear veterans since the day we left Monte Bello.'

The café was now empty, except for Henry, Sam, and John. Henry noticed a couple outside holding hands, he sighed, then turned to his new friend, 'Tell me, how did you meet your wife, Sam?'

Sam smiled; he hadn't been asked this in a long time. 'Do you believe in fate, Henry?' Henry nodded, 'Well, I was on duty at the time and my mate came in said, "Sam, d'you want a pen friend?" He had three envelopes, so I took the middle one; it was a really interesting letter, so I replied. I sent her a photo of myself, then a week later a reply came, another interesting letter! Nine months later, I came home, and met her in Hyde Park. We got on like a house on fire; I thought, yes, I really like this girl. Three months later I proposed, and six months after that, Myra and I were married. It will be 56 years in June.'

Henry loved stories about how people met, 'Any children?'

'We didn't have children; my wife miscarried a couple of times, but I didn't realise it at the time that maybe it was because of me. We would have loved a family but in the end, it didn't happen. In those days, we didn't go for tests like they do now. I don't know if it was a blessing or not. I've seen a lot of the descendants who were affected, so maybe it was a good thing. If they'd suffered with their health that would have been horrendous to see. You then must live with that. I'm of the philosophy that what is God given, is God given. When we were trying for a family, I used to be quite upset that one never arrived but, after a while, I just accepted it wasn't going to happen.' Sam saw a ring on Henry's finger, 'I take it you're married, Henry?'

He looked down at his hand, he hadn't noticed that he had been twisting his wedding band while Sam was talking. 'Yes, well, was.' Henry could feel a lump forming in his throat, he tried his best to ignore it. 'My wife, ~~Betty~~, she was the greatest thing ever. ~~I can vividly~~ remember the day I met her; I had two friends who said they were going dancing. I can't dance but they insisted I went with them. There were two girls there and I just took one look at my missus, went up to her and said, "Hello, I can't dance but I'd love to buy you a coffee." ~~I know, it's cringy isn't it!'~~

Sam laughed, 'Then what happened?'

Wiping his eyes, Henry continued, 'The next day, I thought, I'm going to take her out and impress her. ~~I was told to go to the Prospects of Whitby in Wapping – all the film stars went there.~~ When I got to her house, I couldn't remember her bloody name!'

Sam giggled, 'No! You forgot her name!'

Henry covered his eyes, '~~I know, Sam, I know.~~ I knocked on the door and this is why God is on my side: her dad answered, and I said, "Is she ready?" He shouted up the stairs, "BETTY!" Am I lucky or am I lucky? In the end we were married for 43 years.'

'You see, it's all about fate, isn't it?'

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'Henry, how did ~~Betty~~ she pass away?'

Henry sipped his water and took a deep breath, 'She had cancer. She had to go into a hospice, she knew she was going to die. I was there with her and my son; the nurse came in and said, "How are you feeling, Betty?" She said, "I'm feeling great, I've got my husband with me, I've got my son with me, I'm so happy." The nurse looked at her, and asked, "Betty, are you afraid to die?" Without hesitation, she said, "No, I'm not afraid to die, I know I'm going to die, I'm looking forward to meeting God." I just didn't know what to do.' Henry brought his hand up to his eyes, 'Anyway, you just keep putting one foot in front of the other; I guess I just don't feel needed anymore, that's all.'

Sam found a handkerchief in his pocket, 'Here pal.'

Henry took it and dabbed his eyes, 'I'm sorry to cry,'

Sam looked on sympathetically, 'We can't always be macho and maintain this "men don't cry" façade. We all cry.'

Henry moved his lips from side to side, his blue eyes looked sore. 'How has it been, becoming a widower?'

'I was absolutely devastated; my wife was a wonderful partner. Before she died, I was seventeen stone, now I'm eleven stone. I was left here alone, and I guess that's when the loneliness started. What the hell do I do? How do I cook this? How does this work? How do I use the washing machine? That brings on loneliness or helps to. We were married for 43 years, so of course I miss her. Can I tell you the greatest lie I've ever been told?'

'Please do.'

'It's that time is a great healer. No, it's not, that's nonsense, people say it, but no, not in my case. I miss Betty all the time; it's been the same every day and it doesn't get easier. ~~I could be listening to the radio, and one of her favourite songs will come on and then~~ I'm

~~crying~~. When she died there were many things I had never been involved in because that was her side of things. ~~I paid for the house, and she paid for the other side~~, she used to buy my clothing because she said my choice was appalling.'

Sam laughed, 'All women say that!'

Henry straightened his collar, 'It did leave me gasping a bit, I had to learn how to cook. I can look after myself, but my son does pop in now and again. People ask me, "How do you manage?" And I say, "Her physical presence has gone but the mental presence doesn't go." I can be washing up and putting the cutlery in and I'll hear her say, "You're putting them the wrong way up again!" ~~Maybe I'm being daft but no, I feel that some of my wife is in me and will always be there. I will be married to Betty until the day I die.~~'

'~~It's not daft. What about your son? Would you like to live with him?~~'

'~~I had this feeling in my head, when Betty was poorly, "Yes he can look after his mother, but he doesn't want to be with me." He's told me why, and I guess there is a legitimate reason: I would struggle with the stairs.' Henry looked down into his cup of tea.~~

'I'm sorry, ~~pal,' Sam said, putting his hand on his arm.~~

~~'Apparently it's also because he and his wife at work all day. I said, "Yes, but I could do things in your house that I would in my flat. I can peel the vegetables for dinner, I can do the hoovering, I can chuck the washing into the machine," – you know, little jobs, but he hasn't got an answer for that. I just wanted to spend more time with the grandchildren; I haven't really seen them grow up.'~~

John appeared with a plate of biscuits, 'These free?' Sam joked.

'Of course!' John sat down next to Henry and picked up a biscuit. He took a bite and then spoke, spraying crumbs on the table, 'It's curious that you've never met before.'

They looked at each other, 'I guess so.' Henry smiled, then looked at his watch~~. Betty always told him it was rude.~~ 'Doesn't time fly! I came in at midday and it's nearly four o'clock!'

Sam took a bite of shortbread, 'Is it really! No wonder I was feeling peckish.' He winked at John then pushed himself up off the chair. 'I should probably be off though chaps, ~~Myra will be pulling her hair out wondering where I've got to~~! Henry, same time tomorrow? We can carry on putting the world to rights?'

Henry smiled and stood up, 'Yes, Sam, same time tomorrow.'

He walked around to Sam's side of the table and put his hand out; Sam pushed it away and gave him a hug, strong and secure. Henry hadn't felt that level of connection for a while, he breathed in Sam's aftershave. The two men pulled away from their embrace, smiled, and Sam made his way to the door. He hopped on his scooter, gave Henry and John a wave and drove off.

Henry sat back down, 'Do you mind if I just sit here a bit longer, John? I'm not quite ready to go home just yet.'

John squeezed his arm, 'Of course not, would you like another cup of tea?'

He beamed, 'That would be lovely, thank you.'