

**WEIGHT MANAGEMENT
AMONG MALTESE MOTHERS**

A Thesis Submitted for the Degree of Doctor of
Philosophy

By

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ABSTRACT

The World Health Organisation ([WHO], 2007) declared obesity as the public health threat of the 21st century. Currently, the Maltese adult population ranks as the heaviest in the Euro-Mediterranean region. In response to a gap in Maltese research on the area of obesity and food consumption, this PhD aimed to gather local data to unearth behavioural-psychological factors that could be implemented in local interventions. The focus of the PhD was narrowed to women with families based on literature that has identified motherhood as a salient point of transition that amplifies the weight trajectories for adult women. A mixed-methods approach guided the methodology of the PhD programme with four studies carried out sequentially in two phases. The findings of the qualitative phase revealed that weight management for Maltese mothers was enmeshed with gender norm expectations surrounding motherhood. For mothers with a higher BMI, their relationship to food was a significant barrier to weight loss maintenance. Mothers with a lower BMI or who maintained their weight pointed at their food planning ability to manage their diet. The quantitative phase extended literature on the dimensional validity of the Dutch Eating Behaviour Questionnaire (DEBQ) (Van Strien et al., 1986) by reproducing its factor structure and ascertaining its reliability among Maltese women. This was the first validation of an eating behaviours assessment tool in Maltese and the first validation of the DEBQ in a Semitic language. Finally, Structured Equation Modelling revealed how food planning could act as a mediator to restrained and external eating styles to increase fruit and vegetable snacking and decrease high calorie snacking. In addition to the implications to theory, it is believed that these findings have worthy practical implications through tailored eating behaviour interventions, by targeting food planning to counterbalance the impact of external eating among Maltese mothers.

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Author declaration

I declare that this dissertation is the original work of the undersigned and that no portion of the work referred to in the thesis has been submitted in support of an application for another degree or qualification of this or any other university or other institute of learning.

CHAPTER 1: INTRODUCTION

1.1 Overweight and obesity

The WHO (2007) has declared obesity as the public health threat of the 21st century. In the European region alone, overweight and obesity are the culprits for over 1 million deaths and 12 million life-years of ill health per year mostly contributed by chronic conditions such as cardio vascular diseases, diabetes, musculoskeletal disorders and specific cancers (WHO, 2015). It is acknowledged that obesity may co-exist with psychological co-morbidities, such as, depression (see Luppino, de Wit, Bouvy, Stijnen, Cuijpers et al., 2010 for a review) eating disorders (see Buckroyd & Rother, 2008; Gormally, Black, Daston & Rardin, 1982) and a decline in cognitive function (Martin & Davidson, 2014). Studies also suggest that the impact on obesity on health related quality of life may be of even greater consequence to the individual than the medical comorbidities (see Fontaine & Barofsky, 2001 for a review). Overweight and obesity account for approximately 6% of national health care costs (WHO, 2007) without taking into account other indirect costs, such as, loss of life, productivity and related income, which amplify the true economic burden of this condition (WHO, 2006).

1.1.1 Prevalence of overweight and obesity

It is calculated that over 1.9 billion adults worldwide were overweight in 2014 of whom 600 million were obese (WHO, 2015). The prevalence of obesity is thought to have more than doubled in the last twenty years (WHO, 2006). At present, over a third of American adults (Ogden, Carroll, Kit & Flegal, 2014) and a quarter of the British adult population (Eurostat, 2014) are obese. Even the Mediterranean region, long associated with its palatable and salubrious diet (Sofi, Cesari, Abbate, Gensini & Casini, 2008) has witnessed a sharp increase in obesity (see Papandreou, Abu

Mourad, Jildeh, Abdeen, Philalithis et al., 2008). In their meta-analysis covering seventeen Mediterranean countries, Papandreou et al., (2008) concluded that adults living around the Mediterranean, especially those in the European region, were at a high risk of obesity, regardless of income or geographical location.

1.1.2.1 Prevalence of overweight and obesity in the Maltese islands

Among Southern European nations, the Maltese islands currently carry the highest percentage of the overweight and obesity burden (Eurostat, 2014). Latest public health figures suggest that over 22% of the adult Maltese population is obese and a further 36% considered overweight (Eurostat, 2014; Department of Health Information [DHIR], 2008). This places Malta amongst the most overweight nations in the Western world (Superintendence of Public Health, 2012).

Although data for Malta was not available for the meta-analysis by Papandreou et al., (2008) national statistics confirm that Maltese adults share a similar demographic trend for excessive weight with other Mediterranean countries (see National Statistics Office [NSO], 2009; DHIR, 2008). For example, obesity is higher among adult Maltese men (24.7%) than women (21%) (Eurostat, 2014). However, this gap between genders is not as evident when one controls for marital status with a mean BMI of 27.7 and 26.2 for men and women respectively (NSO, 2009). In fact, obesity rates amongst the Maltese are pointedly higher for married adults (22%) than for unmarried individuals (14%) (NSO, 2009) and this is similar to trends in other Mediterranean nations, such as Italy (see Gallus, Odone, Lugo, Bosetti, Colombo et al., 2013), Jordan (Fouad, Rastam, Ward & Maziak, 2006) and Syria (Khader, Batieha, Ajlouni, El-Khateeb & Ajlouni, 2008). Obesity in Maltese women also shares strong similarities with Italian (Gallus et al., 2013), Moroccan (Rguibi & Belahsen, 2007) and Spanish cohorts (Martinez-Ros, Tormo, Navarro, Chirlaque & Pérez-Flores, 2001) in that it is more strongly positively correlated with age than it is

for men (see NSO, 2009). This means that as the female population ages, the burden of disease from associated comorbidities and reduced health related quality of life may become more pronounced. This is alarming in view of the fact, that after Maltese adults reach 55 years of age, the prevalence of diabetes surpasses the world and EU region average of 14% for that same age cohort. This continues to soar to a 22% prevalence for adults in the 70 – 74 age bracket, compared to a world average prevalence of 16% and an EU prevalence of 18% for the same age bracket (see International Diabetes Federation [IDF], 2015). Therefore, understanding the factors that may lead to obesity and that can help people successfully manage their weight could have long-term health and economic benefits, particularly in the context of an aging population (Formosa, 2013).

1.1.2 Causes and definitions of obesity

The fundamental, physiological cause of overweight and obesity is an energy imbalance between calories consumed and calories expended over a period of time (WHO, 2015). For some individuals, genetic predispositions (see Bouchard, 1994) physiological mechanisms (see De Pergola, Ciampolillo, Paolotti et al., 2007) including neuro-endocrine imbalances (see Fock & khoo, 2013) may increase their susceptibility to weight gain. Psychological factors including Eating styles (van Strien, Frijters, Bergers & Defares, 1986) and specific eating disorders (see Gormally et al., 1982; Masheb & Grilo, 2006; Yanovski, 2003) have also been linked to weight gain and may hinder weight loss maintenance (see Blair, Lewis & Booth, 1990; Byrne, 2002; Byrne, Cooper, & Fairburn, 2003; Elfhag & Rössner, 2005).

From a socio-cultural point of view, excessive fatness has carried different meanings across cultures (Renzaho, 2004) and different points in history (Eknoyan, 2006). For example, overweight in most parts of Sub-Saharan Africa is a sign of success and good health whilst thinness represents sickness and malnutrition (Mvo, Dick &

Steyn, 1999; Renzaho, 2004). This was the case also in Western societies as recent as the early 20th century (Grivetti, 2001) largely contributed by the scarcity of food throughout history (Eknoyan, 2006).

Eknoyan (2006) postulates that “obesity as a chronic disease with well-defined pathologic consequences is less than a century old” (p.421). Yet, this medicalised view of fatness has pervaded every other social sphere including general weight management discourse (see Warin, Turner, Moore & Davies, 2007; Sobal, 1995; Throsby, 2009). Some of the criticism for this medicalisation of obesity is that it typically views health as under the complete control of the individual and that therefore the individual should be the focal-point for diagnosis and intervention (Crawford, 1980). Some researchers have also questioned the way obesity is portrayed in the media, such as when public health officials discuss a “war on obesity” or a “terror” which dramatizes the condition and points at the obese individual as being almost dangerous rather than fostering solidarity and understanding (Robinson, Putnam & McKibbin, 2007). On the other hand, Chang & Christakis (2002) carried out a content analysis of a popular medical textbook from 1927 to 2000, and argue that the way obesity has been conceptualised in the last seventy years has shifted from a focus of individual responsibility to a population view that is more cognisant of contextualised behaviours and factors.

Accompanying the shift in viewing obesity as a sign of ill-health, Western society has also witnessed a shift in the way obesity is associated to female physical attractiveness and desire. There is abundant evidence from different areas of the world, that aside from symbolizing fertility, female obesity at the time was regarded as a desirable and beautiful condition (see Biaggi, 1986), an aesthetic appreciation which lasted well into the mid-nineteenth century (Eknoyan, 2006). This can be seen in ancient drawings and sculptures of female figures, such as the Venus of Willendorf (Sobal, 2001) and the Goddess of Fertility found on the Maltese islands

(Biaggi, 1986). These statues are described as “enormously fat, with huge buttocks, bulbous thighs, legs, arms and forearms, a corpulent chest and tiny hands and feet” (Biaggi, 1986, p.131). Even in present day North African cultures, overweight amongst women is positively regarded due to its connotations to female fertility and viewed as a positive product of motherhood (Batnizky, 2011; Rguibi & Belahsen, 2006). Yet, this is in contrast to modern Western society, including modern Maltese society, where a *lower* weight is associated with female physical attractiveness and overweight is a common cause of stigmatization (Carrier, 2001; Sobal, 2001). Whilst overweight due to pregnancy is accepted, there is a general underlying consensus that once the mother has recovered her health, she would intentionally aim to lower her weight, potentially because a lower body weight is regarded as socially more acceptable. Carrier (2001) argues that the popular discourse about obesity leaves “no space for the large woman to understand herself in any way other than as physically compromised and socially undesirable” (p.92).

Aligned with this medicalised view of obesity that requires accurate measurement for comparison and generalisation, obesity is typically defined using the ‘Body Mass Index’ (BMI). BMI is calculated by dividing the weight in kilograms by the square of the height in meters (kg/m^2). Generally a BMI range of 18.5 – 24.9 is considered normal weight, a BMI of 25 is the cut off line to determine overweight and ≥ 30 to determine obesity (WHO, 2015). Some researchers have questioned the reliance on one statistic to ‘diagnose’ obesity, especially when one considers that an assessment for Anorexia on the other side of the weight-spectrum would require several criteria (see Throsby, 2009). Some authors have also proclaimed that the BMI is inferior when compared to other measures of fatness such as waist circumference and waist to hip ratio (see British Psychological Society [BPS], 2011) especially when one considers that the BMI calculation is based on body mass, with no distinction as to distribution of fat and muscle within the individual.

Despite the criticism reviewed, the Body Mass Index (BMI) was used to categorise and refer to different weight status groups in this programme of research. This was based on the fact that BMI is the most commonly cited measurement to define weight categories (see National Institute for Health and Clinical Excellence (NICE), 2006; WHO, 2012) allowing for data from this research to be compared across studies in this genre and also across cultures. Whilst other measurements of weight were considered, large-scale studies have revealed that in female cohorts, the BMI, waist circumference and waist to hip ratio, capture obesity prevalence in similar magnitudes albeit BMI being somewhat more conservative than waist circumference (see Dalton, Cameron, Zimmet et al., 2003).

1.3 Obesity and social contexts

The health literature calls for greater attention to the social contexts that impact positively or negatively on people's health (see Berkman & Kawachi, 2014; WHO, 2004) including those situations or life events that are positively related to weight gain (see Burns, Costello, Haggart, Kerr, Longshaw et al., 2009; Umberson, Liu, Mirowsky & Reczek et al., 2011). Parenthood has been identified as one such factor that alters individuals' social contexts, shaping health behaviours that impact on weight over time (Umberson et al., 2011).

1.3.1 Weight gain after parenthood

Whilst trends across industrialised nations demonstrate weight gain for most adults around midlife, longitudinal research shows that parents gain weight more rapidly and reach higher BMI indices than childless adults (Umberson et al., 2011). This is supported by health statistics across the Mediterranean basin with overweight and obesity rates in Malta, Italy, Spain, Jordan, Syria and Morocco reportedly higher amongst married adults than among single or younger individuals (see Gallus, et al.,

2012; Fouad, et al., 2006; Khader, et al., 2008; Rguibi & Belahsen, 2007; Martinez-Ros, Tormo, Navarro et al. 2001; NSO, 2007). Umberson et al. (2011) argue that “Parenthood introduces social constraints and demands that are long-term, difficult to avoid, and have lasting as well as cumulative effects” (p.1330). The effect of life transitions on health, specifically eating behaviours, is supported by other researchers (e.g. Hartman, Dohle & Siegrist, 2014; Jeffery & Rick, 2002) who argue that transitions to shared living space and parenthood could be a window of opportunity for health behaviour change interventions (see Hartman et al., 2014).

1.3.2 A focus on motherhood

There is a general consensus in the literature that obesity, eating and weight management are gendered issues and warrant separate investigations for men and women (see Sobal, 2001; Wardle, Haase, Steptoe, Nillapun, Jonwutiwes et al., 2014). For example, women are more likely to be bombarded by conflicting messages around dietary and weight loss recommendations than men and are also more likely to experience the stigma associated with overweight due to its links with female physical attractiveness (see Carryer, 2001). Even after parenthood, having multiple children leads to a sharper weight increase for mothers than for fathers (Umberson et al., 2011). Laroche, Wallace, Snetselaar, Hillis, Cai et al., (2013) refer to the “child effect” since the effect on weight does not seem to depend on the child being the biological offspring of the parents. This study compared samples of fathers and mothers of both black and white racial background. It concluded that white mothers demonstrated the highest child effect with those overweight before motherhood having the sharpest weight gain.

Some researchers have argued that these differences may lie in the organisation of employment and family life since this may lead to different demands and constraints between mothers and fathers (see Batnitzky, 2008; Nomaguchi & Bianchi, 2004;

Sobal, 2001). The transition into occupying multiple roles may directly influence women's health, including their weight management behaviours, in a manner that is separate and different to that experienced by their male counterparts (see Umberson et al., 2011). Therefore, whilst there is a rationale to investigate weight management following parenthood for both men and women, there are poignant questions around the factors that may facilitate or hinder successful weight management specifically for mothers.

Through the ages, women's worth has often been judged first and foremost according to their roles as mothers, or as potential mothers (Eisenstein, 1986; Russo, 1976). Society presents an assumption that all women aim to be mothers at some point and that any other role superseding motherhood would be unthinkable (Russo, 1976). Feminist and neo-liberal theories posit that this is partly supported by a dichotomy between the political economy and the private sphere which relegates the domains of family and household as being female or belonging to women (see Chodorow, 1978; Collins, 1994; Russo, 1976). This has not only emphasised the 'need' for women to be mothers but also led women to experience disadvantages in penetrating and succeeding in the labour market (Oakley, 1993). As Eisenstein (1986) pointed out, "At the same time that society writes women off *as* mothers, it also requires them to *be* mothers" (Eisenstein, 1986, p. 15).

Women's reproductive options and social attitudes in Western society have changed dramatically in the last 40 years (Speier, 2001). Yet, despite these changes, this subject still stirs significant societal pressure and becoming a mother can lead women to experience dilemmas due to the transition in personal identity and sense of self (Raphael, 1976; Speier, 2001). Oakley (1993) presents several accounts of women who experienced dilemmas in deciding which aspects of their lives to give priority to and how to adjust to this new identity. A participant explained how her distress emanated from the conflict inside herself between the person she used to

be and what she was required to do after her baby was born; “educated for a world outside the home and then confined to life inside it” (Oakley, 1993, p.203). As Oakley goes on to explain, in the early infant’s life, the mother often takes the role of primary care-giver, having a child that is completely dependent, and yet her past identity did not include the child and her self-worth was derived from other avenues, such as career, socialising with other adults and the freedom to physically go anywhere at any point. All of these aspects are often put on hold. “Becoming a mother is more than just a change in job: it involves reorganising one’s entire personality” (Oakley, 1993, p.199) (see also, Speier, 2001).

This was a poignant matter to consider in light of this PhD research since it focused on the eating behaviours of women who were also mothers. Whilst the point of focus was on them as individuals, on the choices they made and on their experience of weight management, their actions and thoughts could not be analysed in a vacuum but in the context of the role they fulfilled as mothers and caregivers within their family. Warin et al., (2008) argue that, “in most current approaches, food, bodies and eating are disembodied and disengaged from the social contexts in which people live their lives” (p. 98). Once a woman becomes a mother, she is often psychologically ‘tied’ to her role and her children, and to an extent, loses her singularity as an individual (Oakley, 1993; Speier, 2001). Her choices and decisions can be seen as being both personal and collective, relating to the self but also in consideration of her family and its constituent members. The act of breastfeeding and being able to autonomously feed an infant ties food and motherhood in a manner that is unique to the female gender (see Counihan, 1999). Even throughout the health literature, authors suggest that mothers often act as gate keepers of health information (Denham, 2002) and act as role models for positive health behaviours (see Vescio, Crosswhite & Wilde, 2003 for an example). Even if they work outside the home, mothers still occupy a central role in managing family life (Bianchi, Sayer, Milkie, Robinson, 2012) often having an important say over what is

bought and cooked in the household (Gofton & Ness, 1991; FAO, 2013) and tend to demonstrate a heightened sensitivity over their children's nutrition more than their male partners (Denham, 2002; Devine, Jastran, Jabs, Wethington, Farell et al., 2006). As a research participant therefore, a mother exists within a family system and her role is often both to manage this system but may also be conditioned by it.

1.3.3 A family systems theory to weight management

Systems theory conceptualises the relationships and functioning positions of the people that make up a system, such as within the family (Gurman & Kniskern, 2014). Behaviours, psychological issues or even health conditions such as obesity, are understood within this complex system of relationships that typically seeks to maintain balance. Whilst only one individual in the family may display a 'symptom', that symptom cannot be seen individually but conceptualised within the dynamics of the family system that may be showing signs of stress or seeking means to cope, such that balance is maintained or restored (Gurman & Kniskern, 2014). This poses a question within obesity research, for obesity affects primarily the individual who is overweight and the experience of weight management is often a personal journey. Yet, the onset of weight gain, the attempts to regulate weight and the maintenance of obesity, all take place within a family system that is embedded in the larger cultural and social environment. For example, women are often brought up to be nurturers and in heterosexual relationships, they often take the lead caregiving role placing the needs of others before their own (Warin et al., 2001). This tendency has been linked to binge eating behaviour in women but not in men (see Goodspeed Grant, 2008). One can therefore posit that social gender expectations may be adopted within some family systems, creating the right backdrop for specific eating behaviours or disorders to develop in which women and specifically, mothers, may be more at risk. Once triggered, the eating behaviour, and consequently obesity,

becomes part of the functional make up of that system and if challenged would risk upsetting its equilibrium.

Some researchers have argued for a system approach to understand and tackle obesity and maintain that people often think in linear terms, engaging in weight management with a set of beliefs that assume cause and effect in a single direction (Hamid, 2009). For example, that appetite effects weight gain or that restricting calories by dieting will lead to weight loss. Hamid (2009) argues however, that often, the inverse is also true – weight gain can lead to more appetite, and dieting often leads to a yo-yo pattern of more dieting and weight gain (see also Elfhag & Rossner, 2005). Causation is therefore circular, not linear (Hamid, 2009). Hamid continues to argue that a fundamental attribution error may occur when focusing weight management on the individual (e.g. personal control, will power) without considering the situational factors in which this person exists (e.g. family expectations or food availability in the environment). From a systems perspective, the individuals' actions are not separate from the context and rather than focusing on why one individual is obese, Hamid argues that we should be asking why society is obese and how is obesity being maintained in the larger social system. From this point of view, obesity could be thought of as a symptom not only within a family system but a product of a larger social system with numerous factors maintaining it.

1.3.4 The impact of the physical and social environment

From an evolutionary perspective, the human genome has changed only minimally in the last millennia, however, subsistence efficiency has declined remarkably (Saris, Blair, Van Baak, Eaton, Davies et al., 2003). The physical and social environment has long been recognised as a key element in health promotion, known to directly influence health behaviour change (see WHO, 1986).

One key factor shared among numerous societies in world, is a nutrition transition (see Food and Agriculture Organisation of the United Nations [FAO], 2013; Popkin, 1999) that has shifted the way human beings work, relate, eat and exercise (Rumm-Keuter et al., 2001; Saris et al., 2003). A nutrition transition often occurs in parallel to the industrialisation process of a population group and is marked by decreased energy expenditure combined with a lower consumption of whole-grain foods, higher intake of animal products and an increased reliance on energy dense and processed foods (FAO, 2013; Belahsen & Rguibi, 2006; Popkin & Bisgrove, 1988).

Researchers point out that the constant availability of highly palatable, energy-dense foods at relatively low-cost bombards individuals and increases the salience of this cues in the physical environment (Stok, de Vet, Wardle, Chu, de Wit & De Ridder, 2015). This so called 'obesogenic' environment is linked to heightened reward sensitivity whereby some people feel compelled to eat highly palatable foods simply because of their presence and not because of nutrient or metabolic requirements (Morris, Beilharz, Maniam, Reichelt & Westbrook, 2015). The consumption of such foods is known to trigger the brain's dopamine system that plays an important role in reward-related processes in drug addiction. In time, such eating patterns may lead to an erosion of the brain reward system which may lead to abnormal responsiveness to palatable food and food cues in the environment (Morris et al., 2015).

Townsend Rocchiccioli, O'Donoghue & Buttigieg (2005) point out that a similar shift occurred in Maltese diets which was combined with the effect of British colonialization in the 1800. As a British colony, Maltese society was introduced to new foods that were not in line with the traditional Mediterranean diet, such as an increased consumption of red meat over fish, the use of butter instead of olive oil, frying instead of baking or poaching, and a general increase in refined sugars and fats (Townsend Rocchiccioli et al., 2005). Since the 1990s, the country has also

witnessed increased urbanisation (Priority Actions Programme [PAP], 2005) which is known to promote increased energy consumption and a reduction in energy expenditure (Popkin, 1999). Maltese authorities report major changes in the type and quality of food products available on the market and “aggressive marketing strategies of energy dense foods and drinks as well as widespread food outlets such as pastizzeriji, confectioneries, bars and kiosks” promote an obesogenic environment and drown public health efforts (Superintendence of Public Health, 2012, p.34).

1.4 Addressing weight management through lifestyle factors

Whilst fully acknowledging the role of the environment on food consumption and weight management, in 2004, the WHO launched a global strategy urging international stakeholders to take action at multiple levels to improve the diets and physical activity patterns across population groups (see WHO, 2004). Diet and physical activity have since been the focus of numerous weight loss programmes, however, researchers acknowledge that the effectiveness of current weight management interventions needs to be improved as half of the initial weight loss is typically regained after just one year (see reviews by Curioni & Lourenço, 2005; Kouvelioti, Vagenas & Langley-Evans, 2014). This means that understanding which factors are most salient in specific weight-loss interventions could help improve their effectiveness both in the short and long term.

1.4.1 A focus on dietary strategies

There have been several reviews and meta-analyses in the last twenty years that have compared the results achieved by dietary and exercise interventions or the combination of both (see for example Clark, 2015; Curioni & Lourenço, 2005; Greaves, Sheppard, Abraham, Hardeman, Roden et al., 2011; Miller, Koceja &

Hamilton, 1997; Wu, Gao, Chen & van Dam, 2009). Dietary interventions are typically focused on calorie-restriction whereby the total daily dietary calorie intake is reduced to achieve an energy imbalance (Fock & Khoo, 2013). Exercise interventions typically focus on increasing leisure time physical activity (LTPA) and a number of studies have investigated outcomes between low, moderate and high intensity levels of activity (See Curioni & Lourenço, 2005; Mekary, Feskanich, Hu, Willet & Field, 2010; Wu et al., 2009).

Findings suggest that while the combination of diet and exercise results in a higher initial weight loss, the contribution of the two behaviours is not equal (see reviews by Lara & Amigo, 2011; Miller et al., 1997; Shaw, Gennat, O'Rourke & Del Mar, 2006). Reviewing data from forty-three randomised control trials, Shaw et al., argue that dietary interventions are stronger for creating an energy imbalance than physical activity interventions. In addition to this, researchers agree that the amount and intensity of physical activity required on a daily basis to prevent weight regain by the overweight and obese is higher than that typically prescribed (Mekary et al., 2010; Saris et al., 2003). Saris et al., (2003) conclude that 60 to 90 minutes of moderate to high intensity exercise daily are required in order to sustain weight loss, which is double the amount typically prescribed by health care professionals. It is also acknowledged that maintaining such levels of physical activity daily would require significant effort to maintain long-term (Mekary et al., 2010; Saris et al., 2003). Even then, the effect of exercise intensity on the magnitude of weight loss is outweighed by the effects of a well-tailored dietary intervention (Shaw et al., 2007). Therefore, whilst acknowledging the cardiovascular benefits that may be reaped by improved physical activity for all individuals (WHO, 2014), it seems opportune to focus research efforts on improving the effectiveness of dietary strategies for weight loss as this may yield more encouraging results for overweight and obese individuals (see Shaw et al., 2007).

1.4.2 Psychological factors linked to food choices & BMI

The psychological dimension of obesity has long been recognised (see Kaplan & Kaplan, 1957) and has since been underlined by numerous researchers (see Buckroyd & Rother, 2008; Karasu, 2012) and professional bodies (see BPS, 2011). Within the health and social psychology literature, several socio-cognitive models have been put forward, including; The Health Belief Model (Becker, 1974), The Theory of Reasoned Action (Fishbein & Ajzen, 1975), the Theory of Planned Behaviour (TPB) (Ajzen, 1991), Protection Motivation Theory (Maddux & Rogers, 1983) and Self Efficacy theory (Bandura, 1977) to name a few. Each of these theories proposes a set of key constructs that are believed to explain or predict a specific health outcome (see Conner & Norman, 1996).

The Theory of Reasoned Action (Fishbein & Ajzen, 1975) and its extension, the Theory of Planned Behaviour (TPB) (Ajzen, 1991) have received significant attention in the health literature (see Conner & Armitage, 1998). Attitudes and perceived behavioural control are typically reported as being the strongest explanatory constructs in the model (see Armitage & Conner, 2001). These have been applied to several health outcomes including, healthy eating (Conner, Norman & Bell, 2002), intentions to eat fruit and vegetables and intentions to eat a low-fat diet (Povey, Conner, Sparks, James & Sheperd, 2000). Another well-investigated construct is that of Self-Efficacy based on Self-Efficacy Theory (Bandura, 1977). This refers to individuals' beliefs regarding their ability to undertake specific behaviours to achieve a goal (Bandura, 1977). This construct has been identified as a mediator to weight loss (see Clark, Abrams, Niaura, Eaton & Rossi, 1991) and applied successfully in trials to lower BMI in overweight endometrial cancer survivors (see McCarroll, Armbruster, Frasure, Gothard, Gil et al., 2014). General and eating self-efficacy have also been linked to fewer episodes of loss of control in eating among females

susceptible to weight gain and binge eating disorder (see Glasofer, Haaga, Hannallah, Field, Kozlosky et al., 2013).

However, despite the contribution of some of these constructs in explaining health behaviour, socio-cognitive models have received substantial criticism (see for example Ogden, 2003; Sniehotta, 2009). Ogden (2003) questions the operationalisation and construct validity of some of the variables in the models and argues that whilst a number of studies do not find the hypothesized effects or relationships, the theories are never challenged. This raises doubt as to whether any amount of data could ever reject these theories. In addition to these concerns, Sniehotta (2009) points at the emphasis on motivational, cognitive processes in most socio-cognitive models, ignoring the volitional aspect of health actions where behaviour is planned, performed and maintained. Researchers have pointed out that even after an intention towards a behaviour is formed, people may fail to deal effectively with self-regulatory problems whilst trying to reach that goal (Gollwitzer & Sheeran, 2006). The concept of 'implementing intention' (Gollwitzer, 1999) suggests that by specifying the when, where, and how of an action, a goal is more likely to be attained. In fact, in a meta-analysis of 94 independent findings, planning interventions on health behaviours produced a medium-to-large effect size ($d=0.65$) (see Gollwitzer & Sheeran 2006). Planning has since been credited with enhancing the predictive value of socio-cognitive models in eating behaviour (see Adriaansea, Vinkers, De Ridder, Hox & De Wit, 2011, for a review). Interventions and randomised control trials have also demonstrated that planning can increase fruit and vegetable consumption (see Kreausukon, Gellert, Lippke, & Schwarzer, 2012; Gholami, Luszczynska, Knoll & Schwarzer, 2013) reduce saturated fat intake (Luszczynska, Scholz & Sutton, 2007) and change unhealthy snacking habits when matched with individuals' self-regulatory orientations (Tam, Bagozzi, Spanjol, 2010). This lends support to planning as a key construct in understanding and explaining dietary choices. However, whilst planning and implementing intentions may have extended

the predictability of cognitive models, research on dietary choices cannot ignore the numerous meanings that food carries in people's lives, including the impact of one's emotional state (see Ogden, 2008).

1.4.2.1 Emotional, External and Restrained Eating

Food choices take place within a web of meaning that people learn and assimilate throughout their lives (Chamberlain, 2004; Ogden 2008). Not all foods are equal. In the act of choosing one food over another people are responding to an implicit meaning attached to that food, for example; healthy and permitted or un-healthy and guilt-ridden (Ogden, 2008). From a behavioural-psychological dimension, three theories have been proposed to explain why people over-eat, based on traits triggered by internal emotional states (see Bruch, 1964), external cues in the environment (Schachter, 1964) and even attempted restraint (Herman & Polivy, 1980).

Psychosomatic theory (Bruch, 1964; Kaplan & Kaplan, 1957) proposes that some individuals may learn to eat in response to negative emotions such as sadness and loneliness, using food as a way to comfort or alleviate these internal emotional states (see Ganley, 1989). Externality theory (Schachter, 1964) proposes that some individuals eat more in response to external food cues such as the sight, smell and taste of food. Analogous to emotional eating, externality theory posits that some individuals may have decreased sensitivity to physiological signals of hunger and satiety, however, it is the environment in this case, as opposed to one's internal emotional state that acts as the trigger for eating behaviour. Restrained eating theory (Herman & Polivy, 1980) refers to the chronic restriction of food intake (i.e. dieting). Whilst the attempts to lose weight through calorie restriction is often a consequence of overweight, dieting may also paradoxically lead to weight gain (Ogden, 2008). This is attributed to a vicious cycle of restriction, food preoccupation

and increased attractiveness of desired foods which eventually lead to lapses of counter-regulatory eating when the individuals' self-control is undermined (Herman & Polivy, 1980). Each of these theories has been linked to a psychological eating style, namely; Emotional eating, External eating and Restrained eating (see van Strien et al., 1986) yet the links of these eating styles to food choices and BMI is not conclusive (Brogan & Hevey, 2013; van Strien, Herman & Verheijden, 2012).

O'Connor, Jones, Conner, McMillan & Ferguson (2008) reported that all three eating styles were key moderators in the relationship between daily-hassles and increased consumption of high fat and high sugar snacks in adults, particularly in women. However, results from the Stanislas Family Study, using 3-day food intake diaries, showed that while external eating was linked to higher energy intake, female restrained eaters had *lower* consumption and emotional eating was *not linked* to energy intake at all (Lluch, Herbeth, Méjean, & Siest, 2000). Several other studies have since corroborated these findings. For example, self-reported restrained eating was negatively associated with snacking (Adriaanse, de Ridder & Evers, 2011) and high calorie food choices (Anschutz, vanStrien, Van de Ven & Engels, 2009; Brogan & Hevey, 2013). Similarly, emotional eating was not a significant contributor to snacking or food intake in a healthy weight population groups (Adriaanse, et al., 2011; Anschutz et al., 2009) or to food intake in an obese sample (Brogan & Hevey, 2013). Anschutz et al., (2009) found a positive association between external eating and high calorie food intake but this link was not replicated in an obese cohort (see Brogan & Hevey, 2013).

Lluch et al., (2000) recommend further research on the effect of eating styles on energy intake in order to shed light on these discrepant findings. It is argued that whilst eating styles have been investigated as potential mediators (see for example O'Connor et al., 2008) few studies have looked at variables that could act as mediators to the associations between eating styles and food choices and which

could explain some of these confounding results. For example, Burton, Smit & Lightowler, (2007) identified food cravings as a mediator between the external eating style and BMI, while Ricciardelli, Tate & Williams (1997) demonstrated that body dissatisfaction mediated the association between Restrained eating and Bulimic eating patterns. Anschutz et al., (2009) further recommend adopting data analyses techniques that account for the cross-relations between the three eating styles that may partly account for the inconclusive data in the literature.

1.5 Aims of the PhD research programme

Despite the evidence of the psychological determinants that underlie obesity (see BPS, 2011; Karasu, 2012) and that are implicated in weight loss maintenance and relapse (see Byrne, 2002; Elfhag & Rössner, 2005 for a review), the national obesity strategy for Malta 2012-2020 (Superintendence of Public Health, 2012) largely ignores this field of research. Whilst it acknowledges the contribution of the environment, early childhood development and socio-economic inequalities, it fails to acknowledge the potential psychological determinants that could play a key role in behaviour-change interventions (see Greaves et al., 2011).

The national obesity strategy document does acknowledge that, “local data on the area of obesity and food consumption is not readily available” (Superintendence of Public Health, 2012, p.58). This PhD programme was therefore conceived in context of this gap and aimed to investigate the issues of obesity and weight management from a psychological perspective. The focus of the research programme was narrowed to women with families based on the recommendations in health literature to study obesity within the social context of the individual (see Sobal, 2001; Warin et al., 2008) and which identified motherhood as being a salient point of transition that amplifies the weight trajectories for adult women (see Laroche et al., 2013; Umberson et al., 2011). Whilst the international literature points at a

number of key constructs that could be valuable in dietary interventions, this research aimed to gather local data that could point at behavioural-psychological factors that are relevant with the Maltese cultural context and that resonate with Maltese women as a target audience. The research also aimed to validate tools that are culturally sensitive while contributing to the global knowledge-base on weight management and food choices.

1.6 Overview of the phases of research

A mixed-methods approach guided the methodology of the PhD programme. The research was split in two inter-linked phases with two studies in each phase. The first study was a qualitative, pilot investigation of the experience of obesity and weight management among obese Maltese mothers. The themes emergent from this first study informed a second in-depth qualitative investigation on the experience of weight management for Maltese mothers in the context of their family and/or paid work commitments. The second phase of the research programme took a quantitative stance and investigated the key concepts that emerged from the qualitative studies, namely BMI, eating styles, food planning and snacking behaviour. The third study validated the Maltese version of the Dutch Eating Behaviour Questionnaire (DEBQ) (van Strien et al., 1986) thus establishing the DEBQ as a psychometrically sound tool to assess eating styles among Maltese women. The fourth study then set to identify the role of BMI, emotional eating, external eating, restrained eating and food planning, in the snack-food choices of Maltese mothers.

1.7 The structure of this thesis

The thesis is composed of seven chapters. Following this introductory chapter, the general methodology of the PhD programme is detailed in Chapter two. The

empirical section of the thesis follows with Chapters three to six presenting each of the four studies separately and sequentially. Chapter seven then presents the final discussion and concludes with recommendations for practice.

CHAPTER 2: GENERAL METHODOLOGY

2.1 Introduction

This chapter provides an overview of the overarching methodology of the PhD research programme. It introduces mixed methods as the guiding research paradigm, followed by the methodology and protocols for the qualitative and quantitative research phases. The chapter closes with ethical considerations that were pertinent throughout the research programme. Specific methodological details related to the sampling strategies and data collection tools employed for each of the four studies can be found in the empirical chapters (See Chapter 3, p.53 to Chapter 6, p.135).

2.2 A mixed-methods research paradigm

Traditionally, psychologists aimed to study psychological phenomena through a 'scientific' approach that rests on the principles of objectivity, accuracy of measurement, the minimisation of bias and the ability to generalise results (Bryman, 2008). This method to conduct research often follows a positivist approach that argues that only what can be directly observed or measured can be believed to be true and that theories can be tested to predict and explain behaviour (see French, Yardley & Sutton, 2004).

Deductive methods for data collection may include experiments, surveys or assessment scales and are often referred to as quantitative methods since the data collected can be processed numerically and analysed statistically (French et al., 2004). Random samples are preferred in this case since they add to the ability to generalise over the wider population and reduce the bias that may inherently occur due to the provenance or method chosen in selecting participants (Bryman, 2008).

A clear advantage of deductive research methods is that they can provide statistical evidence that can be generalised to a given population and help tailor interventions accordingly (French et al., 2004). Another advantage is that data and results can be replicated by following the same data collection protocol of other researchers and this adds to the validity of the conclusions reached and the usability of these findings across different population groups. The main limitations of the deductive approach could be said to rest on the very foundations it is built on. Human behaviour is often based on an interaction of phenomena that are not always directly observable. Human experience is also fundamentally a subjective one. Additionally, the narrow and often rigid response options for participants such as on surveys or assessment tools, may limit the actual true measurement, and therefore, the full understanding of the construct in question. Therefore, in the pursuit of replicability and generalisability, these tools may miss on the depth and nuances that may exist between participants (Creswell, Hanson, Plano Clark & Morales, 2007).

In contrast to the deductive approach, the epistemological position of inductive or qualitative research methods, stresses that behaviour or any phenomena in the social world, need to be understood through the eyes and experiences of the participants (Lincoln & Guba, 1985). Rather than seeing phenomena as objective truths to be objectively studied, the inductive approach argues for a constructivist philosophy that sees such phenomena as being constructs of interaction and interpretation (Creswell, et al., 2007). Indeed this constructivist view extends to data collection where the researcher is also the data collection tool and therefore engaged with the participant in the co-construction of meaning. Bias, from this point of view, is an inevitable aspect of the research process. Theories do not exist separate to the participants' world ready to be tested, but are arrived at after an in-depth research process. In this sense, theory emerges from an in-depth research

process that is based on the interpretations of participants and the researcher (Bryman, 2008; Creswell et al., 2007).

A main advantage of the inductive approach is that data is richer; coloured by the participants' perceptions, experiences and the unique cultural and ecological aspects of the contexts in which data is collected (French et al., 2004). It emphasizes the voice of the participants by using direct quotes in presenting data, demonstrating the acknowledgement of the participant as the true expert of that phenomenon (see van Manen, 1984). This approach is therefore considered to be perfectly suited for understanding settings or phenomena on which little information is available or to add depth and realistic application of statistical associations that may emerge from deductive methods (Bryman, 2008; French et al., 2004). A main limitation of inductive methods of inquiry is that data collection takes substantially longer, often involving methods such as interviews or focus groups that require direct access to the researcher or research team. These methods also tend to generate substantial amount of data that can be time consuming to analyse (Bryman, 2008; French et al., 2004). Whilst the data generated has valuable depth, it can only be assumed to represent the direct individuals involved in the research and therefore planning interventions for larger groups in the population may not be possible nor feasible.

From the duality of positivist and constructivist research paradigms, mixed-methods research emerges as a third paradigm that bridges the two orientations (Johnson & Onwuegbuzie, 2004). Johnson, Onwuegbuzie & Turner (2007) describe mixed methods research as one that, "combines elements of qualitative and quantitative research approaches (e.g., use of qualitative and quantitative viewpoints, data collection, analysis, inference techniques) for the broad purposes of breadth and depth of understanding and corroboration" (p.123). Rather than attempt to reconcile the epistemological underpinnings that guide the purist positions, mixed-

methods research is guided by a pragmatic philosophical approach whereby researchers reject self-imposed categories and decisions around a predetermined research method but are instead guided by the research questions or the data already available (Johnson & Onwuegbuzie, 2004; Bryman, 2008).

2.2.1 Type of Mixed-Method design

Mixed-methods researchers have recognised that different kinds of mixed-method designs make sense for different kinds of research questions, and that mixed method design frameworks may differ in a number of dimensions (Creswell & Plano Clark, 2011; Greene, 2008). Based on definitions and examples offered by Creswell & Plano Clark (2011) the 'Exploratory-sequential design' best defines the research design of this PhD programme whereby four studies were carried out in sequence with the data from one study informing the next in a two-phase research programme. The first phase was driven by a qualitative methodology and consisted of two studies while the second phase was driven by a quantitative methodology and consisted of another two studies.

In order to better locate this present research within the spectrum of mixed-methods frameworks, key dimensions proposed by Greene (2008), Creswell & Plano Clark (2011) and Johnson et al., (2007) are elaborated upon hereunder:

- i. Status/ priority: The guiding philosophy for this research was one of parity towards both methodologies. Neither method was considered as superior to the other;
- ii. Orientation: A bottom-up approach guided the research. The suitability of a method or data collection technique over another was considered in context of the research question and existing literature;
- iii. Single-study vs Multi-phase programme of inquiry: The research consisted of a multi-phase study design. Two qualitative and two quantitative studies

- built on each other to contribute towards a more succinct understanding of the population group under investigation;
- iv. Timing: The different methods were implemented sequentially, across four coordinated studies within the PhD's programme of research;
 - v. Independence vs Interaction: The qualitative and quantitative techniques employed were conceptualised, designed and implemented independently to one another, however the findings of each study informed the next;
 - vi. Point of Interface/ integration: The mixing of methods was predominant at the data interpretation stage where results from one study informed the next and at the final stage of the research programme where inferences were drawn across the four studies to discuss key findings and identify recommendations for practice. This is sometimes referred to as 'Connecting data' (see Creswell & Plano Clark, 2011).

This section provided an overview of different types of mixed-method frameworks. The next two sections offer a detailed rendition of each of the two phases defining the exploratory sequential research design. Section 2.3 outlines the qualitative methodology followed by section 2.4 that explains the quantitative methodology. Section 2.5 then explains how the two methodological approaches were reconciled and section 2.6 summarises the ethical considerations undertaken throughout this research programme. Every effort was undertaken to follow the guidelines and procedures advocated for specific techniques within each paradigm and whilst the pragmatic approach guided the overall research programme, reference to other approaches was made in the context of that specific research design.

2.3 Phase One: Qualitative Methodology

The first part of the PhD research programme was led by a qualitative, inductive level of inquiry. The aim of this first phase was to gain an in-depth understanding of

the experience of weight management and the barriers and strategies as lived by Maltese women with families. The first study (n=9) was a pilot study that focused on the lived experience of weight management for obese Maltese mothers. The second study (n=20) focused on the experience of weight management for Maltese mothers in context of their family and/or paid work commitments.

Qualitative methods are indicated when investigating topics on which not enough literature is available or where the variables that may constitute an issue have not been well identified (Bryman, 2008; Morrow, 2007). This was deemed to be the case in this research because despite the abundance of international literature on the issues surrounding weight gain, obesity and weight management in female cohorts, there is no published literature that has looked at this phenomenon within the Maltese culture (see Superintendence of Public Health, 2012). It was also the experience of the researcher that obesity and methods to lose or maintain weight within the Maltese community were prevalently based on a medical model and the contribution of psychology in this sphere of health has been largely ignored.

At this stage the PhD programme was focused on unearthing information that was rich in detail and based on the real life experiences of mothers who deal with the issue of weight loss or weight maintenance on a day to day basis. Subjectivity was therefore an acknowledged and desirable element and qualitative methods were considered the most appropriate for the fulfilment of these aims (see Bryman, 2008; Morrow, 2007).

Both studies were guided by a phenomenological research design, with in-depth semi-structured interviewing as the method of data collection and Thematic Analysis as an analytical framework. The two studies were carried out sequentially with the second study building on the themes extracted from the pilot study. The next subsections shall delve into each element of the methodological considerations of these

two studies. Details on sampling strategy and data collection procedures can be found in the methodology sections of Chapter 3 (section 3.2, p.55) and Chapter 4 (section 4.2, p.92) respectively.

2.3.1 Qualitative research design: Phenomenology

Amongst the qualitative research designs available, including Grounded theory (Glaser, 1992; Strauss, 1987) and Narrative research (see Daiute & Lightfoot, 2004), Phenomenology (see Giorgi, 1985) was deemed to be the best suited for research questions that aim to capture the core, essential experience that a number of persons share about a phenomenon (see Creswell, Hanson, Plano-Clark et al., 2007 for a comparison). A branch of phenomenology that this study specifically subscribed to was hermeneutic phenomenology (van Manen, 1984) which encourages the researcher to engage in an interpretative process alongside description. As a methodological structure, van Manen (1984) proposes four main activities of phenomenological research which are highlighted hereunder.

- i. Turning to the nature of lived experience: Phenomenology requires researchers to focus on a phenomenon that truly captures their interest and commits them to the world. In addition to querying this research area and formulating phenomenological questions, the researcher also needs to make explicit any assumptions or previous experience about the phenomenon in question. These have been outlined in sub-section 2.3.2.
- ii. Existential Investigation: This stage involves 'gathering data' and investigate experiences as they are lived not how they might be theorised or conceptualised to be. This part of the research process is described as "the educational development of the researcher" (van Manen, 1984, p. 12) which illustrates the proximity that the researcher is encouraged to take to the data being gathered. In addition to eliciting understanding from the persons experiencing the phenomenon, e.g. by in-depth interviewing, van

Manen also proposes using personal experience as a starting point and searching for idiomatic phrases that may tap into the 'reservoir' of collective social experiences of the group being investigated. This step in the research process is explained in sub-section 2.3.3.

- iii. Phenomenological reflection: This part of the research process involves reflecting on essential themes to ask about the essence that makes a lived experience what it is. Thematic analysis (see Attride-Stirling, 2001; Braun & Clarke, 2006) was undertaken in both qualitative studies. Details of this process are reviewed in sub-section 2.3.4.
- iv. Phenomenological writing: During this final process, the researcher needs to be sensitive to what he/she has absorbed and put in words a summation of the whole research process by using the words of the participants as testimony to his/her understanding. Chapters 3 (section 3.3, p.60) and Chapter 4 (section 4.3, p.98) present the findings from the two studies, highlighted by quotes, translated to English from the original verbatim transcripts.

2.3.2 Researcher's Reflexive process

As a woman, I have always found research that explored women's lives and their roles in society to be extremely insightful. Living in a country that is at once steeped in tradition as it is forward looking, I am curious as to how Maltese women make sense of their own evolving roles and the demands required of them. Women around me constantly switch between the roles of wives, mothers, home-makers, carers of the old, sick and disabled, loyal friends and confidantes, unpaid managers of their family's businesses and increasingly, managers of their own careers. In my childhood, women were the fulcrum of family life and it is my experience that they are still expected to be, even if the opportunities available have expanded.

My formal introduction to the field of weight management happened in 2006 when I was employed at the Department for Health Promotion and Disease Prevention and contributed to the development of the national weight management programme (see Bugeja, 2007). Following this role I became affiliated with a number of private health clinics on the island, offering psychological support to individuals attempting weight loss. Through these experiences I have had the opportunity to work directly with people trying to lose weight, most notably mothers, who seemed to share common elements in how obesity developed and how it was maintained. These experiences sparked my interest in this subject and I endeavoured to bring to light the complex dynamics of weight management for mothers living in the Maltese socio-cultural environment.

There were, however, a number of challenges that I perceived prior to embarking on this research and that I reflected on throughout the project's timeline. I am of normal weight and have never in my life dieted, or experienced the ups and downs of major weight gain/loss. I was also not a mother. I was concerned that these differences could inhibit my participants from opening up to me or condition their responses to be more socially-desirable (see Wilkinson, Joffe & Yardley, 2004). In order to overcome this potential source of bias I acknowledged my role as the naïve researcher (see Gokah, 2006) placing the trust on my participants as the true experts on the matter. I relied on my experience in the clinical setting to show them genuine positive regard (Rogers, 1951) and made sure that they were in a setting that made them feel safe and comfortable. During the interview I took note of my posture and tone of voice to invite them to share their experiences and I was aware of keeping my questions open to allow them to answer based on their own frame of reference (see Wilkinson et al., 2004).

A second issue I reflected upon was that I was new to qualitative research techniques and I wasn't sure I would do justice to the rich experiences the

participants would recount. In order to overcome this challenge, I consulted frequently with my supervisory team who reviewed several iterations of the question guide to ensure questions were not biased or leading. During the transcribing and data analysis process, I kept a reflexive diary noting down feelings or thoughts that were elicited whilst reading through the interview transcripts. Mauthner & Doucet (2003) argue that “locating ourselves socially, emotionally and intellectually allows us to retain some grasp over the blurred boundary between the respondent’s narrative and our interpretation” (p.419). Recordings were listened to closely after the interview so that I could note down the non-verbals of participants thus ensuring that I retained the richness inherent in the actual conversation. Finally I consulted with my supervisory team with respect to the themes generated and developed these themes through literature searches to expand on the knowledge gathered.

2.3.3 Existential investigation: A process of data gathering

One-to-one in-depth semi-structured interviewing was selected as the preferred method for data collection in both studies. Compared to other qualitative methods of data collection, the interview setting is the best suited to immerse oneself in the world of the participant (Bryman, 2008; Wilkinson et al., 2004) and to foster a climate of trust and safety (see Morrow, 2007). This was deemed particularly important based on other qualitative studies that have suggested that obesity and weight management can be emotionally charged topics for interviewees (e.g. Thomas, Hyde, Karunaratne, Kausman, & Komesaroff, 2008). One-to-one interviewing was also fitting to my personal skill-set as a psychologist conducting research (Morrow, 2007). Nonetheless, I was also mindful of a potential role-confusion and that I needed to approach participants as a researcher not as a psychologist engaging in therapy. The rationale for opting for a semi-structured as opposed to structured or fully unstructured interviewing was based on the

knowledge that this facilitates the interviewee to stay on course and address the main research questions in the limited amount of time available, making analysis also more manageable (Bryman, 2008). It also offered substantial flexibility to the sequence of questions and to ask further questions were relevant, thus allowing for a deeper richness to emerge (see Bryman, 2008; Wilkinson et al., 2004).

As described by van Manen (1984) phenomenological research involves a process of reflecting on the data gathered to arrive at the thematic structures that make up that experience. Several analytical techniques were reviewed, including; Discourse Analysis (DA) (see Burman & Parker, 1993), Interpretative Phenomenological Analysis (IPA) (Smith, Jarman & Osborn, 1999) and Thematic Analysis (TA) (see Attride-Stirling, 2001; Braun & Clarke, 2006). DA was not deemed as a suitable analytical technique due to its emphasis on the role of language rather than accessing the inner world of meaning of the participants (see Biggerstaff & Thompson, 2008). While IPA is suited to understand the complexities of meaning that participants ascribe to an experience (see Smith & Osborne, 2008) the qualitative research phase also needed to distil factors and processes that could lead to further quantitative investigation. TA was evaluated as a flexible technique that is not tied to a specific theory or paradigm and allows the researcher to delve both into the personal reality of participants while at the same time being able to acknowledge the factors operating on a more macro-level that may influence those same inner meanings and realities (Braun & Clarke, 2006). Due to its flexibility in approach and technique, the researcher followed guidelines provided by Attride-Stirling (2001) and Braun & Clarke (2006) on how to generate and reflect on themes. These guidelines were referred to for both studies in this qualitative phase.

2.3.4 Generating and analyzing themes

A theme refers to a meaningful unit of data, such as words, phrases or at times whole paragraphs that refer to a central notion or concept (see Attride-Stirling, 2001; Ryan & Bernard, 2003). A highlighting approach was adopted whereby pieces of text were read several times to identify key words or phrases that were particularly revealing about the experience being discussed (see van Manen, 1984). Other techniques were utilized to identify themes, such as concepts that occur frequently, use of metaphors and analogies, observing transitions in the text or noting similarities and differences between transcripts (see Ryan & Bernard, 2003). During this process ideas were noted into the margin of the transcript to be used later to build basic themes. These basic themes were then clustered together into an 'organizing theme' based on a shared issue or level of meaning. For example, in the first study, references to the enjoyment of food were labelled "Food is the pleasure of life" while references to uncontrolled or emotional eating were labelled "Food means comfort". These organising themes were later grouped into 'Global themes' that aim to provide a concluding argument or an umbrella within which the other themes make sense (see Attride-Stirling, 2001). In the two examples provided, both themes were categorised under the global theme; "The meaning of food." Whilst themes were generated through the reading and re-reading of transcripts, reference to literature was made at later stages to further explicate some of the themes.

2.3.4.1 Transcription and translation

In order for the analysis to retain the richness inherent in the language spoken by the participants, the transcripts were analysed and compared in Maltese. Once the themes were identified, a number of quotes reflecting specific themes and sub-themes were lifted from the general transcript and were translated to English by myself, noting to keep the sense of the translation relevant to the context of the discussion. The quotes were then back-translated to Maltese by a graduate assistant to ensure the quote retained the original meaning and was as close a reflection as

possible to the state of mind of the participant when inserted in the final manuscript (see Bracken & Barona, 1991; Cha, Kim & Erlen, 2007). This process of delaying translation into English is supported by other researchers based on the “[...] political recognition of the ontological importance for people of their first language and the implications of colluding, through early translation, with the invisibility of some languages and their users” (Temple & Young, 2004, p.174).

An interpretative level of analysis was kept throughout this phase by going beyond the explicit surface meaning of words to capture underlying meanings and conceptualizations that may be inherent in verbal and non-verbal language (see Braune & Clarke, 2006). The analysis was done by hand utilizing Microsoft Office Applications to facilitate data sorting and processing. Although this was more time-consuming than using known data-analyses software, it proved to be an enriching learning experience and one which ensured a closer relationship with the texts being interpreted.

2.4 Phase 2: Quantitative research design

The second part of the PhD research programme was led by a quantitative methodological approach. Quantitative methods are indicated when the researcher has generated hypotheses based on what is already known about a domain and proceeds to identify or develop the appropriate data collection tools to measure the concepts that make up those hypotheses (Bryman, 2008). This research phase built on some of the themes emergent from the qualitative phase, by investigating further the links between eating styles, food planning and snack food choices. Hypotheses were guided by the themes and with reference to Psychosomatic theory (Bruch, 1964; Kaplan & Kaplan, 1957), Externality theory (Schachter, 1964) and Restrained eating theory (Herman & Polivy, 1980). In contrast to the qualitative stage, this phase was led by a deductive level of inquiry aimed at inferring

relationships between variables such that findings could provide the basis for eating behaviour interventions targeted at Maltese women with families.

Two survey-based studies were carried out in this phase. Study 3 (n=586) validated the Dutch Eating Behaviour Questionnaire (DEBQ) (van Strien et al., 1986) among Maltese women. This provided a psychometrically valid and reliable assessment tool in the Maltese language that served as the main measurement scale in the fourth study. The fourth study (n=315) then set to identify the role of BMI, emotional eating, external eating, restrained eating and food planning, in the snack-food choices of Maltese mothers. The next sub-sections describe in more detail the research design, data collection and data analyses techniques undertaken.

2.4.1 Quantitative research design

Both studies employed a cross-sectional research design. Whilst a longitudinal design would have offered the opportunity of observing differences unfold along a span of time and also help identify causality between variables, this was deemed unfeasible due to time limitations in the research programme. Nonetheless, a cross-sectional approach was deemed adequate to provide an initial snapshot of how the variables were interlinked, which could lay the groundwork for future longitudinal research in this area (Bryman, 2008). The sampling strategy employed in the two studies is reviewed separately in Chapter 5 (section 5.2.3, p.123) and Chapter 6 (section 6.2.4, p.143).

2.4.2 Data Collection Tools

A web-based, self-administered structured questionnaire was deemed as the most suitable data collection tool for both studies in this phase. By making the surveys available on an on-line platform, respondents could complete the survey at a time

convenient to them and submit results instantaneously. This had the secondary benefit of achieving a better response rate and a better quality of responses than other modes of administration (see Gurau, 2006). Both of these factors were important to guarantee adequate power to find significant effects (Field, 2005). Additionally, through the use of web-based survey software, encoding of responses took place in real time. This saved time from data inputting, reduced the risk of mistakes during data coding and facilitated analysis by preparing data in a format that was ready for exporting onto SPSS (see Bryman, 2008). The normality of 'sharing' online posts was also well-suited for snowballing which further increased the span of reach and the speed of data collection.

Some limitations of web-based surveys were acknowledged. Primarily, internet use across EU-member states tends to be higher among the higher educated and those holding employment (Eurostat, 2012). This meant that the samples could carry an educational and socio-economic bias which could limit the diversity of responses and the extent to which results could be generalised. Whilst this could not be completely avoided, it was off-set by encouraging snowballing (see Bryman, 2008) and making the survey available to different on-line community groups to increase diversity. A further disadvantage inherent in structured questionnaires is response fatigue which could lead to incomplete data, undermining power. In order to address this limitation, the questionnaire was kept as lean as possible, including only the scales that were pertinent to the research. Progression information was also included so that participants would know how many more questions remained thus increasing the likelihood of them completing the questionnaire till the end (Bryman, 2008; Frankfort Nachmias & Nachmias, 1996).

2.4.3 Data analysis

Online data was imported to SPSS (Version 20) and filtered prior to data analysis. SPSS was used for correlational analysis, difference between groups, exploratory factor analysis and linear regression analysis. AMOS (version 21) was used for Confirmatory Factor Analysis (CFA) and Structured Equation Modelling (SEM). Details on the tests utilised and other considerations for data analyses and interpretation can be found in Chapter 5 (section 5.2.4, p.124) and Chapter 6 (section 6.2.6, p.144) respectively.

2.5 Reconciliation of the two research phases

One of the main challenges of mixed methods research lies in reconciling two different methodological approaches that stem from opposing epistemologies (Creswell & Plano Clark, 2011). Within this research programme, there were two key points of intersection. The first point occurred between the second and third study whereby the most salient themes of the qualitative phase were linked to existing theory and hypotheses were generated to guide the quantitative phase. This is another known challenge of mixed methods research as the researcher needs to decide which findings deserve continued focus (Creswell & Plano Clark, 2011). This point was reconciled by selecting those constructs and emerging hypotheses that were most likely to contribute to both international literature and also to local practice. The second point of intersection occurred at the end of the research phase when condensing the key findings and recommendations for practice. This involved going back and forth between the two phases, comparing and contrasting findings. Despite the differences in the methodological approaches used, the key findings from both phases of research were aligned considerably. Most distinctly, the positive role of food planning on the consumption of fruit and vegetables and decreased consumption of high calorie snacks was confirmed through both

interview participants and structured equation modelling. Similarly, the positive relationship between emotional eating and BMI noted during the interviews was confirmed through the validation of the DEBQ (see Chapter 5, section 5.3, p.118) and through SEM (see Chapter 6, section 6.3 p.137). This confirms the suitability of mixed methods to provide multiple perspectives to a research issue and that this research was able to integrate these paradigms effectively.

2.6 Ethical Considerations

Before data collection took place in each of the studies carried-out, ethical approval was sought from the Brunel Research Ethics Committee and other institutions where relevant (see Appendices 1 – 5, pp. 206 - 222). The following is a detailed account of all the ethical aspects that were considered throughout the PhD research programme:

- i. Participation was voluntary. Participants had the right to withdraw their participation at any point prior, during or after data collection without providing a reason;
- ii. Participation was anonymous. Recordings of each interview were saved under a pseudonym and shared with the graduate who assisted in transcription and translation with this pseudonym. The same pseudonyms were used throughout this manuscript. Personal information requested in the surveys could not be linked to an individual's identity and the IP address was not retained;
- iii. Whilst the discussion of one's weight and health behaviour could cause distress, the level of risk for the participants was rated as being similar to that generated by self-reflection or a conversation with a friend. However, in order to minimise distress as far as possible, the research checked how participants were feeling during the interview and paused the questions if the interviewee became visibly distressed. When this occurred the

participant was asked whether she wished to continue and reminded her that she could stop the interview whenever she wished. None of the interviewees asked to stop the interview;

- iv. Debriefing information was given to all participants following data collection including the contact details of the researcher. Participants were reminded to get in contact if they wished further information or if they felt uneasy about any of the content discussed during the interview or raised during the survey;
- v. Any information shared with the researcher was kept confidential and was not shared with the third party organisation that provided a platform for the recruitment of participants;
- vi. Data was protected. Recorded data from interviews and survey data was saved in a password protected pc owned by the researcher;
- vii. Data was used only for the purpose of this research and any ensuing publications or presentations delivered in academic conferences;
- viii. Interview recordings will be deleted once the whole process of the doctoral research is completed.

CHAPTER 3: STUDY 1

3.1 Rationale

Obesity has been declared as one of the top public health threats of the 21st century (WHO, 2006). Among Southern European nations, the Maltese islands currently carry the highest percentage of the overweight and obesity burden (Eurostat, 2014) with married adults being disproportionately more at risk than unmarried individuals or children (NSO, 2007).

The literature has pointed at the transitions to shared living space and parenthood as being key life-altering situations (see Jeffery & Rick, 2002; Hartman et al., 2014, Umberson et al., 2011) that may impact on eating behaviours and weight trajectories over time (Umberson et al., 2011). This impact is believed to effect mothers more drastically than fathers, with mothers demonstrating a sharper weight increase (Laroche et al., 2013; Umberson et al., 2011) regardless of whether the children were the biological offspring of the mother (see Laroche et al., 2013). According to researchers, these differences may lie in the organisation of employment and family life since this may lead to different demands and constraints between mothers and fathers (see Batnitzky, 2008; Nomaguchi & Bianchi, 2004; Sobal, 2001; Umberson et al., 2011). Heterosexual women with families are also known to differ from other female sub-groups, both in the meanings attached to food, eating and weight (Wardle et al., 2004; Warin et al., 2007) but also in the constraints or strategies surrounding weight management (Miller & Brown, 2007).

Whilst the broader public discourse around obesity commonly features medical concepts and quantifies obesity in its links to morbidity and mortality, some researchers contend that dietary habits and lifestyles that maintain this condition are deeply embedded in the socio-cultural, environmental and psychological

dimensions of individuals' lives (Batnizky, 2011; Ogden, 2008; Sobal, 2001; Thomas, Hyde, Karunaratne, Herbet & Komesaroff, 2008; Warin, Turner, Moore & Davies, 2007). Although Maltese health authorities have laid out long-term strategies to tackle overweight and obesity across the lifespan, psychological and behavioural factors that may lead to weight gain or facilitate successful weight management were largely ignored (see Superintendence of Public Health, 2012). Whilst substantial research has looked at these phenomena in other Western societies (e.g. Thomas et al., 2008; Byrne, Cooper & Fairburn, 2003) it is not clear whether the experiences of other population groups, including those factors associated with successful weight management, would apply cross-culturally.

Malta is a small island state, measuring 316 km² with approximately 420,000 residents and a population density of 1,282 per square km (NSO, 2012). Although both Maltese and English are recognised as official languages in Malta, Maltese is the native tongue and spoken by a larger percentage of the population (European Commission, 2012). It is also considered as a key aspect of Maltese identity (Debono, 2014). The Maltese grammar has roots in an Arabic dialect dating back to the 1st century AD and that evolved to incorporate words from Italian, French and English through each phase of the country's colonial history (see Borg & Azzopardi-Alexander, 1997). Language is known to characterise and influence the way people understand and interpret their world (see Holtgraves, & Kashima, 2008; Richardson, 1990). Food and by extension, eating behaviour, is known to carry different meanings (Ogden, 2008) and these meanings are largely assimilated and understood through language (see Holtgraves, & Kashima, 2008; Richardson, 1990).

Based on this rationale, it was deemed critical that the first study of this PhD research programme explored the dimensions of food, eating and weight management within the Maltese socio-cultural context, among participants who spoke Maltese as their first language. This was tied to the objective of this first study

to be a pilot investigation and provide a foundation for the consecutive studies rooting them into the issues that are most salient to this population group. Furthermore, this study could provide a deeper insight into the realities of obese Maltese mothers attempting to lose weight and provide a basis to culturally tailor messages and local interventions.

3.2 Methodology

3.2.1 Introduction

This section describes the methodology of the first study in this research programme. It outlines the approach and sampling method, followed by the data collection and data analysis techniques.

The aim of this study was to understand the lived experiences of weight management of obese Maltese mothers and explore key factors that may hinder or facilitate their weight loss process. Given the paucity of research in this field in Malta and the objective to develop future research questions from this pilot investigation a qualitative research design was adopted (see Chapter 2, section 2.3, p.39). A broad interview schedule was developed (see Appendix 6, p.229) tapping into early experiences with weight, attitudes towards 'obesity', factors perceived to have led to weight gain, weight loss efforts, attitudes towards food, dieting and cooking and dietary strategies and barriers. The questions were articulated in Maltese and kept broad and open ended so that participants were free to respond based on their internal frame of reference (see Bryman, 2008). No reference was made to international literature prior to data collection to allow the line of inquiry to be guided by the participants' own experiences and cognitions.

3.2.2 Sampling method

Convenience sampling was chosen to recruit participants. This is an indicative method in qualitative research since it allows for the recruitment of participants who fulfil the inclusion criteria (see Bryman, 2008) and who can provide specific insight into the experience of the phenomenon being investigated (Morrow, 2007). The recruitment criteria for this first study were; being a female Maltese citizen who speaks, reads and writes Maltese as the first language; between 18 - 60 years of age; have at least one child (biological/ adopted) of any age who lives in the same household; married or living with a partner; Current BMI \geq 30; trying to lose weight at the time of the study; not pregnant or breastfeeding. No predetermined number of participants was set. The sampling strategy was mainly guided by a 'redundancy of data' approach (Morrow, 2007). However, since this was an initial exploratory study aimed at informing the PhD research programme, limitations of time and other resources were also considered. Data collection focused on gathering in-depth accounts of the experience of weight management such that further research questions could be developed.

3.2.3 Participant recruitment

Since participants for this study needed to be obese and attempting to lose weight at the time of the study, the Maltese NHS weight management programme was deemed to be an ideal point of departure. This programme is freely available to all Maltese residents at all Maltese Primary Care Centres (Bugeja, 2007) and coordinated by the Department for Health Promotion & Disease Prevention (DHPDP). The participants tend to be native Maltese citizens, typically female home-makers with a secondary level of education (Bugeja, 2007).

In order to recruit participants for the study, approval was first sought from the DHPDP (see Appendix 7, p.231). Following the department's acceptance, ethics approval was granted by the University of Brunel Psychology department research ethics board (see Appendix 1, p.206) and the University of Malta research ethics committee (see Appendix 2, p.209). In order to protect the anonymity of the programme's attendees, a recruitment letter (see Appendix 8, p.232) with the research inclusion criteria and the researcher's personal details, were passed on to the DHPDP Head of Department, who proceeded to inform all the weight management facilitators in all the Primary Health Care Centres. Names and contact details of interested individuals were passed on to the researcher who proceeded to contact all leads and answer any queries. Persons who accepted to participate were informed of their rights as research participants as expressed in the consent form (see Appendix 9, p.233). Once participants accepted to participate a pseudonym was assigned and used throughout the process of data gathering, analysis and interpretation. The five women recruited through this programme were Tania, Grace, Joyce, Susan and Sonia. A further two participants initially expressed an interest to participate yet dropped out due to a fear of having one's voice recorded and being indisposed due to a sudden illness to a family member.

In order to include the voices of mothers who were managing their weight on their own, a snow-balling technique was also undertaken (Bryman, 2008) whereby participants brought forth other potential participants. This technique was deemed suitable given that the population of interest was dispersed and unlikely to be easily reached through other weight management groups. A further four participants who were all trying to lose weight on their own were recruited through this technique; Carmen, Stacy, Cassandra and Amy.

The final sample was composed of 9 mothers with an average age of 50 years (Range: 36-55). All mothers were heterosexual and lived in different parts of the

main island of Malta. All women had children living at home with ages ranging from 7 to 33 years. The participants had an average BMI of 33.5 (Range: 30-38). BMI was calculated on self-reported weight and height. Three of the participants (Grace, Tania, Stacy) had achieved no weight loss since the most recent attempt to control their weight. The other participants discussed an average weight loss of 4.5Kg by the time of the interview. A summary of the participants' demographic information is provided in Table 3.1 (see below).

Table 3.1: Participant Information – Study 1

Name	Age	BMI	Locality	Employment sector	Educ. Level	WM	Kids at home	Kids Age	Interview Location
Grace	49	32	SE	Education	3 ^o	NHS	2	16-25	Clinic
Joyce	53	35	SE	Home maker	2 ^o	NHS	3	16-25	Home
Susan	53	33	SH	Home maker / PT Family Business	2 ^o	NHS	2	25+	Clinic
Sonia	55	35	NH	Social work	3 ^o	NHS	1	25+	Clinic
Carmen	48	32	NH	Health	3 ^o	Alone	2	16-25	Clinic
Tania	54	31	SH	Education	3 ^o	NHS / Alone	1	16-25	Work
Stacy	36	38	SH	Education	3 ^o	Alone/ C.D	3	7-16	Work
Cassandra	53	30	NO	Home maker/ PT Self-Employed	2 ^o	Alone	3	16-25	Home
Amy	52	36	NO	Home maker	2 ^o	Alone/ C.D	1	25+	Home

Note: Locality: SE = South East; SH = Southern Harbour; NH = Northern Harbour; NO = North; PT = Part time; Educ level = Educational level; 3^o = Tertiary; 2^o = Secondary; WM = Weight Management; NHS = National Health Service; C.D = Commercial Diet

3.2.4 Piloting

A free recording application for mobiles was downloaded on which all interviews were eventually recorded and saved as mp3 files. The question guide and recording

equipment were piloted with one woman who fulfilled inclusion criteria but who later did not participate in any of the studies. The pilot participant gave positive feedback and no revisions to the question guide were deemed necessary. The recording was also listened to and it was deemed to be clear and required no further adjustments.

3.2.5 Data collection

All the interviews were carried out face to face by the primary researcher between June and November 2011. Participants were given the opportunity to choose a setting that was convenient to them (see Table 3.1, p.58). At the start of each interview the consent form (see Appendix 9, p.233) was read and signed and a debrief form (See Appendix 10, p.234) was provided after the interview ended. Each interview took between 45-75 minutes (Mean=62 minutes). Audio recordings were transcribed verbatim by the primary researcher and a graduate assistant who was also a native Maltese speaker. Each transcript was read, re-read and corrected where necessary to ensure that references to non-verbal cues featured accurately in the text. Data was transcribed and analysed while recruitment of participants was taking place. Due to the limitations of time in the PhD programme, data collection was closed after the 9th participant based on a rich volume of data and a clear congruence on a number of themes which were later also identified in the literature. Therefore, whilst it would be premature to claim saturation of data, the data collection had reached its primary objective of extracting rich information on which to base the following studies.

3.2.6 Data analysis

Data analysis was conducted by the primary researcher using Thematic Analysis as a guiding framework (see Attride-Stirling, 2001; Braun & Clarke, 2006). The general

path towards identifying themes within this study was an inductive, data-driven one. The researcher did not consult literature before or during the data analysis stage in order to remain as unbiased as possible. Themes were developed iteratively following several readings of the transcripts aiming for an interpretative level of analysis rather than a descriptive approach to the data (see Thomas et al., 2008). Data was analysed by hand and a constant, comparative method of analysis was applied to explore salient differences between participants. Translation of the text from Maltese to English only took place after the analysis to maintain the meaning inherent in the original language during the extraction and interpretation of themes (Temple & Young, 2004). A detailed review of the data analysis process is provided in Chapter 2 (see section 2.3.4, p.45).

3.3 Presentation of Findings

The key themes that emerged from the thematic analysis are presented in this section. In all there were four main themes. Table 3.2 provides a summary of these themes and sub-themes with a selection of quotes to illustrate the findings.

Table 3.2 Identified Themes and Sub-themes with Exemplifying Quotes

Theme	Sub theme	Exemplifying quote
Theme1 Living with obesity	1.1 Body image, stigma & self-esteem	I could be wearing the nicest dress, wearing the most beautiful make-up and everything is beautiful and still I don't feel beautiful, I still see that fat woman.
	1.2 Physical repercussions of weight gain – a sign to take action	But what really helped me was, when I received my results [from blood test] with cholesterol levels. There, I had a shock! [Clap of hands]. It was a shock!
Theme 2 The meaning of food	2.1 Food is the pleasure of life	There is nothing more beautiful. Food for me is the most wonderful thing in the world!
	2.2 Food means victory and celebration	Our mothers suffered through the Second World War. So they are rich not according to how much money you have but according to what you're presenting on the table

	2.3 Beliefs and attitudes to healthy eating	You eat a little bit of everything. For example today you cook pasta, tomorrow you cook meat, the next fish
	2.4 Food means comfort	I ended up eating in the evening due to feelings of sadness...
	2.5 Sensitivity to the food environment – Food is like an addiction	Bread is like, I don't know how to describe it [...] Oh my! It's amazing! An addiction like!
Theme 3 Managing weight: Goals and strategies	3.1 Setting weight goals	According to my height, I believe I need to be around fifty [kilos]. But if I'm sixty I'll be pleased...
	3.2 Dietary strategies	... we stopped buying the Maltese loaf and buying [bread with low GI] even pasta, we still do it, but I do thirty [grams] each I'd be dying when I'm going past a <i>pastizzeria</i> , but I keep on walking past it.
Theme 4 Motherhood, self-sacrifice and weight management	4.1 Responsibilities and self-sacrifice impact eating behaviour	I said, then it's better that I don't take anything [commitments] it's true perhaps with my presence... And the fact I didn't take those commitments, I started eating uncontrollably
	4.2 Limited partner support	I cooked the burgers and chips for my husband, I cooked them and I didn't take! He was asking me, "Aren't you going to take? Aren't you going to take?"

3.3.1 Theme 1: Living with Obesity

3.3.1.1 Body image, stigma & self-esteem

When asked what was their general experience of living with obesity, all the mothers participating in this study were of the unanimous opinion that being obese carried no advantages.

Because I know, I don't buy it, everyone who is overweight, they are not really happy, not true! They would be happy on the outside, normally overweight people are jolly, they try to make others laugh, because inside they wouldn't be happy! Because otherwise nobody would be doing diets! Nobody would be trying to lose weight! They can say that they are happy with their weight as much as they want, but it's not true! (Stacy)

All of the participants shared negative experiences that they lived through, with the majority referring to experiences of discrimination, stigma and bullying both as children and adults.

I was very overweight as a child, I was fat. And a lot of the kids wouldn't want to play with me, a lot of the times, because they used to tell me that I don't run fast enough you know... (Grace).

Once I was walking to the school to pick up the kids and a bus full of students stopped next to me and someone, one of the kids had this apple and they threw it at me and shouting 'You fat one!' (Joyce)

These negative experiences seemed to align with their own critical evaluations of their general beauty which seemed to emerge most strongly when looking for clothes or during social events;

I go in front of the mirror and I look in the mirror [pause] I could be wearing the nicest dress, wearing the most beautiful make-up and everything is beautiful and still I don't feel beautiful, I still see that fat woman. (Stacy)

There have been times when [I am preparing to go out] but I would be unhappy about how I look and I'd say, "Where on earth are you going?!" And it effects me. Not that often, but it effects me. (Carmen)

For example if we have a wedding, even when they come serving food, I don't take any so that people don't say "If she eats then it's obvious she gets fat"... you see, maybe it's my mind [...] I'm a pig if I eat. So that affects me, socially, it does. (Joyce)

As these quotes suggest, the participants feared social rejection or the judgement of others, particularly if those social situations revolved around food or in which their body shape would be a point of focus, such as at a clothes shop. As reflected in Joyce's quote, she was constantly thinking what others might think of her as an obese woman, which meant that her actions became conditioned by her weight and her perceptions of others' judgement.

3.3.1.2 Physical repercussions of weight gain – a sign to take action

The mothers also shared physical aches and pains that were exacerbated by their weight and that hindered daily tasks;

My back and my knees hurt [...] in the last five years I started getting these pains and when you for example go to the doctor he tells you to lose weight. And for example, you tell him that you have been trying [to lose weight] for ten years, but then you lose some [weight] and then you start going up again. (Susan)

To clean the house and to walk [...] even for example to go up to the washroom and switch on the washing machine, I feel out of breath when I go up the stairs. (Amy)

Both Amy and Susan had tried to lose weight in the past but never managed successfully. This meant that as they got older the physical costs of their weight on their body became more noticeable. In fact, for some, it was only when they had evidence of this physical deterioration black on white that they felt an urgent need to take action.

But what really helped me was, when I received my results [from blood test] with cholesterol levels. There, I had a shock! [Clap of hands]. It was a shock! [...] That is what really made me realize, because my blood pressure was getting higher and cholesterol was high. And I have three nieces, four actually... and I want to live to enjoy them. (Sonia)

When she [nurse] told me that my blood sugar was high, in my family nobody had that, so it was because I was gluttonous, or maybe careless as well, I don't know, anyway, that was the reason why I started [trying to lose weight] (Joyce)

As these quotes highlight, the physical invisible repercussions of obesity, such as cholesterol and sugar levels, seemed to provoke a sense of fear that their obesity could become life-threatening. This became even more salient when they considered that increased weight and aging were not a good combination for longevity.

Now I'm getting worried because of my age and ill-health, extra weight leads to illness, so now I'm a bit concerned that I don't continue to get fatter. (Tania)

And the fact that my mum was a heart case and diabetic, you see, and my dad died because of a heart attack as well. Sort of, there is that in the family. (Carmen)

These quotes suggest that whilst previously they were able to ignore physical signs of their overweight, blood test results seemed to crack through their passive state and provoke them to take action. The physical costs of obesity were particularly

poignant for Amy, Tania, Carmen and Sonia, who all experienced the death of at least one of their parents from either circulatory or metabolic conditions.

As this theme illustrated, the implications of obesity experienced by these women were wide and far reaching with factors impinging on every dimension of their health. The next theme delves deeper into the meaning they ascribed to food followed by the weight management efforts they were engaging in.

3.3.2 Theme 2: The meaning of food

The participants were asked to identify the reasons for putting on weight. The meaning that food and eating held for them on an emotional level transpired as a common theme across all interviews. This theme is made up of three sub-themes each delving into different aspects of food and eating in relation to their current weight goals.

3.3.2.1 Food is the pleasure of life

All of the participants discussed how food represented joy, pleasure and an outlet to express their creativity and passion in the kitchen.

I: So if I had to ask you for an adjective to describe food?

P: [pause] There is nothing more beautiful. Food for me is the most wonderful thing in the world! I am serious, I really mean it.

I: Hmmm

P: First of all, I love cooking it. I truly relax when I cook. I really enjoy it and I enjoy watching others enjoying eating. I love it! For me it's one of the most wonderful things [smiles]. (Sonia)

I'm going to be honest. Ahh! It's the most wonderful thing in the world [laughs], when I am eating—not when I'm eating a salad, cos I don't like it, but when I'm eating something good, I'd be truly happy [...] Like, food is the pleasure of life for me [smiles]. (Stacy)

Food is art, I enjoy eating it, I enjoy cooking it, I enjoy inviting people over, so there is nothing more wonderful than food! (Cassandra)

It [cooking] is something enjoyable [...] Me and another two colleagues, we talk about food like we were talking about our husbands. "What are you going to cook today?!" With a certain passion! With a certain passion, you understand! We mention some four recipes every day and we really laugh! (Sonia)

As can be captured from these quotes, even talking about food and eating evoked smiles and an aura of happiness among the participants. During the interview the women recounted recipes of their signature dishes, explaining in detail where specific ingredients were bought from and how they should be cooked to release the best flavours. They also explained that they frequently invited people over and that they enjoyed cooking for others. This tied the pleasure of food not only to the physiological level of taste and flavour but also to the dynamics of social interaction.

3.3.2.2 Food means victory and celebration

Amidst the discussions on the pleasure of eating, some participants referred to their childhood, linking their passion for food and cooking to their own provenance.

Our mothers suffered through the Second World War. So they are rich not according to how much money you have but according to what you're presenting on the table. [...] The status of the family was tied to the food you eat. That my mother and father four times a week [now] eat meat, when in the past they used to do this to kill a chicken. [Passes hand over forehead]. And we got used to this way of life. I was brought up like this. (Sonia)

Every Wednesday, Dad used to bring pastizzi and in the evening we'd have a pastizzi party because he used to get us pastizzi, we were seven at home, so you have to get two dozens! Yes Wednesdays even if we would have eaten earlier, Dad always used to take till eight or nine to get home, and at that late hour, everyone takes a coffee and eats pastizzi. (Cassandra)

These memories from their upbringing suggest that from an early age food became a symbol of victory, celebration and family unity. Enjoying good food therefore represented an important value that transcended generations. However, as the next sub-theme illustrates, this value often conflicted with health recommendations.

3.3.2.3 Beliefs and attitudes to healthy eating

All of the mothers were knowledgeable about what constituted a healthy diet and most were able to recall accurate public health information.

I: So when you say 'healthy diet' what does that mean to you?

P: You eat a little bit of everything. For example today you cook pasta, tomorrow you cook meat, the next fish, you regulate, you plan, and it's very important to reduce your portion size if you are overweight. (Sonia)

It means that I don't use oil, erm or fats and that for example, if I am going to make a white sauce, I don't even use butter for example I use skimmed milk. And I don't fry I grill... (Grace)

As these quotes suggest, the mother were knowledgeable of how to ensure a healthy diet. However, Stacy shared a potentially more honest reaction;

I: So what is your understanding of healthy eating?

P: [Laugh] Bad [tasteless] food! No, no, I'm joking! (Stacy)

Although she laughs it off as a joke, Stacy's initial gut reaction to healthy eating may be quite revealing. In fact the majority of the women seemed to find it hard to reconcile their value for taste with their knowledge about health when discussing their cooking style and methods.

Let me tell you, if you grill a piece of meat instead of frying it... It's tastier fried, but you can see that it's better grilled than fried. (Amy)

I don't do much frying, but certain things if you don't fry them they are not tasty! Like *pulpetti*, if you do them once every blue moon, aren't fried tastier? In the oven, their taste... I'm taking all that work to do them, then at least I enjoy eating it eh?! (Tania)

For example this weekend I couldn't help it, I had rabbit – you want Maltese bread with that. You can't help it, in order to eat—, you're not going to eat—even though I don't mind brown bread. (Cassandra)

As the examples above suggest, the participants seemed to recognize that their words contradicted their current weight management efforts. An internal conflict seemed to be taking place between the dietary knowledge aimed at weight loss, the attitude towards a healthy diet and the beliefs around what would create a palatable dish. These latter beliefs seemed to consider the level of reward obtained

from eating a specific food based on the effort necessary to cook it. It was also apparent during the interviews that some mothers justified their choices of ingredients or cooking methods based on it being a traditional dish, such as rabbit, as can be seen in Cassandra's words that Maltese white bread was the best accompaniment to stewed rabbit, because "you can't help it".

3.3.2.4 Food means comfort

As the previous theme illustrated, food carried multiple meanings for the participants and symbolised pleasure, celebration and family unity. However, as each interview progressed, participants recounted that food was also a means of comfort particularly when experiencing negative emotions.

Sort of, I'm a comfort eater - just so we're clear. That I admit it. (Carmen)

I ended up eating in the evening due to feelings of sadness, [pause] because my husband used to work abroad, so I used to be alone and so I used to gulp down food. My son is always giving me trouble and so I'm always worried and eating [...] (Tania)

I'm not the type to stay buying chocolate to lose myself into it. No, from that point of view no, but, if I have tension, I just go and cut off a piece of cheese, that's enough, I just would want that little piece of something (Cassandra)

Yes when I'm passing through a stressful period, yes, I get this— for example, last year, last scholastic year, I was doing this course and when I used to go for lectures, I used to snack and that's where I started, those five kilos I had lost piled up again. I used to snack cos I used to get frustrated, upset, cos I have a lot to do and then I get home tired... (Stacy)

The mothers acknowledged that their eating pattern was not always motivated by hunger and that negative emotions such as loneliness, worry or tension played a key role in their food choices. While Cassandra and Stacy, seemed to opt for small portions of food which they would snack upon through the day, Tania's use of the Maltese verb "nibla" meaning to gulp or to swallow, rather than the verb to eat, "niekol", hints at a mechanical eating behaviour, devoid of any appreciation for the food. This was counter to the previous sub-theme where taste was so fundamental

and food discussed with such joy. Grace also linked her increased comfort eating to the restraint of bread and other carbohydrates;

Mum used to make me salads to take with me to work, and this went on for a while, until one day I thought to myself 'Oh my God! I really feel like eating bread!' And I went to buy six baguettes from the market in Valletta I recall, and I ate them all! I had missed bread a lot all of a sudden! And since then my life has always been like this... it's like I'm always on a diet (Grace)

As Grace explained, her restriction of carbohydrates had increased the palatability of bread to the point that she could not control her eating. Her statement "it's like I'm always on a diet" explains how she is constantly attempting to exercise control but that this seems to increase her uncontrolled eating even more.

3.3.2.5 Sensitivity to the food environment – food is like an addiction

Participants also explained how their uncontrolled eating behaviour did not always need to be preceded by an emotional trigger. The sight, smell or even the thought of food was enough to instigate them to eat.

Bread is like, I don't know how to describe it [...] Oh my! It's amazing! An addiction like! Even for example if I'd be passing from next to the cupboard I smell the bread from the outside [...] I say that I truly sympathise with those who are for example either addicted to drugs or addicted to cigarettes, because I personally feel it's really hard to get rid of this and they are in my same situation. So I really understand them. (Joyce)

For example, if I would know that I have a piece of chocolate or something good [delicious] in the fridge, I have to have [eat] it! (Amy)

Even my husband, he likes sweets. Once we have it at home—although in his case if he takes a square [of chocolate] it's enough. I don't know how to stop eh, I don't know how to stop. (Carmen)

I know what it means to have an addictive personality. Because I am not a woman! [...] I'm so weak [...] I am not capable. I am not capable to refuse if you come in front of me with something [delicious]. I am not... (Sonia)

As these quotes testify, the participants shared a common predisposition to eat in response to external food cues. Carmen explained the effect that food had on her by contrasting her behaviour with that of her husband who was described as able to

stop after eating one square of chocolate. Similarly Sonia retorted that she was “not a woman”. This is a Maltese figure of speech that means one has no honour, no will-power or that one is weak. This self-ascribed label can be understood in context of the cravings and urges that often overpowered the participants’ self-control and which made them feel like they were addicts. Adding to the vulnerability that these women already experienced daily, all of the mothers spoke of the environmental realities that presented constant food cues and that threatened their weight management objectives.

Now I work in Valletta, and I have a lot of work in court, have you any idea of how many confectioneries I pass in front of?! [Sigh]. (Sonia)

Yes, they [pastizzerias] do make you fall into temptation, if you’re not careful they make you fall [into temptation]. (Tania)

My mouth would be watering when I go past a pastizzeria but I keep going past it (laughs). For us Maltese, pastizzi make you lose your track eh!! (Cassandra)

I am surrounded by them! Different bakeries with different breads and I always want to experiment and taste a new type of bread. That is a big drawback... (Grace)

The women agreed that walking in their village often felt like a mine field, having to resist relapse and exercise control at every *pastizzeria*, bakery or confectionery they walked past. Tania and Cassandra felt this so strongly that they actually personified the *pastizzi* outlets and gave them a controlling role in their decision making, e.g. “they make you lose track” and “if you’re not careful, they make you fall”. This suggests that the women perceive the power balance to be external to them and inherent in these high-calorie pastry foods that are constantly available in their environment. In parallel to this sense of being victim to a hazardous environment, some mothers also shared a sense of deprivation that seemed to influence their decision making around food stimuli and cravings.

You can’t spend a lifetime the same, every now and then just cos you went to town and you took a *pastizz* or *qassatata*, I repeat, it’s not good everyday, I don’t even want it every day, but never in my lifetime? You see what I mean? (Amy)

I am angry because I know I could have avoided eating it [qassatata] [...] But I knew that today after seven, I can't eat cos tomorrow I need to go and take my blood test, so my conscience told me, "Then have it [qassatata] now, because this evening you can't eat." Do you see my point? (Sonia)

I enjoy watching TV and eating pringles, but now, [laugh], instead of a large pringles I have the small one [laugh] at least eh, you're not in the world just to suffer! (Tania)

These quotes shared a common element of justifying the consumption of high calorie snacks by picturing a life of suffering and deprivation and adopting a cognitive process that excused the need for respite from the weight-loss effort. This can be seen in Tania's and Amy's comments, "not in the world just to suffer" and "never in my lifetime". This seemed to place the process of weight loss and dieting as their enemy which could explain why both women frequently relapsed in the past. Sonia provides a further example on how cognitive processes could be misaligned to the weight loss goal. She had stopped at a take away outlet on her way to the interview and attributed permission from her conscience. Arguably this represented a pure place within her mind, thus reducing her perceived level of control and potentially also atoning for the dissonance between her goals and her actions.

This theme described the meaning that participants attached to food. On the one hand food allowed the participants to express their passions for cooking and serving others tasty and palatable meals which seemed to be rooted to their childhood experiences. On the other hand food fuelled a turbulent world of uncontrolled eating that was sometimes experienced as a form of addiction. This complex relationship with food was a key barrier to sustained weight-loss particularly when it was accompanied by cognitions that enhanced the value of taste over health and that seemed to justify eating in response to environmental cues. The next theme shall explore the dietary strategies that they were adopting to lose weight in context of the barriers discussed in this theme.

3.3.3 Theme 3: Managing weight: Goals and strategies

This theme presents the participants' experience of managing their weight with specific focus on their dietary strategies. All of the women were trying to reduce their weight at the time of the interview, with five seeking assistance from the NHS, two following commercial diets and another two through dietary restraint and increased exercise.

3.3.3.1 Setting weight goals

One of the issues raised with the interviewees was their actual weight goal. For some of the participants this meant achieving a weight that they would be happy with, regardless of medical opinion. Yet for others, being thin carried an almost surreal desire based on years of weight loss and relapse.

According to my height, I believe I need to be around fifty [kilos]. But if I'm sixty I'll be pleased for example, or fitting into a size fourteen [...] I don't have a goal that I'll fit in a size eight for example because I never was a size eight. But if I'd be a size fourteen, I don't know even twelve is nice... but I don't want to exaggerate in my mind because I might not make it, I'll get demotivated. You see, so bit by bit, things are better that way. (Carmen)

Well I'll try to at least be eighty-two [kilos] by Christmas, because after all, I'm not going for Miss World now am I?! I don't want to stress [...] if I should be, for my height and for my age, as a woman, seventy kilos, at seventy kilos I will look sickly! So you can't stay following—because even the fact that, I think I will be ugly at seventy kilos, if right now I'm eighty-six, if I come down to eighty I think that's enough. (Tania)

I think the thing I want the most... if someone had to come with a magic wand, and tells me, "Choose something that you really wish for" – money? I don't mind working. That I'd be thin – that's my dream! [...] I mean I sometimes start thinking, what if I had to get sick so I lose weight, and then I get better, and I get back to normal life! [laughs] This is what my mind is like! (Stacy)

Whilst all participants were attempting to lose weight, the goals that they set for themselves and how they planned to get to their goals were not coherent. For example whilst Carmen's thought process was linked to realistic expectations based on her experience of previous relapse. On the other hand, Tania's remark seemed to

focus on the effort it would require, her motivation was not very high and thinness was framed as non-desirable. In contrast, however, Stacy, put much more emphasis on how much it would mean to her to be thin. Stacy's thought process can be described as one of wishful thinking where she hoped for something that would quickly and effectively reduce her weight like a sickness or a magic wand. This demonstrates that persons attempting weight loss are not a homogenous group and that whilst some women may have a sceptical outlook on achieving a lower body weight, "I am not going for Miss World now am I?!" others were willing to consider desperate measures "what if I had to get sick so I lose weight?" This places more pressure on health care professionals to address weight management at the level of meaning it holds for the participants.

3.3.3.2 Dietary strategies

In section 3.3.2.5 the participants described a heightened response to external food cues particularly sights and smells of delicious foods and carbohydrate based snacks and meals. Some participants described how they resisted tempting food situations by cognitively re-framing their cravings and their behaviour.

We love *pastizzi*, and sometimes I'd be dying when I'm going past a *pastizzeria*, but I keep on walking past it. (Cassandra)

But nowadays, if there's chocolate in the fridge for the kids, I don't take any, so I have passed that, I don't take, I tell myself that it's not good for me - Why? So that I eat it in one second and then I have a larger belly? I stay saying this and I control it [...] doesn't mean that I don't snack, sometimes I do, cos I'd be a liar. (Stacy)

For example, I love lemon meringue, you see, so I start telling myself "haven't you eaten enough lemon meringue now?" And I try to work on these things. (Carmen)

The mothers explained that they made a conscious effort to resist tempting food cues, using self-talk to surf over the impulses at home or literally crossing to the other side of the road if they were outside. Another common strategy adopted by these mothers was to change their approach to food shopping and cooking.

So we [herself, son and daughter] have started buying different things. Even bread, we stopped buying the Maltese loaf and buying [bread with low GI] even pasta, we still do it, but I do thirty [grams] each so I stay counting, thirty, thirty and thirty [...] even with *ravioli* for example, eight. Eight *ravioli*! When before I used to say, “How did we eat a whole packet?” and I used to think it wasn’t enough! [Smile] We used to do a packet of one kilo, and it’d be gone! (Susan)

The only way by which I am succeeding to control myself is by not buying certain things (Sonia)

If I don’t buy it I don’t eat it. That’s how I have lost weight. Pasta, instead of having two plates I only take one. And in the evening, I take a salad instead of bread... (Tania)

He asks me [deli-counter staff], “How much, two-hundred [grams]?” I say “No, don’t give me two hundred cos I will eat it all!” Well I don’t actually say that out loud but last time he kept on cutting up to one eighty, one eighty is nearly two-hundred! And I said “No, I asked for one hundred.” And I gave it back to him! (Carmen)

And to tell you the truth, one of my tricks—trick? Sort of, what has worked, is that instead of buying the large loaf, there are these baguettes ready cut in slices and sometimes it’s like I trick myself because instead of having one large slice of bread, I tell myself to take a slice from this since it’s smaller. I trick myself but it still satisfies me. (Joyce)

The women agreed that changing their food shopping habits was a key factor in helping them lose weight since this helped them remain in control of the foods available at home. They seemed to adopt food coping strategies by planning, finding alternatives and be more vigilant when shopping for food. For a number of participants the skill to refuse food was also being exercised at home since they consciously reduced the size of the food portion and reminded themselves to stop after the first helping. The participants were asked how they developed these techniques, and whilst some mentioned the weight management programmes they attended, the majority reflected that these strategies were based on their own personal experiences of relapse and identifying what had worked for them in the past. This confirms that obese persons attempting weight loss can be a source of knowledge on the techniques and strategies for weight loss maintenance.

3.3.4 Theme 4: Motherhood, self-sacrifice and weight management

Whether working from home, on part-time basis or as full-time employees, most of the participants described a constant set of demands and an almost alienating pace

of life built around commitments and obligations to others. This sense of no time for oneself was contributed by various life events and personal values that ultimately influenced the type of eating patterns that these mothers engaged in.

3.3.4.1 Responsibilities and self-sacrifice impact eating behaviour

Throughout the interviews the mothers placed strong emphasis on their sense of duty to provide and care for their immediate family members. Stacy seemed to sum up the emotions that the other mothers conveyed

I feel obliged that I need to give to my children, and to my husband, my family, I feel it is my duty, my duty that if I can, I want to [...] God willing obviously. If He gives me strength, [then] happy, sad, tired or not it is my duty to work for the family. (Stacy)

As can be captured from Stacy's words, her understanding of being a mother seemed to consist of self-sacrifice in which other members of the family, especially one's children and partner came first. This seemed to be based on an ideology or a guiding mental representation of what being a mother should entail. This ideology also came through in how some participants chastised other mothers who were perceived to be neglectful.

For example my children used to tell [when they were at higher secondary school] that there were children who would stop at a grocery store so that they buy a ready-made baguette. Now, couldn't their mother make them their bread in the morning?! First of all she would know what she is putting in it, secondly maybe, ok, but even for expenses sake, if you pay one euro for a ready-made baguette from the grocer you are going to pay more. Easy lifestyle that's what I call it! (Cassandra)

Cassandra's words suggest that a "good" mother would have prepared the bread herself for her adolescent children and that aside from nutrition she had a proper sense of money management. Her labelling other mothers who fall short of these expectations as adopting an "easy lifestyle" may suggest that there is considerable pressure around mothers to ensure they lived up to the right image. Grace discussed such an episode;

When my daughter came to do her O levels, erm, my hobby was to take part in musicals. I used to sing and stuff like that. And when she came to do her O levels, my mum had told me, she said "I advise you that this year you don't take any commitments in the evening, so that she'll have support..." She said, "even when it will come to studying and the like, you'll be with her and not going out for rehearsals", and I said, then it's better that I don't take anything [commitments] it's true perhaps with my presence... And the fact I didn't take those commitments, I started eating uncontrollably. (Grace)

Grace provided a rich example of how social expectations of motherhood, voiced by her own mother, influenced her decision-making process to give up time for herself and instead dedicate her leisure time to help her daughter study. Grace seemed to attribute this situation as a trigger to her comfort eating pattern and during the interview added that this may have contributed to her inability to lose weight effectively. One might argue that eating replaced the 'time for herself' that she was losing on after diverting attention from her leisure to her daughter's needs. Other participants shared similar stories on how their acts of sacrifice, framed as obligations to their children, impacted on their weight management. For example, Tania admitted that her main reason for comfort eating was due to her worrying over her son. Despite him being a young adult, Tania seemed to be weighed down by the fact that he still had not found his place in society and felt the need to mother him and provide for him.

P: Before I did not have any worries, now I have worries because I have a son, well he's getting older, I wish to see him finish off this course he is doing so that he starts working.

I: It's like he's on your mind?

P: My son is always giving me trouble and so I am always worried and eating. [...] my husband works abroad, so everything falls on me [...] he is 23 going to 24, and he is still with mummy! Because he had started a course and changed it and started studying again (Tania)

Similarly Joyce doted over her son who was in his early thirties even though her constant availability in the kitchen meant that she was more likely to be exposed to food which would make her more likely to snack.

There's one of them asleep, he'll wake up at eleven thirty, twelve, to go to work. He is a policeman, starts at one o'clock [13.00]. He came in at five this morning. I'm not going to tell him, "Prepare something [to eat] yourself so that I don't touch anything!" So I have to prepare for him, you see. [...]

and while I'm putting his plate together I will snack on something, and then again after three hours, someone else comes in again... (Joyce)

Joyce's use of the words "I have to prepare for him" suggest that in her mind this is not an option. This may have lead Joyce to build her own ideas as to what would need to happen for her to lose weight effectively;

I do have half an idea of how I could lose weight. For example, I wish to go on a health farm, or I don't know what they call it...but that I'm there, and I'm only taking care of myself. (Joyce)

For the mothers in this cohort, being a mother meant being constantly available and sacrifice was part of the job description. This may explain why in Joyce's eyes, the only way how she could imagine truly focusing on managing her weight was by removing the perceived unwavering demands of her role. Sadly, even if such a health farm were an option, she made no reference as to how she would still cope with being a mother and taking care of herself when she came back from this intervention. Within her world the two aspects did not seem to be complimentary which places doubt on her ability to succeed at losing weight long-term.

3.3.4.2 Limited partner support

In light of the pressures and expectations surrounding their role as mothers, the participants were asked about their support system at home. This elicited divergent responses. Sonia was the only participant who described her husband as truly supportive of her weight loss efforts.

Yesterday we did a vegetable and lentil soup and it was really good. I went for the second helping. But my husband told me, "Once [one portion] Sonia, don't go again". He's trying to help out. (Sonia)

Sonia explained that knowing that her husband was watching out for her helped her keep stronger. In contrast, Susan, Grace, Carmen, Joyce and Stacy explained that their spouses sometimes made weight management harder.

I won't go as far as to say that he pulls my leg, but if I say something, for example I don't know, if I say I am going to the nutritionist, he would say "I support this motion!" He knows I have put on weight. And sometimes he tells me, "There is no space for you to expand any more, for sure!" For example. So yes, he does say these things (Grace)

Since he [doctor] found his [husband] cholesterol levels really high, I almost got angry at him! I told him "You're not a baby! We need to do something!" I told him "Both of us can... It's not like I can have something [to eat] and you can't" (Joyce)

As Grace explained, her husbands' attitude to her dietary restraint seemed to be mocking her efforts rather than actively supporting them. Joyce's remark that her husband was not a baby seemed to underline her feeling that she had to be the more adult and think for them both. This seemed to weigh on her mind and make the process of weight loss even more daunting as he would not collaborate in his own best interest. The participants also discussed lack of tangible and emotional support around the daily chores, including cooking.

My husband doesn't like everything so I normally always have two plates to cook you see? It's like I have to think a lot individually. It is a bit of a headache but I had to get used to it [...] He cooks as well but normally, for myself, I have to cook. (Carmen)

I cooked the burgers and chips for my husband, I cooked them and I didn't take! He was asking me, "Aren't you going to take? Aren't you going to take?" (Stacy)

As described by Carmen and Stacy, the power of the relationship seemed shifted on the husbands' side since they maintained their expectation to be served specific foods even if their wives had to cook multiple dishes which exposed them to more food. Stacy's husband could be described as almost trying to sabotage her efforts by inviting her to eat burgers and chips. This process of cooking multiple dishes also decreased their personal time in which they still had to factor in other house-chores. Yet one might also question to what extent these mothers contributed to their own situation.

I am the manager of everything in here – my husband just comes, finds the food ready and sleeps! The rest... I am the manager. And that is the trouble, because I don't have any rest [...] but I think that the fact the woman is the manager, if she's at home, I think it helps a lot, because the husband

alright, maybe he can be the manager at home, but a man doesn't have— because if a man isn't involved [...] he doesn't know the needs at home (Cassandra)

Although not explicitly expressed, there seemed to be an unspoken delineation of roles that maintained the status quo, which could destabilise the whole family dynamics if challenged. On one hand Cassandra wanted to consider what it would be like for her husband to be the manager at home but at the same time cancelling her train of thought arguing that a man would not know the needs at home like a woman would. This suggests that for some of the women, the responsibilities and self-sacrifice that seemed to come part and parcel of motherhood, were also accompanied by gender-norm expectations that they themselves subscribed to and which therefore maintained the limited level of partner support both on an emotional and tangible level.

3.3.5 Conclusion

This section presented the findings of the first study illustrating the experiences of Maltese mothers as they attempted to lose weight and the factors that inhibited or facilitated their dietary management. The section brought to light the complexity of weight management as a goal for these mothers as captured by quotes that convey the emotional, social, cultural, environmental and historical factors that characterise their relationship with food and that were intertwined with their perceptions and expectations of their role as mothers. The next chapter discusses the main themes in light of international literature, identifying recommendations for practice.

3.4 Discussion of findings

3.4.1 Introduction

This section discusses the main findings of the first study by delving into main themes and relating it to other themes in context of international literature. Recommendations for practice are included in each section.

3.4.2 The meaning of food

Goodspeed Grant (2008) argues that “[...] eating is simultaneously a physiological survival drive, a behaviour, a private emotional experience and a social phenomenon rife with symbolism that is embedded within the culture” (p.124). This phrase seems to encapsulate all the various elements that the participants brought to light in their experience with food and which were intertwined with their experience to lose weight.

Some of the participants provided rich accounts from their childhood, linking who they were and the relationship they had with food, to a time and point in history where food and weight carried a different meaning. Researchers suggest that the way we learn to relate to and assimilate food forms part of our cultural heritage and establishes our personal identity (see Fischler, 1988; Scholliers, 2001). For these participants born in the decade after the war, their childhood memories provided a reference point to the values that guided their food choices and eating behaviour (see Grivetti, 2001; Khan, Irfan, Zaki et al., 2006; Pilcher, 2006; Renzaho, 2004; Rozin, 1996; Belahsen & Rguibi, 2006).

Without any doubt the main food-choice value that resonated most strongly with all of the participants was that of “togħma” meaning flavour, palatability or taste. Researchers have identified a number of factors that guide people’s food related choices, including taste, health and convenience among others (see Steptoe, Pollard & Wardle, 1995). The importance given to the palatability of food verged on the obsessive for some participants, with Sonia going as far as to compare talking about

a recipe to talking about her husband “with a certain passion” (see section 3.3.2.1, p.64). Unfortunately, the value for taste or flavour was at times diametrically opposed to health advice and their pursuit for weight loss. This seemed to lead to a cognitive dissonance (Festinger, 1957) i.e. holding two opposing beliefs, as can be seen in the justifications they provided for specific food choices or cooking methods. Their words seemed to imply that, although they knew what the healthier alternative should be, taste and meal enjoyment seemed to twist their arm in opting for their old habits.

Literature suggests that this dissonance between health and taste is not unique to Malta. Focus groups with Bangladeshi women living in Scotland revealed that they were reluctant to reduce the amount of fat used in their cooking since they perceived it to reduce the attractiveness and palatability of the food, even though they were aware of the health benefits of changing their cooking habits (Netto, McCloughan, Bhatnagar, 2007). In addition to this, home cooked meals may be perceived as being inherently healthier based on a common stereotype, often perpetuated in public health messages, that obesity is linked with eating junk food and not home-cooked food (see Lewis, Thomas, Hyde et al., 2010). This leads one to argue that within the Maltese culture, public health campaigns may need to address community based norms about cooking and utilise messages that can resonate with individuals’ practices at home (see Lewis et al., 2010).

3.4.2.1 Eating styles

The meaning that food carried for these participants could be said to extend from a socio-cultural level to an emotional, personal level (see Canetti, Bachar & Berry, 2002; Ogden, 2008). Each interview felt like peeling the skins of an onion. At the surface, cooking for others was described as a passion, a favourite pass time. Yet at the core of each interview was a confession; that the main reason why they believed

they put on weight was due to a complex relationship they held with food that seemed to sustain them beyond its properties of physical nutrition.

All nine participants reported eating out of comfort with their behaviour ranging from occasional snacking to losing oneself completely in high-calorie foods. Eating behaviour that occurs in response to negative affect has been identified in psychosomatic theory (Bruch, 1964; Kaplan & Kaplan, 1957). Some individuals may learn inadequate affect regulation mechanisms leading them to seek food as a way of alleviating negative mood states (see Masheb & Grilo, 2006; Spoor, Bekker, van Strien & van Heck, 2007) and this pattern is positively correlated with being obese (see Spoor et al., 2007; Stunkard, 1959). A concept related to emotional eating is external eating (see van Strien et al., 1986) which is based on the tendency to eat in response to food cues in the environment (Schachter, 1964). This too was a common behaviour among the participants of this study which seemed to be aggravated by the abundance of bakeries, confectioneries and pastizzerias available in the physical environment (see Thomas et al., 2008; WHO, 1986).

There is evidence in the literature that foods high in sugar and fats may be highly rewarding since they trigger the release of dopamine which imitates the pharmacological effects of psychoactive drugs (see Morris et al., 2015). It is therefore not surprising that the participants linked their behaviour to an addiction (see section 3.3.2.5, p.68) and further explains why food may serve the function to comfort or self-medicate negative emotions (Morris et al., 2015). Some researchers believe that food addiction underlies obesity (see Kalivas & Volkow, 2005). Whilst this may only be true for a subset of obese individuals, it is the case that food as an addiction is more complex to address as unlike other substances such as alcohol or narcotics, we depend on food for survival (Karasu, 2012). This has often been referred to as the “paradox of eating” (Power & Schulkin, 2009, p. 173) since eating is necessary for humans to live but may also be a threat to their own survival.

However, Baumesiter (2002) argues that framing food consumption as an 'irresistible' impulse, analogous to breathing or sleeping, may provide individuals with the opportunity to rationalise their inability to control their intake. Some researchers have argued that rather than looking at uncontrollable cravings as an addiction, an alternative explanation could be found in the restrictive element of the diets pursued (see Coelho, Polivy & Herman, 2006; Ogden, 2008). This would lead to a perpetual vicious cycle that the individuals perceive as an addiction. This is plausible when one considers that carbohydrates were the most restricted food group for the majority of participants and also the food group most linked to uncontrolled eating.

Dieting behaviour has received substantial attention over the past years with the boundary model of eating behaviour proposed by Herman & Polivy (1984) potentially being one of the leading theories on cognitive regulated eating (Srtoebe et al., 2008). Building on Restraint theory (Herman & Polivy, 1980) the authors suggest that dieting behaviour typically involves an overriding cognitive control over food consumption. Dieters often eat specific amounts of food at specific intervals, which may eventually lead them to become less sensitive to the physiological signals of hunger and satiety. The Goal Conflict Model of eating (Stroebe, 2008) also argues that people who are attempting dietary restraint may hold two incompatible goals; one being eating enjoyment and the other being weight control. This conflict came to light in section 3.3.2.3 (p.66) with reference to taste and health as incompatible food choice factors as well as section 3.3.2.5 (p.68) when discussing a sense of deprivation which then leads to them succumbing to external food cues.

Researchers suggest that this constant strife between opposed goals hampered by a diminished sensitivity to internal cues for hunger and satiety may leave dieters prone to fatigue and susceptible to the food cues available in their environment (Stroebe et al., 2008). According to the authors this is when overeating is most likely

to occur and why individuals may experience it as such a strong impulse in which they have no explicit control. It became apparent throughout each interview that out of all the costs that obesity carried for the participants, this turbulent pattern around eating and the frequent failures experienced were potentially at the cornerstone of their sense of inefficacy and in some cases desperation to attempt any means to lose weight for good.

3.4.3 Fighting obesity – costs, goals & strategies

All of the participants were attempting to make life-long changes in their dietary patterns at the time of the study. Each described their own strategies which they built from years of experience with relapse and knowledge gathered from various weight-management programmes, articles and other people around them. Participants explained that as they got older their attention to the physical cues from their body changed which alerted them to the need of taking their weight more seriously (see Villareal, Banks, Siener et al., 2004). However, whilst these physical manifestations seemed to be a recent development of their obesity, the emotional and social repercussions were significantly more established.

All nine participants struggled with a poor self-esteem and negative body image. This probably came through the most when they inadvertently switched to an external view of themselves, such as when Stacy referred to herself as “that fat woman” or Joyce’s remarks, “I’m gluttonous” or “I’m a pig if I eat.” These assertions were at once an opinion they ascribed others to have of them, as much as ones they believed themselves to be. Research suggests that a culture of blame surrounds the obese woman in Western society (Carrier, 2001; Myers & Rosen, 1999; Ogden & Clementi, 2010; Thomas et al., 2008) which may lead women like Joyce and Stacy to internalise social values that stigmatise their obese body shape. This is further confirmed by simple mundane experiences such as clothes shopping or attending public activities in which they felt constantly reminded of their overweight (see

Bidgood & Buckroyd, 2005; Carryer, 2001; Forhan et al., 2010; Merrill & Grassley, 2008; Thomas et al., 2008; Zdrodowski, 1996). It is paradoxical that whilst obesity is an easily identifiable condition, some obese women may expend considerable energy trying to be invisible to attract as little attention to themselves as possible.

3.4.3.1 Weight goals & dietary strategies

All of the participants were asked whether they had a specific weight goal in mind and this resulted in a diverse array of perspectives and ideals. Some participants like Stacy and Grace described being thin as their dream come true. They lusted over the thought of being thin, wishing for an immediate remedy like a sudden illness that would leave no lasting repercussions except for the weight loss. On the other hand, participants like Tania and Sonia, seemed to reject society's 'thin ideal' arguing that they could not imagine themselves stick thin.

Whilst the literature argues that weight and body image have different meanings in different cultures and population sub-groups (see Renzaho, 2004) one could argue that both the acceptance and the rejection of the 'thin ideal' could be a way for the participants to protect themselves from reality. Losing weight and maintaining weight loss is difficult (see Byrne, 2002; Elfhag & Rössner, 2005). By placing weight as an impossible goal to achieve one could argue that these participants could rationalise procrastinating to lose weight effectively based on the long and arduous journey it would take to get to that distant image they created in their mind. At the same time, rejecting the idea of being thin could also be a way of rationalising the difficulty of reaching the desired weight and protecting oneself from failure. Both positions are plausible based on the women's own accounts of their emotional eating which seemed to be deep-rooted and a potential impediment to losing and maintaining weight successfully. This is distinct from the positions of Carmen and

Susan who discussed their weight goals realistically, sharing an ideal body weight but at the same time aware of where they stood in their progress.

Notwithstanding the differences that the women shared in terms of their weight goals, they all shared several strategies that they felt confident in applying to their day to day regime. These skills seemed to focus on three main aspects; surfing the cravings which resulted from the sight or smell of palatable foods, being conscious and plan well the food products that entered the home and being mindful of the portions and helpings that they served for themselves. These strategies gave the women renewed confidence as they enabled them to feel in control. Yet, whilst all three strategies can be said to be in-line with weight management research (see Byrne, 2002; Elfhag & Rössner, 2005) none of the participants made reference to the triggers of uncontrolled emotional eating. It was evident during the interviews that despite them being aware that they frequently ate to self-medicate negative mood states, they lacked the ability to address this issue.

3.4.4. Motherhood, self-sacrifice and partner support

Within Maltese society, but similarly in other cultures, the mother often acts as the family engine, managing the backstage of her husband's and children's lives and ensuring that everyone's needs are met (see Green, Hebron & Woodward, 1990; Miceli, 1994; Nomaguchi & Bianchi, 2004). This image of the mother as the family engine came through very strongly in the narratives of these interviews. One could argue that in cases where the mother did not work outside the home, doting behind adult children helped the mother preserve her role and maintain meaning. For those mothers in paid employment, the concept of the 'second shift' (Hochschild & Machung, 1989) best explained how no energy or time was left for health goals due to the fact that they would still need to catch up on housework, kids and cooking after their day in paid employment (DeVault, 1991). Motherhood was discussed

both as the context within which decisions were negotiated but also as the main barrier against their own dietary goals.

3.4.4.1 Self-sacrifice and Emotional Eating

Throughout the interviews a theme of self-sacrifice came through which was linked to the participants' mental representation of motherhood. Researchers argue that society's perceptions of good parenting are often rooted in gender-role expectations (Gilligan, 1982) and that such norms for female behaviour are sometimes internalised to such an extent that they are no longer visible as a value system but form part of normal behaviour (Green et al., 1990; Miller & Brown, 2005). The authors argue that it's what one knows womanhood, especially motherhood, to be like. This may explain why throughout the interviews the mothers kept referring to lack of time or lack of energy due to their parenting obligations as their barriers to prioritise their weight goals, but rarely challenging their frame of mind. At the same time, this same ideology seemed to have created a role for food, not only to alleviate negative emotions but also as a legitimate way to reward their efforts and replenish them on a psychological level. An example to this is Grace who stopped attending musicals due to her mother's insistence that she should spend more time helping her daughter to prepare for exams (see section 3.3.4.1, p.74).

Other researchers have linked this element of self-sacrifice with a lack of self-care among women and as a contributor to emotional eating. Goodspeed Grant (2008) identified the theme "Emotional hunger" (p.127) to reflect the self-medicating properties that food held for the participants in her study. The author adds that a contributor to emotional hunger was a tendency to place others first which diminished self-care and that was an issue for the females but none of the male participants. Goodspeed Grant also adds that her female participants prided themselves in being good cooks and that preparing meals for others was a central

aspect of their life. These similarities to the Maltese mothers in this present study suggests that these could be shared characteristics among obese women that may exist across cultures. One could argue that for some women, motherhood may act as a catalyst perpetuating a vicious cycle of perceived need among others, increased self-sacrifice and reduced self-care spurring an increase in emotional and external eating which would lead to increased weight if uncompensated.

3.4.4.2 Partner Support

A related aspect to the barriers of motherhood was the participants' perceptions of their partners' level of support. This was mainly discussed in two distinct dimensions; the partners' support to their weight loss efforts and the support received for house-chores which was seen as having a direct impact on the time available for leisure and weight related goals.

Literature suggests that individuals attempting to change health behaviours are more likely to succeed if they have a strong supportive network around them (Elfhag & Rossner, 2005). Sonia claimed that her partner supported her weight loss efforts by encouraging her to lose weight and taking part in the same dietary strategies. Yet the majority of participants described their partners as being difficult and uncollaborative, almost like children. A testament to this is Stacy's accounts of her husband tempting her to eat those foods she was trying to avoid. This links with the notion of sabotage that has transpired in other studies (e.g. Karasu, 2012; Thomas et al., 2008).

Similarly the women differed in the amount of help they felt they were receiving at home. Nomaguchi & Bianchi (2004) argue that whilst fathers' involvement at home has increased, "mothers do large amounts of shadow work" (p.417) in which they oversee the backstage of whatever goes on at home. This seemed to capture the

general feeling that the mothers discussed in this present study. In most cases the partners were not offering the level of tangible support required to manage a home which often led these mothers to push their weight goals further down in the line of priorities. However, one could also argue that the participants' efforts to place their family first by framing it within the context of obligations, expectations and low tangible support, could be acting as a distraction from their personal health goals. The same obligations presented as barriers could therefore be conceived as a means to cope (see Myers, Newman & Enomoto, 2004) by escaping the challenges of weight loss.

This raises several implications for interventions with mothers in a similar socio-cultural context, since in order to help mothers manage their weight successfully, practitioners may need to challenge women to put their own health as top-most priority which could go against the grain of what is considered pro-social and gender appropriate (see Batnitzky, 2008; Warin et al., 2008). Furthermore, efforts to encourage mothers to prioritise time for their health may be met with resistance, firstly due to personal beliefs that those around them are not able to manage home and family life as well as they do, and secondly due to a potentially sub conscious coping mechanism that balances itself on keeping status quo and thus guaranteeing that weight can never be truly managed effectively.

3.4.5 Limitations and Strengths

This pilot study took a qualitative research design to explore the experience of weight management among obese Maltese mothers and unearth factors that may hinder or facilitate weight loss. Some limitations need to be acknowledged. The sample was composed of nine mothers and is considered relatively small to reach theoretical or data saturation (see Lincoln & Guba, 1985). However, the themes presented did converge among the nine participants and offered substantial insight

into the experience of being obese, the meaning of food, the weight-loss strategies adopted and the perceived barriers owed to their mothering role. This suggests that, despite the small sample size key themes were allowed to emerge. A second limitation is that sample was considerably homogenous in age with only one mother under forty years. This also meant that eight out of nine mothers had adolescent children. This could have impacted on the type of themes generated since parents of younger children may experience different barriers to those of parents with teenage or adult children living at home. Nonetheless, all the mothers presented similar barriers from their role, with motherhood attributed to self-sacrifice regardless of the age of the child. Social Economic Status (SES) was not recorded. However, education and occupation were noted and suggest that the majority of participants were from a middle to upper-middle class. Obesity is known to share a negative association to SES (Tyrrell, Jones, Beaumont, Astley, Lovell et al., 2016; Superintendence of Public Health, 2012) and therefore the findings of this study are likely to reflect a different experience to a cohort from a lower socio-economic situation. Similarly, all mothers were living with a partner and although perceived partner support was relatively low, it is likely that single-mothers would have shared a different reality to managing weight than that expressed by this cohort. The mothers were not screened for eating disorders, it is therefore not possible to ascertain whether the meanings attached to food could stem from the presence or history of eating disorders

A number of strengths need to be noted. To the knowledge of the researcher this was the first study to investigate weight management from a psychological perspective within the Maltese context and to identify similar issues impacting Maltese mothers as those established in international literature. The study therefore achieved its objective to provide a basis for the PhD programme to build on those weight management factors that are most salient to Maltese mothers and that could be used to tailor future interventions. It is also noted that the data

generated was rich in detail. This is testimony to the safety established during the interview and which is conducive to in-depth, qualitative data collection (see Morrow, 2007).

3.4.6 Conclusion

The study identified the Emotional, External and Restrained eating styles as core factors impacting on weight gain and weight loss maintenance. This meaning attached to food was discussed in context of their own perceptions and expectations of their role as mothers. A theme of self-sacrifice emerged based on the tendency to put others first, which indirectly hindered them from pursuing weight management goals effectively and increased the salience of emotional and external eating. These themes were mapped to international literature and confirmed that the issues effecting obese Maltese mothers were complimentary to issues discussed in other studies conducted in other cultural groups (see for example Brown et al., 2001; Goodspeed Grant, 2008).

A question emerged, however, as to whether these themes featured as a phenomenon that was predominant due to the participants' obese status or whether they were shared among a wider, more diverse sample of Maltese mothers. This spurred a second qualitative investigation with the aim of understanding the experience of weight management among a diverse cohort of Maltese mothers focused on gathering more information on the meaning of food, the role of partner support and the impact of one's role as a mother on weight management. It was also planned for this second study to delve deeper into those factors that may facilitate weight loss maintenance by comparing the strategies of obese mothers with those of normal weight mothers and mothers who maintained weight loss.

CHAPTER 4: STUDY 2

4.1 Introduction

In the first study, obese mothers referred to their family obligations particularly time spent with children and attending to house chores, as being key factors which influenced their dietary choices and which pushed weight management lower in their list of priorities. Attributed to this factor were perceptions of low partner support, which further diminished time and energy resources to address their weight consistently. The first aim of this second study was therefore to gain a deeper insight to the meaning attached to motherhood and how participants viewed their dietary behaviour in context of their familial obligations.

At the same time, all of the women interviewed in study one discussed an emotive relationship with food which often resulted in bouts of uncontrolled eating. Some also mentioned tendencies to eat at the sight and smell of food which they linked to addiction. Studies have pointed at eating styles being linked to eating behaviours and weight gain (see van Strien et al., 2012) and that emotional eating is positively associated to BMI in women (Lluch et al., 2000). The second aim of this study was therefore to explore further the eating styles and dietary choices of Maltese mothers and compare the emergent themes between normal weight and overweight/obese mothers. Finally, the study also aimed to capture any relevant factors that may facilitate successful weight management and that may counter the barriers discussed by these participants.

In order to explore these aims, study two adopted a qualitative design and set to recruit a diverse sample that would enable differences to come through between mothers of different weight status. Therefore, in contrast to the previous study,

study two took a comparative and data verification approach. It set to compare and contrast the experiences of weight management between normal weight, overweight and obese mothers by focusing on the themes emergent in study one. It then set to compare those findings between the two studies to build hypotheses that could be tested in a quantitative research phase.

4.2 Methodology

4.2.1 Introduction

This study aimed to gain a deeper insight into the issues that emerged from the first study by exploring them qualitatively among a wider, more diverse cohort of Maltese mothers with BMI in the normal, overweight and obese categories. An interview schedule was developed (see Appendix 11, p.235) tapping into the experience of weight loss, weight gain or weight maintenance, dietary strategies, perceived barriers and perceived social support. The line of inquiry included specific references to the tasks associated with being a mother to explore further the potential contribution of such barriers to weight management. Specific questions were also asked in relation to the meaning of food and reactions to negative emotions and stress. Therefore, the approach to building the question guide for study two differed from that of the first study since it took a posteriori line of inquiry based on the themes elicited in study one that were deemed as deserving further exploration. A general review of the literature was also carried out following the first study which further informed the questions included in this second question guide. Similar to study one, the questions were articulated in Maltese and kept broad and open ended so that participants were free to respond based on their internal frame of reference (see Bryman, 2008).

4.2.2 Sampling method

In order to achieve a diverse sample that could represent a wide range of views into the issues being investigated, the study maintained Maltese heterosexual mothers as the sampling frame whilst recruiting mothers of different weight status, educational backgrounds, employment sectors and with children in different stages of development.

The recruitment criteria for this second study were; being a female Maltese citizen who speaks, reads and writes Maltese as her first language; between 18 - 60 years of age; have at least one child (biological/ adopted) of any age who lives in the same household; married or living with a partner; not pregnant or breastfeeding. The sampling was limited to heterosexual mothers who did not participate in the first study. Single-mothers without the presence of a partner at home were not included. This was based on the need to explore further the theme of male partner support which came across as an important factor in the first study. Mother/ daughter pairs were not included to allow participants to delve into the subject of motherhood freely without any bias that may occur if their daughter/ mother was also a participant in the same study. Siblings, cousins or friends were not excluded from participating.

4.2.3 Participant recruitment

Ethics approval was granted by the University of Brunel Psychology department research ethics board (see Appendix 3, p.216). In order to reach data saturation (see Lincoln & Guba, 1985) a guiding estimate of 18 to 25 participants was set. Participant recruitment took place between February and June of 2014. A total of 24 individuals demonstrated an interest in the study out of which 20 consented to be interviewed.

In order to reach out to a wide section of the population in the time available, a snowballing technique was undertaken (see Bryman, 2008). This technique proved useful in the first study to locate participants who were not associated with any pre-defined, easily accessible group and was deemed both cost and time efficient. A post was uploaded on the researcher's personal Facebook page encouraging direct contacts to share the post. This included the information on the participant information sheet (see Appendix 12, p.237) which was also sent to each lead. The initial share of the post resulted in seven potential participants, of whom six accepted to be interviewed. The participants will be referred to by their pseudonyms; Simone, Sandy, Michela, Tracy, Valerie and Hope. The mother who declined didn't wish to discuss family issues. Valerie, Hope, and Simone led me to a further three participants; Karla, Angelica and Lucia. A further ten potential participants came through from seeing the re-shared post on Facebook. Of these, seven fulfilled inclusion criteria and accepted to be interviewed; Sasha, Mattea, Maxine, Aloysia, Harriet, Yana and Johanna. Two mothers declined citing lack of time as being the main issue whilst the third identified herself as a single mother and therefore did not fit the criteria. Harriet then led me to contact Julia, Kate and Elsa. Elsa was Harriet's sister. Julia then provided me the contact of her own sister Sue who also accepted to be interviewed. All potential leads were pursued and contacted. The inclusion criteria provided to the interviewees for further generation of leads was revised iteratively such that a wider and more diverse sample could be achieved.

As summarised in Table 4.1 (see pp.95-96) the final cohort comprised of 20 mothers with an age range of 27–55 years (Mean=38.8 years; SD=7.96). BMI was calculated on self-reported weight and height. The cohort's BMI ranged from 20 to 35 (Mean=25.9; SD=4.09). Ten mothers were of normal weight (BMI=20–24.9; Mean=22.7), six mothers were overweight (BMI=25–29.9; Mean=27) and four mothers were obese with a BMI of >30 (Mean=32.3).

Table 4.1: Participant Information – Study 2

Name	Age	BMI	Locality	Full-Time Occupation	Employment sector	Employment Type	Education Level	No, of kids	Kids Age (yrs)	Interview Location
Elsa	44	22	W	Teacher (P/T Student)	Education	F-Time	Post-Secondary	2	15; 13	Home
Harriet	43	24	NH	Business owner	Retail	F-Time	Secondary	1	16	Home
Valerie	40	20	W	Accountant	Finance	F-Time	Post-Secondary	2	12; 7	Work
Maxine	27	23	NH	Business owner	Hospitality	F-Time	Tertiary	1	1.5	Home
Mattea	35	20	NO	Manager	Banking	P-Time	Post-Secondary	1	5	Home
Yana	36	23	W	Manager	Tele Comms	P-Time	Post-Secondary	2	4; 10mnts	Home
Johanna	31	24	NO	Manager	Finance	F-Time	Tertiary	1	1	Home
Julia	37	24	SE	Mum	Mum	F-Time	Post-Secondary	2	2; 5	Home
Simone	31	24	SE	Clerical/ Admin (P/T Student)	Public Sector	F-Time	Tertiary	1	12	Home
Aloysia	55	23	NO	Mum	Mum	F-Time	Secondary	2	25; 34	Home

Continued...

Participant Information

Name	Age	BMI	Locality	Full-Time Occupation	Employment sector	Employment Type	Education Level	No, of kids	Kids Age (years)	Interview Location
Sandy	42	25	W	Clerical/ Admin	Education	P-Time	Post-Secondary	2	15; 12	Home
Tracy	31	26	NO	Mum	Mum	F-Time	Tertiary	2	3; 9mnts	Home
Sue	34	28	SE	Nurse	Health	P-Time	Tertiary	1	3.5	Home
Hope	47	27	SE	Mum (Seeking P/T work)	Mum	F-Time	Secondary	2	17; 12	Home
Angelica	55	31	SE	Mum	Mum	F-Time	Secondary	2	25; 29	Home
Sasha	48	29	NH	Lecturer (P/T Student)	Education	F-Time	Tertiary	2	18, 16	Work
Michela	35	27	W	Teacher	Education	F-Time	Tertiary	1	4.5	Work
Lucia	30	30	NH	Manager	Public Sector	F-Time	Tertiary	1	10 mnts	Home
Kate	38	33	SE	Mum	Mum	F-Time	Post-Secondary	1	9	Home
Karla	36	35	SE	Manager (Seeking P/T work)	Marketing	F-Time	Post-Secondary	2	3; 1.5	Work

Note: Locality: SE = South East; SH = Southern Harbour; NH = Northern Harbour; NO = North; W = Western; P/T = Part-time

All mothers were heterosexual and lived in different parts of the main island of Malta. Eighteen women were married while two had been living with their partner for three and ten years respectively. Nine mothers held paid full-time jobs, three of whom were also enrolled in a part-time University degree. Five identified themselves as mums with part-time employment while six identified themselves as full-time mums. All women had children living at home with ages ranging from 9 months to 34 years.

4.2.4 Data collection

All the interviews were carried out face to face by the primary researcher in a setting that was convenient to the participants (see Table 4.1, pp.95-96). At the start of each interview, the consent form (see Appendix 13, p.238) was read and signed and a debrief form was provided (see Appendix 14, p.239). Each interview took between 40-60 minutes (Mean=52 minutes). The interviewing style adopted in study two was similar to that of the first study in that it was open and allowed the participants to explain their situation from their own point of reference. However, more attention was given to follow a line of thought or dialogue that was either related or in contrast to themes from study one. Therefore, the interviewing style adopted a level of verification in addition to the in-depth exploration of the research questions. Audio recordings were transcribed verbatim by the primary researcher and a graduate assistant who was also a native Maltese speaker. The process of data transcription and translation is outlined in Chapter 2 (see section 2.3.4.1, p.46).

4.2.5 Data analysis

Similar to the first study, data analysis was conducted by the primary researcher using Thematic Analysis as a guiding framework (see Attride-Stirling, 2001; Braun & Clarke, 2006). Data was analysed by hand and a constant, comparative method of analysis was applied to explore salient differences between participants. The general path towards

identifying themes was an inductive, data-driven one with themes developing iteratively following several readings of the transcripts. Although, emergent themes were compared and contrasted to themes from the first study no fixed category of data extraction or analysis was applied. A detailed review of Thematic analysis as undertaken in this research is provided in Chapter 2, section 2.3.4 (p.44).

4.3 Presentation of Findings

The key themes that emerged from the thematic analysis of study 2 are presented in this section. In all there were four main themes. Table 4.2 provides a summary of these themes and sub-themes with a selection of quotes to illustrate some of these findings.

Table 4.2: Identified Themes and Sub-themes with Exemplifying Quotes

Theme	Sub theme	Exemplifying quote
Theme 1: Having a healthy weight makes me feel good		Yes when I put a bit of weight, you sort of feel not down, but yes you feel uncomfortable. Sort of even your mood changes a bit so it effects everything
Theme 2: Stress & the implications on eating behaviour	2.1 The stress of juggling multiple demands	Yesterday I burst out crying, my husband asked me “what’s wrong?!” And I told him that I’m feeling stressed
	2.2 No energy or time to eat healthily	I don’t have enough strength to say, ‘all right, I’ll put my weight in— I’ll diet, I’ll eat healthy’. [...] Eating still needs preparation and basically I’m not bothered
	2.2.2 Snacking as a substitute to meal preparation	When I come here [home] I don’t have time to cook something healthy so I just grab whatever comes around, so maybe cup of tea and biscuits or a packet of snacks [crisps] or... nothing healthy
	2.2.3 I eat more when I’m stressed	I eat more [when I’m stressed]. Stupid stuff like chocolates, stuff like that. If I’m frustrated I open the cupboards where I keep sweets...
	2.1.3 Stress dampens my appetite	No! If I’m stressed I don’t eat. I don’t get hungry. Nothing! I actually forget to eat!

Theme 3: Perceived Social Support	3.1 Lack of partner support	[...]certain responsibilities they still fall on the woman. Even though the wife goes back to employment, housework still belongs to the woman
	3.2 A reluctance to use social support	Maybe as a mother that's what I feel, that I decided to be a mother and to have children to be there for them not to see where I'm going to put my responsibility
	3.3 "I had to learn to ask for help"	Being a parent is actually harder than I thought. I had to learn to ask for help

Theme 4: Time management & Food Planning	4.1 'If I don't plan, forget it!'	In order to give time, to myself, my daughter and I together [...] for my husband, for the two businesses, literally, there's no other way, if I don't plan forget it!
	4.2 Food planning aids weight management	Yes planning! Because when I don't plan I become a bit, I fall into a rut of everything goes, but as much as possible we try to always keep the fridge stocked

4.3.1 Theme 1: Having a healthy weight makes me feel good

As a common point of departure, all participants agreed that having a healthy body weight was important both for themselves personally but also in their role as parents;

[When you have a healthy weight] one thing that goes to everyone's mind, even when you get dressed you look smarter. Because clothes fit better. Even those one to two kilos, when you sit down, even if they don't show in a mirror, but when you sit down you realize you have tyres! You feel comfortable eh, you feel better with yourself (Kate)

Yes when I put a bit of weight, you sort of feel not down, but yes you feel uncomfortable. Sort of even your mood changes a bit so it effects everything (Valerie)

I don't want to have a lot of weight simply because I wouldn't be able to be so active with the kids. To go up the roof to put clothes to dry I go up running! It doesn't effect me, but if I have a lot of weight, sort of, I wouldn't be able to be as active with them, or do things so quickly, sort of, weight hinders you! (Tracy)

It is important that one feels good about himself to be able to actually transmit positive energy to others. So for me it is important that I feel good about myself in order to actually give a healthy lifestyle to my little one (Johanna)

As these quotes suggest, the mothers associated a normal weight with a sense of harmony in the way they looked and felt. They also believed that keeping a normal weight helped them in their role as mothers as this involved needing to be active with their kids or doing chores in a hurry. However, motherhood and the obligations associated with parenting were not always seen as complimentary to this health goal.

4.3.2 Theme 2: Stress and the implications on eating behaviour

4.3.2.1 The stress of juggling multiple demands

In order to have a context in which to understand their weight management behaviour, the mothers were asked to reflect on the experience of being a mother and the ways it interacted with their weight management goals. Half of the participants observed that the responsibilities they had to juggle already conflicted with each other, even without adding weight goals to their schedule.

You go home and you start the home shift. My day is not the six hours at work, it is twelve, thirteen hours. When I get home I start, unless I actually continue because I would have already started before leaving for work and I continue from where I left off! (Sandy)

My eldest comes up to me and says, 'mum, let's play' and I say 'no, I still have to cook, do the clothes'. I have to do things that are also important. Here I'm not referring to dusting or sweeping the floors, I am referring to things that can't wait, and then the youngest needs his feed... (Karla)

And then until I get my little one [after work] and get home and start cooking and everything, eh very little time is left to spend with my little one. Eh it is difficult, I am finding it difficult, myself. (Johanna)

After school they have sports activities so my time is limited, just one hour to cook, they have to do their homework and they have to eat and then back to driving here and there (Valerie)

These mothers discussed a sense of constant negotiation between competing priorities related to childcare and house chores that seemed to exhaust their time and energy. When asked how they experienced the constant juggling of demands, a number of mothers admitted to feeling "stressed" or described symptoms of stress;

Yesterday I burst out crying, my husband asked me “what’s wrong?!” And I told him that I’m feeling stressed, I am feeling like I have the start of a depression I cry for no reason! Erm... I feel like I have a lot on my plate... It’s stressful being here constantly with the kids, you have to feed them in time, now the youngest will start potty training, you have to cook, the laundry needs to be done, shopping has to be done, plus I get back aches and I forget about the pain, have to swallow a Catafast [medication] and just keep on going (Julia)

I miss not having me time, I feel the stress...but honestly I don’t even try to find the time for it [me time]. It is so difficult [...] Obviously, the lack of sleep never helped, so I always tried to keep on doing things especially after my son is off to bed, and obviously my sleep hours are always reduced. [...] As a person let’s say I’m a perfectionist. I’m not the perfectionist I used to be, but, it’s still the thing in me so I’m eh, I would rather if I had some time organize things at home. Maybe that’s how I waste time sometimes. (Yana)

I do sometimes feel quite stressed because I feel everything is on your shoulders in the end (Sue)

Like I have no social life. First of all I feel guilty having to meet a friend even to go just for a coffee I don’t do it because the little time I have I want to spend with my son (Simone)

A common thread that ran through these quotes was a feeling of being overwhelmed in the face of limited personal time and decreased energy. Although not explicitly mentioned in these quotes, weight goals were perceived to be constrained both by explicit factors such as lack of time and by implicit factors such as perceiving the need to prioritise time for one’s children. This led some women to push weight goals aside or to make compromises with their nutrition, as the next theme highlights.

4.3.2.2 No energy or time to eat healthily

Within the context of high demands and high perceived stress, dietary objectives were often elbowed out of the equation.

I’ve definitely put it on hold [weight loss]... I don’t have enough strength to say, ‘all right, I’ll put my weight in— I’ll diet, I’ll eat healthy’. [...] Eating healthily still needs preparation and basically I’m not bothered (Yana)

We do eat a lot of pasta but I try to vary as much as possible the type but sometimes I am in so much of a hurry that ok, you can do for example soup but even soup you have to chop, I mean even that is extra! You look for healthy fifteen minute recipes [laugh] (Simone)

And I have actually put on weight, and I want to do something about it but I'm finding it very difficult [sigh]... After I come home from work, I pick my little one from my mum's and it's already quite late and I'm just not bothered to think of what I'm actually eating (Johanna)

Because you have to prepare eh! You can't just, because if you're hungry you can't just nibble like, so you need more time, to diet, you need more free time, time to prepare things so you avoid snacking (Hope)

Some participants admitted that the energy and time needed to prepare nutritious meals sometimes felt as an extra chore. They commented that despite knowing that they had put on weight, they couldn't seem to find the energy or time to address it.

4.3.2.2.1 Snacking as a substitute to meal preparation

Some mothers confessed that one consequence of the busy life they led resulted in them cutting corners with their own nutrition and often opting for snacks or small portions of their children's meals that required no further preparation.

So if I have to prepare for me, either I prepare a small portion of what the kids eat or sometimes I even skipped dinners as well and I just sort of have cereal and that's it I don't bother. I feel quite healthy but I do realize I don't eat so healthily though (Valerie)

For example when my daughter comes from school at one thirty and I am preparing her meal. If I am doing for example Bovril with some pasta then I might take two spoons of that (Tracy)

When I come here [home] I don't have time to cook something healthy so I just grab whatever comes around, so maybe cup of tea and biscuits or a packet of snacks [crisps] or... nothing healthy. The only healthy thing that we have is the dinner... (Yana)

Like, after a day's work we either cook chicken or fish or meat. But when I come home from work, I would be really hungry, I am addicted—I love cheese, I get like a cheese board out and I eat cheese [laugh] while cooking! (Johanna)

These quotes revealed that in an effort to compromise on their time and energy, some mothers opted for snacks to curb hunger. However, snacks that are high in sugar or saturated fats such as biscuits and cheese could interfere with weight management efforts. This means that in addition to not having time or energy to address weight goals, the mothers were engaging in time saving strategies that could further compromise their nutrition and their weight objectives.

4.3.2.2.2 *I eat more when I'm stressed*

Linking with the previous sub-theme and similarly to the mothers in study one, fourteen participants commented that periods of tension or stress led them to occasionally or frequently consume high energy foods.

I eat more [when I'm stressed]. Stupid stuff like chocolates, stuff like that. If I'm frustrated I open the cupboards where I keep sweets... In terms of actual food, no, but chocolates, biscuits and stuff like that yes. Feelings of frustration force me into opening cupboards [laugh] (Tracy)

Usually I eat more of the unhealthy stuff [when stressed]. Especially at the moment, chocolate. Chocolates. Those are my stress relievers (Yana)

I would find a packet of crisps and down it! When I am feeling like— restless, like I can't find solace anywhere, I want to let out a scream and I can't, I lose myself in crisps. Yes, or a packet of biscuits [laugh] plain not those with chocolate, I love those! And not a piece of chocolate or ice cream. No, plain biscuits and dry stuff, crisps, a packet of *twistees*, that kind of stuff full of calories [laugh] (Kate)

After work we get in the usual routine, wash her, wash the dishes, blab la, and then before I put her to bed I make a cup of tea, and a biscuit or a chocolate and that would be my moment! Ah! The day is almost over! [laugh] you know! (Johanna)

That's how I put on twenty kilos [laugh] so it effects me a lot. I lose myself in food. No, it's comfort eating, that's what I do. As long as I have something to chew in my mouth. I find a chocolate or something like that (Sue)

These quotes illustrate the association that the mothers perceived between mood states, stress and increased cravings for high calorie foods. Tracy used the word “*iġiegħluni*” meaning “they force me” to explain how her negative feelings controlled her actions and the sense of perceived powerlessness in the decision making process. In some cases food also played a rewarding function, such as in the case of Johanna who referred to the tea and biscuits as her moment. This links back to the theme on juggling multiple demands (see section 4.3.2.1, p.100) in which participants described the stress of managing a full schedule and not having any personal time. This suggests that eating may provide this opportunity of respite even though it is potentially exacerbating weight gain. As Kate noted, her comfort eating had a cumulative effect on her weight and she regarded it as a significant barrier for successful weight management.

4.3.2.2.3 *Stress dampens my appetite*

Whilst the demands discussed by each participant were similar in nature and magnitude, the effect on eating behaviour was distinctly different. In fact, Elsa, Aloysia, Valerie, Harriet, Mattea and Julia explained that they had a disciplined relationship to food and that the way their body responded to stress or negative moods was by eating less.

For me stress works the opposite. Even if I'm worried about something I don't eat nothing. It works like that. (Valerie)

Sometimes, you get really busy and stressed... But err I don't turn to an—, to food, or maybe sometimes I need to eat something fast because I'm hectic and I don't have time or anything like that, but then... I try to... make something healthy [...] I'm not the type to open a packet of biscuits and eat it all. I just take two and it lasts me a week. I'm like that... I'm very disciplined in these things (Harriet)

No! If I'm stressed I don't eat. I don't get hungry. Nothing! I actually forget to eat! If it were not for the children who ask me, 'mum what will you cook?' If I am stressed or tense I don't get hungry. In fact there were a lot of people in my course [at University] that said that they put on weight during the course cos they ate a lot, but I didn't. (Elsa)

As can be gathered by these quotes, the mothers seemed aware that others around them tended to respond to stress or negative emotions by eating more while in contrast stress had a dampening effect on their appetite. For example, Harriet refers to herself as 'very disciplined' while Elsa remarks that in stressful periods she would actually forget to eat. These are in stark contrast to the words used in the previous theme where Tracy described her emotions as 'forcing' her eating behavior (see section 4.3.2.2.2, p.103).

Elsa also remarked that in comparison to her University colleagues who engaged in comfort eating, she had not put on weight. A closer look at the weight status and eating patterns of this cohort revealed that this association was observed in the participants as well. The average weight of the participants differed depending on their reported level of emotional eating or reaction to stress. Participants who proclaimed

controlled eating behaviour or a suppressing effect of stress on hunger had a mean BMI of 22.1 (n= 6) while mothers who described occasional to frequent emotional eating behaviour had a BMI of 27.5 (n=14). Whilst it is not possible to determine an association based on such a small sample size, these findings suggest that participants of a higher BMI may share a similar predisposition to emotional eating as the obese participants in the first study (see section 3.3.2.4, p.67).

4.3.3 Theme 3: Perceived Social support

4.3.3.1 Lack of partner support

In context of the numerous elements that the women coordinated in their daily routine, and the effects of stress on their eating behavior, their views on the support available were deemed relevant. In line with the findings of the first study, the majority of mothers felt that partner support was limited;

The difference I note between my husband and I is that if we both arrive home at the same time, his first thought is going to be “ok, let me go change, prepare my things”, he sees what he needs to do. In my case my thoughts are “Ok so what needs to get done? I’ll put the pot on the hob so it starts to boil, in the meantime change the kids out of their clothes, see what clothes they need for the next day, then I change...” So I think first about the children, about the house, what we’re going to eat, he thinks individually first. By default it is my responsibility, and he helps me. It’s not truly shared. (Karla)

In Malta, I think, well in the world, certain responsibilities they still fall on the woman. Even though the wife goes back to employment, housework still belongs to the woman (Sue)

And if you are a full-time mum, then your children are with you and they will be brought up as they should, they behave and that you have quality time with them and you should be bringing them as you should. Your husband expects that is you are home, then once he arrived home he doesn’t need to lift a finger... (Julia)

As these quotes suggest, some mothers felt isolated in the coordination of childcare and home life, which could partly explain the pressure in juggling multiple demands discussed in earlier sections. Although not mentioned explicitly, these feelings of low partner support could amplify the negative emotions generated through the stress of multiple demands thus further fueling the comfort eating described by some mothers.

4.3.3.2 A reluctance to use social support

Whilst some mothers discussed an absence of support from their partners, a sense of reluctance to mobilize the support available was picked during the interviews.

Maybe as a mother that's what I feel, that I decided to be a mother and to have children to be there for them not to see where I'm going to put my responsibility. (Yana)

So I made sure that if I go to work, I am the one to pick up my daughter, or take her to school myself. And not give her to people. (Aloysia)

[When I was working full-time] my mum used to feed him, she used to wash him, she used to put him to bed, and there, no, I wasn't a good mother. Because I wasn't doing them myself (Mattea)

At the moment, the benefit is that the children have their mum with them, no other person, no childcare centre nobody is going to replace the mother (Julia)

I left work feeling sick I went home I had to continue, I had to cook just the same, I'm not going to call my mother listen I'm at home sick please cook for me. So I still have to do what I have to do, so I don't really get much help from others, he works late so I don't expect him to come... mind you he would do it but knowing me I prefer doing that extra effort and doing it myself rather than asking for help I think (Valerie)

As these quotes suggest, relying on others seemed to conflict with their own internalized values of motherhood which framed social support as a form of abdication of their role. Valerie's words "I had to" reflect a sense of no choice, even though she admitted that her husband would have helped if she had asked. These opinions on the use of support provided further insight into the self-concept of some of these mothers who voluntarily isolated themselves from the supportive network around them. Such behavior would create further opportunity for food to take a meaning of solace and gratification, providing the comfort that they seemed to be consciously limiting from others.

4.3.3.3 "I had to learn to ask for help"

In contrast, four mothers felt equally strongly that unless they asked for help they would not be as successful in their multiple endeavours.

Being a parent is actually harder than I thought. I had to learn to ask for help. (Lucia)

My mum helps me a lot, because otherwise I wouldn't manage (Maxine)

There is another mummy, lives in same neighbourhood, and she picks her [daughter] up and sometimes take her to her house and then she goes together with her daughter to ballet [...] yes, sometimes you have to put on a brave face and ask for help (Michela)

I used to knock on every door possible! I am the type of person that if I have a problem, if I have this wall in front of me, I am going to do everything in my power to get to the other side. So I'm not the type to lose heart. If there's a neighbour I go and ask help from a neighbour, or his sister-in-law who lives four streets away, or once I even called my son's kindergarten teacher. I called her and asked her to pick up my son on her way to the school cos I had a lecture at university. So I used to grab hold of every rope I find! (Sasha)

As these mothers reflected, asking for help was a learning process. Potentially aware of the social norms for mothers to ask as little help as possible, Michela commented that "sometimes you have to put on a brave face" indicating that it required courage to share the burden and allow someone else to take her daughter to ballet. Sasha further explained during the interview that in order for her career to flourish, she had to be resourceful in finding different avenues of support for childcare and housekeeping and to leave no stone unturned. The women explained that this ability to mobilise support was extended also at home with their partner;

My husband always supported me. Not just telling me "oh yes do it" - support, support! If I have something and I didn't clean, he will just clean himself. Total support, not that he puts the dishes away after I wash them! (Sasha)

No no he always helps me. And literally I don't have anything to grumble upon cos he's more obnoxious than I am! But then I'm not one that if I do it one way and he did it another—easy, even when I was pregnant, he used to wash the floors, at the time we had a dog, he used to wash the yard himself, no no, we always worked together (Maxine)

And it seems it's quite a trend in Maltese men, even when I would be chatting here at work and I would grumble, there would be those who say 'eh at least he cooks for you!' – like he's doing me a favour! Or 'At least he goes to pick her up from school' – Hello?! I take her to school every day! Isn't she his as well?! (Michela)

Michela felt strongly that women themselves seemed to settle for very little support and that the mentality was that the partner was helping them rather than sharing the burden from a stance of joint responsibility. Sasha hinted on this by calling the support from her husband “real support” and explained how they would both coordinate their schedules to ensure both of them could manage the load.

4.3.4 Theme 4: Time management & Food Planning

4.3.4.1 “If I don’t plan, forget it!”

Although all participants acknowledged that being a mother was a strenuous role, seven women emphasized the need of planning ahead and structuring their week to ensure they stayed on top of things.

In order to give time, to myself, my daughter and I together, my daughter to be on her own to play and have her own free time and for me to do my own things, for my husband, for the two businesses, literally, there’s no other way, if I don’t plan forget it! (Maxine)

I’m very good at planning and using time. I’m very good at using time. I don’t waste time – no time gets wasted! I’m an efficient kind of person. I wake up early and I wake up with formidable energy! And as soon as I wake up I am like let me do a load [laundry] for example! (Sasha)

Again, planning. I clean once a week, Saturday at 5 o’clock in the morning [laugh] cos basically by 8 I have to be ready cos the youngest he has basketball at 8 8.30 [laugh] which finishes at 10.30 and the other one has swimming at 13.00 so basically I have no time to clean so I have to wake up earlier, I start at Friday evening after work I do some dusting, and then in the morning my alarm goes off again and I wash the floors (Valerie)

I am a planner. I am a person that plans a lot, so for me these things [children’s activities; housechores] are easy. I would know what I am going to do, so you’re like— I think a person that doesn’t plan ends up with an overload and would not know how to fit everything, so maybe that is something in my character that I feel helps me so that I would have a certain structure in my life (Mattea)

Valerie, Mattea, Maxine, Michela, Sandy, Sasha and Harriet explained that unless they planned time ahead, they couldn’t see how the different aspects of their life could fit together in harmony. For these mothers life didn’t just happen, they felt more in control by structuring time according to the different priorities. They shared a

perseverance to achieve their personal objectives which ran in stark contrast to participants like Yana, who felt she wasted time or Simone who felt she did not have personal time (see section 4.3.2.1, p.100). This suggests that the experience of stress and its relationship to comfort eating could be potentially addressed by better planning and time management skills, as the next sub-theme illustrates.

4.3.4.2 Food Planning aids weight management

In addition to the general planning to structure their day and manage their time, participants who were of normal weight or who had succeeded at weight loss, placed significant importance in the planning of food purchasing and cooking.

Yes, yes yes you have, you have to plan, you have to plan a bit aha, sometimes... my partner tells me "you're already thinking what we're going to eat tomorrow?".. yes, you have to, because even just to go shopping, even to take the meat out or these things you need to plan these things, and that makes your life easier, because then you find the things ready when you need them (Harriet)

Yes planning! Because when I don't plan I become a bit, I fall into a rut of everything goes, but as much as possible we try to always keep the fridge stocked [...] Because for example most of the time we would have a salad ready prepared in the fridge, coleslaw, so I either add tuna to it, or I add chicken, and that I take it at work for lunch... (Sandy)

You have to plan. For example, in the morning I would already be thinking what we are going to eat. While I'm preparing her [daughter] for school I would be checking to see what I can take out of the freezer to thaw so I will have that ready for the evening (Tracy)

Sandy, Harriet, Angelica, Tracy and Hope explained that planning was important as this ensured they had ingredients readily available to prepare nutritious meals rather than calorie-dense convenience foods. This was not only practical but also helped them manage their weight better.

Well before [before she was dieting] I feel we didn't use to buy that— like vegetables and fruit now I am more aware that I have to plan and buy them ahead and stock them at home. I am buying enough for a week now (Hope)

When I don't keep the pattern of how I plan to eat, then I lose my routine and when I get home I would be hungry so I don't appreciate the food, and I really eat, and that is where I really slip up and I open the fridge to comfort me. But then when I keep my pattern, when I take my breakfast, I take a fruit, I don't even look for that something to—I eat because I need to eat. (Sandy)

Both Hope and Sandy had lost weight before the interview and were maintaining their weight loss. They felt that planning their food intake ensured they were surrounded by the right foods and that this reduced their reliance on convenience foods and diminished comfort eating. As Sandy pointed out, when she planned her food she ate because she needed to eat. These quotes suggest that planning could have a protective role in eating behaviour particularly for persons who may be susceptible to an emotional or external eating style.

4.3.5 Conclusion

This section presented the findings of the second study. Four main themes emerged illustrating how weight management for Maltese mothers was embedded in social norms surrounding motherhood which informed their values and prioritisation of goals. Some mothers equated the stress from fulfilling multiple roles to their tendencies to seek food for comfort and to snack on high calorie foods when they perceived a lack of time to prepare nutritious meals. However, participants with a lower BMI did not experience emotional eating to the same degree as participants with a higher BMI. Participants also differed in their evaluation of social support. For some mothers it seemed to imply that they were abdicating their role while others felt that learning to rely on others was an essential skill to manage their different demands. Similarly, participants differed in the extent to which they planned their time. Mothers who maintained a stable weight were more likely to describe themselves as planful, structuring their day and distributing their time and energy to meet their multiple demands. Their planning skill extended to food purchasing, cooking and eating which aided their weight management goals and decreased uncontrolled eating. The next section shall discuss these findings in light of the themes from the first study and international literature.

4.4 Discussion of findings

4.4.1 Introduction

This section discusses the main findings of the second study by relating emergent themes to international literature in context of findings from the first study. Recommendations for practice are included in each section.

4.4.2 Role conflict and weight management

There has been considerable research that has looked at the extent to which one area of one's life, namely work or family, may impact on one's ability to fulfil the other (see Grzywack & Marks, 2000; Voydanoff, 2002). This is currently conceptualised by terms such as "negative spill-over" or "role conflict" when denoting the negative experiences and "positive spill-over" or "role facilitation" when denoting the positive experiences (Voydanoff, 2002). The majority of participants in this study seemed to experience role conflict most predominantly and its consequence to weight management seemed largely negative. In fact the experience of these participants mirrored evidence in the literature. Work-family conflict has been linked to obesity-related factors, including interferences with food choices, increased emotional eating (Devine et al., 2006) greater fatty food consumption (Allen & Armstrong, 2006) and higher cholesterol levels and BMI (van Steenbergen & Ellemers, 2009).

Brown et al., (2001) argue that whilst specific health behaviours may be labelled as free choices, these are "generally undertaken within a framework of constraints" (p.132). Such constraints may be both explicit, such as the lack of available time or money, as well as hidden, such as cultural expectations around appropriate maternal behaviour. Evidence of these constraints were expressed by the participants, with some focusing on the actual lack of time or energy available whilst others mentioning aspects of guilt to not spending enough time with their children (see section 4.3.2.1, p.100).

4.4.2.1 Role conflict, ideology of motherhood and eating styles

Some mothers in this study opted for snack foods to avoid preparing meals yet these were most often high in sugar or fat. Others described symptoms of stress which led them to consume high calorie foods for comfort or reward. The role of eating styles in food choices was already discussed in the first study (see section 3.4.2.1, p.80). This was explored in more depth in study two with three in four mothers describing how feelings of stress emanating from the juggling of multiple demands often led them to eat more high-calorie foods. In contrast, a fourth of the participants in study two discussed a dampening of appetite when going through stressful or tense periods which did not come through in study one. These participants had a lower average weight than the other mothers and seemed aware that their reaction to tense or stressful periods was different than that of others around them.

The literature suggests that the relationship between stress and eating is bidirectional with a minority of approximately 30% reducing their food intake while the rest would increase intake (Adam & Epel, 2007). There is also evidence that being female (Zellner, Loaiza, Gonzalez, Pita, Morales, Pecora et al., 2006) overweight, or scoring high on dietary restraint (see Greeno & Wing, 1994) are all predictors of eating more during stress and that this is linked with weight and metabolic health (Epel, Jimenez, Brownell, Stroud, Stoney et al., 2004). A wealth of studies has also looked at the interaction between different eating styles, eating behaviour and weight gain (see for example O'Connor et al., 2008; Lluch et al., 2000; van Strien et al., 2012). Studies have also linked increased calorie dense food intake during periods of chronic stress (see Tyron, Carter, De Cant & Laugero, 2013) with stressed emotional eaters at a higher risk for poor eating habits (Oliver, Wardle & Gibson, 2000).

However, the strain experienced by some participants and the perceived association to their dietary behaviour, seemed in itself a consequence of an underlying ideology on what being a mother represented both to themselves as women and to society at large. In fact, this study provided a deeper understanding to the theme on motherhood that emerged in study one and suggests that the perceived constraints emanating from the competing priorities of paid work, childcare and house chores to weight goals is not a phenomenon experienced by obese mothers alone but by mothers with different demographics. For example, a number of participants seemed to equate using support with an abdication of their role and believed that as mothers, sacrificing personal time was not only normal but an expected marker of being a good mother. This is supported by Warin et al., (2008) who argue that obesity is enmeshed in women's everyday practices and that the constructs of mothering are "at odds with the promotion of individual behaviour changes" (p.97). Whilst not all women gain weight after motherhood, this present study supports evidence that motherhood as a point of transition brings forces into play that may hinder some women from exercising control over their personal weight goals leading to weight gain as a consequence (see Brown et al., 2001; Umberson et al., 2001).

Voydanoff (2002) compliments this view and argues that work-family systems are embedded within a larger social context influenced by global changes and contextual community factors, such as rates of female employment, culture and gender role expectations. These interact with people's perceptions and available coping strategies ultimately impacting physical and psychological well-being (Voydanoff, 2002). Taking a macro-view of Maltese culture, a woman's role in society is primarily defined by her ability to maintain family harmony and as a mother regarded as the fulcrum of family life (Castillo, 2010; Tabone, 1994). Although this gender stereotype is not unique to Maltese culture (see DeVault, 1991; Warin et al., 2008), it may influence women's pursuit of personal development and professional status (see Coltrane & Shih, 2010; Tabone, 1994). This can be attested by the fact that Malta has the widest gender

employment gap in the EU (see Eurostat, 2014) with national surveys attributing women's absence from the labour market to family and personal reasons (see Eurofound, 2008; National Commission for the Promotion of Equality [NCPE], 2012). What this study adds to these social realities is that the internalised values and perceptions of what make a 'good mother' could be impinging on self-care and health behaviours. Classified as a personal goal, the behaviours involved to maintain a healthier weight exist within a fabric of constraints (Brown et al., 2001). Pursuing such behaviours may challenge the established ideology around motherhood making it socially acceptable for a mother to prioritise others' needs and compromise on weight management (see Warin et al., 2008).

A study by Chircop, Shearer, Pitter et al., (2013) identified a similar link between parenting values and dietary behaviours, however their argument shifts the focus back on the parent as an active decision maker. From their interviews with forty-seven Canadian families the authors noted that being a good parent was a desired status and one of which society at large approved. The study concluded that scheduled organised activities for children or youth dominated family time and that pressure to ensure children engaged in such activities came at the expense of healthy eating and encouraged consumption of fast food or take-out meals. The study by Chircop et al., (2013) bears a number of similar observations to the findings generated in study one and two of this PhD programme. The authors also argued that being seen taking part in scheduled activities could be fulfilling an important mechanism to demonstrate good parenting. This would placate any feelings of dissonance (Festinger, 1957) from not preparing a healthy meal by emphasising the good parenting behaviour. Dissonance theory makes its strongest predictions when an important element of the self-concept is threatened (Aronson, 1999). Using dissonance theory to understand better the themes elicited so far in this study, one could argue that as mothers, most of the participants identified strongly with their role as caregivers, placing children's best interest in high priority and viewing a normal weight as important in fulfilling their

mothering role both physically (e.g. to run after the kids) but also psychologically (e.g. to communicate a positive body image) (see section 4.3.1, p.99). Therefore, not being able to successfully maintain dietary habits that are perceived to aid in weight management could provoke a dissonant state. According to dissonance theory, the greater the self-involvement implied by the action (e.g. eating high calorie foods) the greater would be the need to offer self-justifications for that behaviour. In this circumstance, with weight related behaviours often attributed to individual choice and voluntary control, the need for self-justification would be strong. It is possible therefore, that for some of these mothers, the time taken by their mothering role provided justification in defence for not maintaining behaviours that were pro-weight management. This would corroborate the conclusions of the first study in this research programme and provide a theoretical underpinning within which to make sense of the different dimensions that may be presented by mothers in their discussions of weight management.

4.4.3 Food planning as an aid to weight management

Despite the prevailing themes of role conflict and increased consumption of high calorie foods, some mothers in this second study did discuss alternative ways to deal with their busy schedules which did not emerge in study one. Whilst all mothers acknowledged that motherhood brought on new demands and restrictions on their time, some women explained how they planned their own schedules as well as those of their partner and children in order to make sure that all family members, themselves included, could fulfil their goals and also have time with each other. This ability and conscious effort to plan ahead was also extended to their dietary behaviour. In this study, Sandy and Harriet discussed how they planned meals, keeping salads in the fridge for later consumption, which helped them avoid uncontrolled eating especially when arriving home after a hectic day. Research supports the adoption of adaptive coping strategies (see Devine, Farrell, Blake et al., 2009; Pitt-Catsouphes, Matz-Costa, &

MacDermid, 2007). Interventions and randomised control trials have also demonstrated that planning can increase fruit and vegetable consumption (see Kreausukon et al., 2012; Gholami et al., 2013) and reduce saturated fat intake (Luszczynska et al., 2007).

Another key difference that emerged in study two and that was not discussed in study one was how some mothers maximised the use of their support network to ensure that they could achieve the goals that they had set for themselves. As exemplified by Michela, she planned for the support she would require by ensuring a trusted mother in her neighbourhood would take her daughter to ballet. This provided her with peace of mind that her daughter's activity would not be missed while freeing her schedule for other personal goals. Therefore, whilst mobilising support and planning may be regarded as separate strategies, some mothers were able to think ahead not only to structure their week in the most optimal way but also to factor in their families' needs in their planning and gather the right level of support.

These adaptive strategies and tactics have featured in studies aimed at improving the wellbeing of working parents (see Pitt-Catsouphes et al., 2007). The authors provided working parents with a list of 84 action oriented strategies but remarked that one of the least used tactics was that of maintaining health, with only 13% reporting to aim to eat right and exercise as part of their tactics to cope as parents. This corroborates the study of Chircop et al., (2013) in which none of the parents in their study engaged in parallel negotiation on how to enable healthy eating practices on busy days. Similarly in this present study, only a quarter of the participants actively sought to plan their time, their food purchases or their need to mobilise support from their environment. Chircop et al., (2013) point out that rather than viewing parents as passive in the face of lack of time, parents could be regarded as active agents who take decisions in favour of one activity over another in that space of time. It is argued that health promotion interventions may need to address individuals' perceptions on time availability and the

potential benefits of planning such that maintaining health could be regarded as an adaptive strategy.

4.4.4 Limitations and Strengths

The findings of this second study have to be viewed in light of some limitations. Data saturation was reached with a sample of twenty participants (see Lincoln & Guba, 1985) however, it is acknowledge that a larger sample size could have allowed for further diversity in the sample which could have led to a wider representation of contexts within which some factors become most salient. Whilst this would have further facilitated the development of theory, larger sample sizes could compromise the depth of analysis (see Sandelowski, 1995). The size of the sample is arguably offset by its diversity with mothers' ages ranging from 27 to 55 years and with children's ages spanning thirty years. This ensured the inclusion of mothers at different stages of motherhood, including those with children under one year, which could influence the type of factors brought to light in the interviews. A second limitation is that the participants had a relatively high educational level with 8 out of the 20 mothers having completed a tertiary degree. Educational level is a marker of socio economic status and this is known to have associations to BMI and weight management (Tyrrell, Jones, Beaumont, Astley, Lovell et al., 2016; Superintendence of Public Health, 2012). However, the participants did hail from different backgrounds, with a mix of mothers in full-time and part-time paid employment and six mothers raising their children on full-time basis. Similarly to study one, all mothers were living with a partner and therefore this data does not include views of mothers who juggle different familial constraints whilst managing weight. The mothers were not screened for eating disorders, it is therefore not possible to ascertain whether the meanings attached to food could stem from the presence or history of eating disorders. The participants were not asked to detail weight loss history and it is not possible to ascertain whether any weight loss or weight gain had taken place by the time of the interview.

A main strength of this study was that it corroborated and expanded upon the themes generated in study one. Although the question guide was informed by the previous pilot study, new themes were able to emerge, such as the role of food planning, which can be used to guide local practice and further inform the next phase of research.

4.4.5 Conclusion

In this study, participants' dietary behaviour was explored in context of their familial obligations and the perceived stress from juggling multiple responsibilities. This brought forth the relevance of eating styles and food planning to dietary choices, which differed significantly between normal weight and overweight/obese mothers. Collating evidence from the qualitative research phase, it is plausible that whilst restrained, emotional and external eating could be linked to high calorie food consumption, food planning could have a protective role, decreasing the incidence of high calorie snacking and increasing healthier food options. However, further quantifiable data is necessary to ascertain the presence and strength of these relationships. The following research questions emerge, informing the next phase of research;

- i. What is the relationship between BMI, eating styles and food planning in the explanation of food choices for Maltese mothers?
- ii. Is food planning linked with increased healthier food choices?
- iii. Can food planning moderate the impact of eating styles on high calorie food consumption?

It is believed that pursuing this line of inquiry could provide health care professionals tangible variables to address in weight management consultations with mothers and extend the knowledge of these variables in international literature.

CHAPTER 5: STUDY 3

5.1 Introduction

This chapter shall present the rationale, methodology and results of the third study in the PhD research programme. It will start by providing a rationale, reviewing the key constructs and identify the aims of the study. Section 2 will then review the quantitative methodology employed. The key findings of this study are reviewed in Section 3 followed by a discussion of these results in Section 4.

5.1.1 Rationale & research context

Whilst the fundamental cause of weight gain is an energy imbalance between calories consumed and calories expended over a period of time (WHO, 2007) susceptibility to overweight and obesity is attributed to a myriad of factors, including; genetic, physiological, psychological, behavioural and socio-cultural (Sobal, 2001). From a behavioural-psychological dimension, three theories, namely psychosomatic theory (Bruch, 1964; Kaplan & Kaplan, 1957), externality theory (Schachter, 1964) and restrained eating theory (Herman & Polivy, 1980) have been put forward to explain why people overeat and how this may lead to obesity. Each of these theories has been subsequently linked to three predominant eating styles; Emotional, External and Restrained eating (van Strien et al., 1986).

The impact of eating styles on food consumption and weight loss maintenance emerged as strong themes in both qualitative studies (see Chapter 3, p.53 and Chapter 4, p.91). The Dutch Eating Behaviour Questionnaire (DEBQ; van Strien et al., 1986) is a self-report 33-item assessment tool comprising of three sub-scales to measure, Emotional Eating, External Eating and Restrained Eating. Although originally validated with a Dutch adult population, it has since been translated and validated in several

other languages, including English (van Strien et al., 1986; Wardle, 1987), French (Lluch, Herbeth, Mejean & Seist, 1996), Turkish (Bozan, Bas & Asci, 2011), Italian (Dakanalis, Zanetti, Clerici, Madeddu, Riva et al., 2013) and Spanish (Cebolla, Barrada, van Strien, Oliver & Baños, 2014). All of these versions report a stable factor structure, high internal consistency and satisfactory test-retest reliability values.

To the knowledge of the researchers no assessment tools for eating behaviours have been validated and published in Maltese. The researcher is also unaware of any validation studies of the DEBQ in other Semitic languages that share the roots of the Maltese tongue, such as Arabic, Hebrew and Aramaic. For example, in a cross-cultural study on the impact of socio-cultural factors on eating attitudes among Lebanese and Cypriot participants, the English version of the DEBQ was distributed to the Lebanese cohort, despite the Cypriot group being given the Greek version of this same assessment tool (see Zeeni, Gharibeh & Katsounari, 2013). The literature calls for more cross-culturally validated instruments that are reliable and validated within the language and cultural context of a specific population group (See Cha et al, 2007; Sousa & Rojjanasrirat, 2011). Although both Maltese and English are recognised as official languages in Malta, Maltese is the native language and spoken by a larger percentage of the population (European Commission, 2012). This study would therefore contribute to international literature by further validating the DEBQ in a new language and cultural context, whilst at the same time providing the local community with a reliable and valid instrument to assess eating styles.

The aim of this study was to test the dimensional structure and psychometric properties of the Maltese translation of the DEBQ by assessing the criterion-related validity and its reliability in Maltese women. The study also aimed to assess the predictive value of the DEBQ in differentiating between BMI groups and replicate the association of the DEBQ-subcales to age and BMI as that highlighted in previous research (see Cebolla et al., 2014; Dakanalis et al., 2013; Wardle, 1987).

5.2 Methods

5.2.1 Participants

Two samples were recruited for this study (total $N=586$). The first ($n=270$) was a convenience sample of women from the general population with ages ranging from 20-70 ($M=37.4$; $SD=9.85$). Over half (65%) were married or lived with a partner and 50% had children. Participants had to be over 18 years of age, not pregnant and bilingual (Maltese and English). This resulted in a cohort with a relatively high level of education with 63.7% having completed a tertiary degree. Over 78% were in paid employment while 12% identified themselves as full-time mothers. The BMI of this cohort ranged from 16.4-50.9 ($M=26$; $SD=5.97$). Based on WHO (2007) criteria for adult weight status categorisation, just under half (49.3%) of the participants were classified as normal weight ($BMI=18.5-24.9$), 26.7% were overweight ($BMI\geq 25-29.9$), while 22.2% were obese ($BMI\geq 30$). As expected, only a minority (1.9%) had a BMI of less than 18.5 and classified as underweight.

The second sample ($n=316$) were women with at least one child living at home. Participation criteria were; being 18 years of age or older, not pregnant and be able to read and write in Maltese. The sample was recruited on-line through a closed Facebook community group as part of a larger study investigating eating behaviours among Maltese mothers. The mean age of the sample was 35.5 years ($SD=7.64$; Range: 18-60 years). The majority (84%) were married or cohabiting, 62% worked part-time or full-time while 25% identified themselves as full-time mothers. Less than half (47%) achieved a tertiary degree. The average BMI of this cohort was 26.7 ($SD=5.86$; Range: 16.9-48.8); 1.9% were under-weight; 43.5% were normal weight, 31.4% were overweight while 22.5% were obese. In both samples, the average BMI and its distribution were analogous to the national distribution and average BMI for Maltese female adults (National Statistics Office [NSO], 2009).

5.2.2 Instruments

Dutch Eating Behaviour Questionnaire (DEBQ; van Strien et al., 1986): The 33-item assessment tool comprises of three sub-scales; the Emotional Eating scale has 13 items (e.g. *Do you have a desire to eat when you are irritated*), the External Eating scale has 10 items (e.g. *If food smells and looks good do you eat more than usual*) and the Restrained Eating scale contains 10 items (e.g. *Do you try to eat less at mealtimes than you would like to eat*). Each questionnaire item is rated on a 5-point Likert scale ranging from “never” to “very often”.

The original translation of the English version of the DEBQ (see van Strien et al., 1986) was translated into Maltese by the first author who is native to both languages. An independent bilingual graduate assisted through several iterations of back-translation (see Bracken & Barona, 1991). Discrepancies were discussed, aiming for a translation of meaning within the context of the assessment tool rather than a direct translation (see Cha et al., 2007). Due to a latinisation process in which words from Italian and English are frequently adopted into the Maltese discourse (Borg & Azzopardi-Alexander, 1997), piloting was an essential component of the translation process. Five individuals who did not participate in the two studies and who had a mixture of educational backgrounds reviewed several drafts of the translated version. Piloting confirmed the face validity of the new translated version and that both the syntax and semantics of the instrument were adequate for the average Maltese adult. Based on the feedback received, some of the adjectives pertaining to the emotional eating scale (e.g. bored, depressed) were kept in both Maltese and English since the English words are often more popularly used.

Eating Attitudes Test-26 (EAT-26; Garner, Olmsted, Bohr, & Garfinkel, 1982): This self-report 26-item questionnaire was developed to assess individuals' attitudes towards

eating and behaviours associated with eating disorders. It has been used previously to assess criterion-related validity of the DEBQ (e.g. Bozan et al., 2011; Cebolla et al., 2014; Dakanalis et al., 2013). Questionnaire items were rated on a 6-point Likert scale ranging from “Never” to “Always”. The tool has 3 sub-scales; Diet (13 items e.g. *I engage in dieting behaviour*), Bulimia and Preoccupation about Food (6 items e.g. *I give too much time and thought to food*) and Oral Control (7 items e.g. *I display self-control around food*). A total score comprising all 26 items is typically also computed. In this present study the original English version by Garner et al., (1982) was used. Cronbach’s alpha for the total scale was 0.87. Cronbach’s Alpha scores for the ‘Diet’, ‘Bulimia - Food Preoccupation’ and the ‘Oral Control’ sub-scales were 0.87, 0.80 and 0.71 respectively.

Anthropometric measurement: In order to obtain one single measure of body size, BMI was calculated for each participant based on their self-reported weight and height measurements, which they provided in the personal information section of the survey. Participants were also asked to indicate whether they were trying to reduce, maintain or increase their weight at the time of the study.

5.2.3 Procedure

Following ethical approval from the Brunel research ethics committee (see Appendix 4, p.221), two parallel processes for data collection were initiated. The first sample was recruited through a snowball technique. Approval was sought from a large telecommunications company (see Appendix 15, p.240) and employees were sent the participation information via email with a link to the online survey (see Appendix 16 p.241). The survey consisted of the DEBQ-Maltese version and the EAT-26 in English (Garner et al., 1982) (see Appendix 17, p.243). The informed consent section was included at the start of the survey and needed a “yes” response to allow participants to continue. The debrief information closed the survey. Employees were encouraged to

forward on the survey to their friends and family members. The researcher also used personal contacts to initiate parallel snowball data collection from different sources to ensure a wider representation of women from the general population. A total of 369 surveys were received, out of which 270 (73%) fulfilled all research criteria and had completed at least 90% of all DEBQ items. The second sample, was recruited through a dedicated online group forum for Maltese mothers consisting of over 1,500 members. The participation information (see Appendix 18, p. 254) was disseminated online with the link to the survey that included the DEBQ-Maltese version (see Appendix 19, p.257). The informed consent form was included at the start of the survey and needed a “yes” response to allow participants to continue. The debrief information closed the survey. A total of 348 valid surveys were submitted, out of which 316 (91%) completed at least 90% of all DEBQ items. Of these participants, 120 (38%) provided their personal email address for further contact. A participant information letter (see Appendix 20, p.268) was sent to these participants 9 months after initial assessment to volunteer for the test-retest assessment of the DEBQ (see Appendix 21, p.271). The consent form and debrief information opened and closed the survey respectively. A response rate of 50% was achieved for the test-retest assessment. Data collection took place between April 2015 and February 2016. Participation to both studies was voluntary and no incentives were given for participation.

5.2.4 Data Analyses

To evaluate the dimensional structure of the Maltese version of the DEBQ, a similar procedure to that undertaken by Dakanalis et al., (2013) was adopted. An Exploratory Factor Analysis was carried out with the data from the first sample using SPSS Version 17.0. Principal axis factoring with an oblique rotation (direct oblimin) was used as the factors were expected to correlate (Costello & Osborne, 2005). Criteria for factor loadings were set at ≥ 0.32 for primary factors (see Tabachnick & Fidell, 2001). A stricter loading of ≤ 0.25 was set for cross-loadings on other factors.

A confirmatory factor analysis [CFA] was then performed on the second set of data using AMOS Version 21.0 to test the factor structure suggested by the EFA. In consideration of the fact that the DEBQ would result in 69 parameters to be tested and since sample size is known to influence fit indices (Gagne & Hancock, 2006) a decision was made to undertake item parcelling if a 10:1 sample to parameter ratio could not be achieved. Whilst parcelling is a contentious matter in CFA, this method has the advantage of ensuring a better representation of the data when large samples are harder to collect (Little, Cunningham, Shahar & Widaman, 2002). It also has the added advantage of increasing the range of scores within each parcel and improving their distribution, thus allowing Likert scale data to be more easily interpreted as a continuous variable (Little et al., 2002). Based on the sample size ($n=316$) it was estimated that a maximum of 18 parcels could be created with 2 to 4 items in each parcel. As recommended, the parcelling technique was identified a-priori (see Little et al., 2002) and aimed to maintain item to construct balance. This involved matching the highest loading items with the lowest loading item on that sub-scale based on the factor loadings of the EFA (see Little et al., 2002). The following goodness of fit indices were used to guide interpretation: Normed Chi-square statistic (χ^2/df) < 3; Standardised root mean square residual (SRMSR) ≤ 0.08 ; Root mean square error of approximation (RMSEA) ≤ 0.08 (90% CI); Comparative Fit Index (CFI) ≥ 0.90 (see Browne & Cudeck, 1993; Byrne, 2010; Hu & Bentler, 1999). In the interest of preserving numbers, cases that had one to two missing data points on one of the DEBQ sub-scales; 15 cases (0.06%) for the EFA and 36 cases (11%) for the CFA, were replaced with the individual's mean on that sub-scale (Shrive, Stuart, Quan & Ghali, 2006). In all other cases pair-wise deletion was applied for missing values.

In order to assess predictive validity, the first sample was differentiated by BMI and reported dieting behaviour at the time of the study. Based on the theories on which each subscale was designed, it was hypothesised that dieters and participants with

BMI>25 would score higher on all three eating styles. Internal consistency scores were measured using Cronbach's alpha and based on the data of the first sample. EAT-26 was correlated with DEBQ to assess criterion-related validity and independent samples t-tests were used to examine predictive validity of the DEBQ across BMI and dieting behaviour. All correlational analyses were carried out using Pearson r. In the interest of safeguarding anonymity only group level data was utilised for test-retest reliability of the DEBQ scores. Coefficients ≥ 0.60 were considered large while coefficients ≤ 0.20 were considered small (Cohen, 1992).

5.3 Results

5.3.1 Factor Analysis of DEBQ

The sample for the exploratory factor analysis (n=270) was deemed to be adequate (KMO=0.90; Bartlett's test of sphericity=4855.6; $p < 0.001$) (Field, 2005). A scree plot was generated to verify emerging factors and assist in factor retention (Costello & Osborne, 2005; Field, 2005). The scree plot levelled out after the 3rd component in-line with the theoretical 3-factor structure. Eigenvalues > 1.0 were extracted, which resulted in seven factors in total contributing to 64.5% of the variance. All factors were verified before deciding on which to retain. The 1st component contributed to 26.9% of the variance (eigenvalue=8.91) and comprised of 11 Emotional eating items. The 2nd component contributed to 15.9% of the variance (eigenvalue=5.24) and included all of the 10 restrained eating items. The external eating scale was fragmented with 4 items comprising the 3rd component (eigenvalue=2.53; variance=7.7%) and the remaining six items split with two items each on the 4th (eigenvalue=1.30; variance=3.9%) 5th (eigenvalue=1.17; variance=3.6%) and 7th component (eigenvalue=1.03; variance=3.1%). Of these external eating items, the reverse scored item '*Can you resist eating delicious food*' (loading of 0.391) cross loaded on the restraint eating scale (-0.30) and was removed from further analysis. The 6th component (eigenvalue=1.09;

variance=3.3%) loaded on the two remaining Emotional eating items; 'Do you have a desire to eat when you have nothing to do' and 'Do you have a desire to eat when you are bored'. The latter item cross-loaded on the primary component of Emotional eating items and was retained whilst the former was removed from further analysis.

The EFA was re-run as a five, four and three-factor solution and the latter was deemed as the most suitable fit for the data. This was in-line with the initial scree plot and on best-practice guidelines to not retain factors that have less than 3 items (Costello & Osborne, 2005). This solution had a total variance of 51.8%. The 1st component (eigenvalue=8.58) loaded on all 12 emotional eating items contributing 27.7% of the variance. Factor loadings ranged from 0.50–0.88 ($M=0.74$). The 2nd component (eigenvalue=5.01) loaded on all ten restraint eating items and contributed to 16.22% of the variance (factor loadings ranging 0.38–0.84; $M=0.63$). The 3rd component (eigenvalue=2.45) loaded on all nine external eating items (factor loadings ranging 0.34–0.72; $M=0.56$) and contributed 7.9% of the variance. All item-total correlations were above the fixed value of 0.32 with no cross-loadings above 0.23.

This three-factor model of the DEBQ with 31 items was validated through a CFA using the second sample ($n=316$). Prior to conducting the CFA, parcelling was carried out. As planned, the items which loaded highest on each of the components in the EFA were used to anchor the parcels. Each of the remaining items were then matched to each parcel with the lowest loading item assigned to the highest loading parcel. This process was repeated until all items were assigned equally among parcels and summed as follows; 4 parcels had 3 Emotional items each; 5 parcels had 2 Restraint items in each and 3 parcels had 3 External eating items in each. Table 5.1 (see p.128) presents descriptive statistics pertaining to each parcel. The parcels were then included in the CFA and linked to their respective factors resulting in 27 parameters to be estimated. The findings suggest that the three-factor structure of the DEBQ for Maltese women is an adequate fit for the data; $\chi^2(51) = 113.3$; $\chi^2/df = 2.22$; CFI = 0.98; RMSEA = 0.06 (90%

CI: 0.047 – 0.078), SRMR = 0.053. As expected, each parcel loaded significantly on the assigned factor (all p values < 0.001) with standardised regression weights of 0.7 or above.

5.3.2 Descriptive statistics, reliability and correlational analysis

The three DEBQ sub-scales achieved high internal reliability scores in both samples. Cronbach's Alpha reliability scores for sample 1 and sample 2 were as follows; Emotional Eating scale-12 items (0.94/0.96), External Eating scale-9 items (0.83/0.83) and Restraint Eating scale-10 (0.87/0.89). The group means on each sub-scale between time 1 and time 2 correlated above 0.90 suggesting good temporal stability.

Table 5.1: Descriptive statistics of CFA parcels

Parcel Name	Minimum Score	Maximum Score	Mean Score	Std. Deviation
Emotional Parcel 1				
- <i>desire to eat when depressed</i>				
- <i>desire to eat when frightened</i>	3.00	15.00	7.37	2.79
- <i>desire to eat when anxious/ worried</i>				
Emotional Parcel 2				
- <i>desire to eat when disappointed</i>				
- <i>desire to eat when bored</i>	3.00	15.00	7.68	2.92
- <i>desire to eat when somebody lets you down</i>				
Emotional Parcel 3				
- <i>desire to eat when things going against you</i>				
- <i>desire to eat when lonely</i>	3.00	15.00	8.53	3.07
- <i>desire to eat when emotionally upset</i>				
Emotional Parcel 4				
- <i>desire to eat when irritated</i>				
- <i>desire to eat when angry/cross</i>	3.00	15.00	7.44	3.04
- <i>desire to eat when something unpleasant to happen</i>				
Restraint Parcel 1				
- <i>deliberately eat less in order not to become heavier</i>				
- <i>evenings try not to eat because watching weight</i>	2.00	10.00	5.47	1.83
Restraint Parcel 2				
- <i>refuse food or drink offered - concerned about</i>				
- <i>when put on weight eat less than usual</i>	2.00	10.00	5.83	1.70
Restraint Parcel 3				
- <i>take weight into account with what you eat</i>				
- <i>try to eat less at mealtimes than would like to eat</i>	2.00	10.00	5.86	1.73
Restraint Parcel 4				
- <i>try not to eat between meals ... watching weight</i>				
- <i>watch exactly what you eat</i>	2.00	10.00	5.64	1.84

Restraint Parcel 5				
- <i>deliberately eat foods that are slimming</i>	2.00	10.00	5.66	1.90
- <i>eaten too much ... eat less the following day</i>				
External Parcel 1				
- <i>eat more than usual when others eating</i>				
- <i>If food tastes good eat more than usual</i>	4.00	15.00	9.11	2.17
- <i>have something delicious ...eat it straight away</i>				
External Parcel 2				
- <i>if you see others eating do you also want to eat</i>				
- <i>see or smell something delicious... desire to eat it</i>	3.00	14.00	8.89	1.90
- <i>when preparing a meal...inclined to eat</i>				
External Parcel 3				
- <i>If food smells and looks good ... eat more than usual</i>				
- <i>walk past a baker desire to buy something delicious</i>	3.00	14.00	9.10	2.28
- <i>walk past snack bar or café desire to buy something delicious</i>				

Notes: All parcels $n = 316$.

Bivariate correlations revealed that the three DEBQ subscales were moderately related to each other however, after controlling for BMI and age, only Emotional eating shared a significant relationship with the other two sub-scales; External eating ($r(270)=0.35, p<0.001$) and Restraint ($r(270)=0.18, p<0.01$). BMI was positively associated with Restraint ($r(270)=0.17; p<0.01$) and Emotional Eating ($r(270)=0.34; p<0.001$).

Table 5.2: Correlations between the DEBQ sub-scales with Age, BMI and EAT-26 scores - Sample 1

	Emotional	Restrained	External
Age ($n = 249$)	-0.12 ^{ns}	0.22**	-0.29**
BMI ($n = 270$)	0.34**	0.17**	0.09 ^{ns}
EAT-Diet ($n = 250$)	0.22**	0.75**	-0.11 ^{ns}
EAT-Bulimia & Food Preoccupation ($n = 254$)	0.55**	0.31**	0.39**
EAT-Oral Control ($n = 250$)	-0.16*	0.13*	-0.29**
EAT-26 Total ($n = 238$)	0.29**	0.68**	-0.05 ^{ns}

Notes: Emotional eating (12 items); Restrained eating (10 items); External eating (9 items)

** = $p < 0.01$; * = $p < 0.05$; ns = not significant

Table 5.2 (see above) provides correlations of the three eating styles with age and BMI as well as associations with the EAT-26 scores. In the associations between the DEBQ and EAT-26 scores, the Restraint scale shared the strongest relationship to the EAT-Diet scale ($r(250)=0.75; p<0.001$) followed by the EAT-26 total score ($r(238)=0.68; p<0.001$).

The EAT Bulimia & Food preoccupation scale had the strongest correlation with the Emotional eating ($r(254) = 0.55; p < 0.01$) and External eating scale ($r(254) = 0.39; p < 0.01$). External eating also had a negative, moderate relationship to the EAT-Oral Control scale ($r(250) = -0.29; p < 0.01$).

5.3.3 Differences in DEBQ scores between BMI and dieting groups

Differences between BMI and Dieting groups was performed on the first sample of data ($n=270$) (see Table 5.3, p.106). People with $BMI < 18.5$ ($n=5$) and participants aiming to increasing weight ($n=1$) were excluded from analysis. Of the 264 women, 67% were dieters and 33% maintainers. As hypothesised, independent samples T-test confirmed that individuals with $BMI > 25$ had higher mean scores on Restrained ($t_{(262)} = 3.59, p < 0.001$) and Emotional eating ($t_{(262)} = 5.08, p < 0.001$) than individuals of normal weight. People trying to lose weight (dieters) had a higher BMI than individuals aiming to maintain their current weight (maintainers) ($t_{(267)} = 7.63, p < 0.001$). As expected, dieters scored significantly higher on Restraint ($t_{(267)} = 5.63, p < 0.001$) and Emotional eating ($t_{(267)} = 3.57, p < 0.001$) however, no significant differences between groups were observed for External eating ($t_{(267)} = .23, p = 0.816, d = 0.03$).

Table 5.3: DEBQ Scores (Mean and SD) - Sample 1

	Emotional M (SD)	Restrained M (SD)	External M (SD)
All Sample ($n=270$)	30.74 (10.14)	29.01 (7.13)	26.84 (5.45)
BMI > 25 ($n = 132$)	33.88 (6.28)*	30.61 (6.28)*	27.27 (5.55)
BMI 18.5 – 24.9 ($n = 132$)	27.86 (7.12)	27.64 (7.12)	26.55 (5.42)
Dieters ($n=176$)	32.31 (10.28)*	30.69 (5.99)*	26.92 (5.47)
Maintainers ($n=88$)	27.76 (9.26)	25.81 (8.03)	26.76 (5.45)

Notes: Emotional eating (Range: 12 – 60); Restrained eating (Range = 10 – 50); External eating (Range: 9 – 45); M = Mean Sub-scale scores; SD = Standard Deviation; * $p < 0.001$

5.4 Discussion

The main aim of this study was to assess the internal structure of the Maltese version of the DEBQ and evaluate the instrument's validity and reliability among Maltese women. The findings confirmed that the Maltese version of the DEBQ maintained the theoretical three-factor structure, with most items loading on the 'Emotional eating', 'Restrained eating' and 'External eating' components. However, a number of issues were encountered during the exploratory factor analysis that merit discussion. The initial factor structure resulted in seven components which was more fragmented than expected. In this study two items from the Emotional eating scale, 'Do you have a desire to eat when you have nothing to do' and 'Do you have a desire to eat when you are bored' loaded on a separate factor. This mirrors the original factor structure (see van Strien et al., 1986) whereby both items were coined as diffused emotions as opposed to the clearly defined emotions which make up the rest of the scale. More recently Cebolla et al., (2014) opted to remove these two items from further analysis due to issues with factor structure. As Cebolla et al., argue, the concept of boredom is closely related to the notion of having nothing to do, which could explain why both items are pulled together. This is a critical issue for the Maltese translation as the Maltese language does not have a direct translation for boredom but instead refers to the situation of being fed up or having nothing to do. Yet, when the item '-nothing to do' was eliminated from further analysis, the item '-when you are bored' loaded moderately but solely with Emotional eating, suggesting that in the Maltese context it is an emotion that captures an aspect of this construct.

Several studies have reported that the external eating scale behaves less consistently and explains a smaller percentage of variance compared to the other two subscales (see for example Dakanalis et al., 2013; Wardle, 1986). A closer analysis of this EFA revealed that similarly worded external eating items aggregated together resulting in the multiple factors. For example, the items referring to the desire to buy something

from a baker or from a snack bar formed one factor, while the two items referring to eating more based on the taste or smell of food formed into another factor. On the other hand, the two highest loading items on the main component both referred to eating in the company of others. This suggests that the Maltese translation of the external scale picked at different dimensions of this construct namely, the stimuli in the physical environment, sensory stimuli, and the social dimension of eating. Further validation studies could determine whether the same items form consistently into separate factors and whether these multiple facets differ by culture. The reverse scored item 'can you resist eating delicious food' had to be removed from this study due to the high cross-loading with the restraint factor. This item had poor factor loadings in previous studies (see for example Lluh et al., 1996). It is possible that rewording the item could resolve the issue (see Cebolla et al., 2014) and this would be recommended for future studies using the DEBQ with a Maltese sample.

As part of the validation process the Maltese DEBQ was distributed with the EAT-26. Results for the Restrained and Emotional eating scales were aligned with previous findings (see Cebolla et al., 2014; Dakanalis et al., 2013) and suggest good criterion-related validity for the Maltese version of the DEBQ. A negative significant association was also noted between External eating and the EAT-26 Oral control sub-scale which did not come through in previous studies. Although the Eat-26 does not directly measure external eating, external eating items (e.g. When preparing a meal are you inclined to eat something?) could be regarded as *opposite* to the oral control items (e.g. I display self-control around food). A negative association between the two sub-scales was therefore interpreted as further validation of the Maltese external eating sub-scale.

The correlational analyses between the DEBQ sub-scales, age and BMI support the findings of other studies (see, Cebolla et al., 2014; Dakanalis et al., 2013; Wardle, 1987). This study also assessed the DEBQ's predictive value in differentiating between

normal weight and overweight/obese women and between dieters and weight maintainers. As expected, overweight individuals or those on a diet had significantly higher scores on Emotional and Restrained eating. These findings give credence to the arguments of Restraint theory (Herman & Polivy, 1980) whereby persons intending to diet may hold two incompatible goals such that periods of restraint may be accompanied by periods of emotional eating (see Elfhag & Rössner, 2005). van Strien, Herman & Verheijden (2009) also argue that emotional eating may be a more significant link to overweight than external eating which could explain why no significant differences were found between groups on external eating.

5.4.1 Limitations & Strengths

This study has some limitations which should be acknowledged. The sample size for the CFA did not allow for a full assessment of all single parameters necessitating item-parcelling to test model fit. To mitigate against this limitation the parcelling technique was identified a-priori and parcels were kept small allowing for multiple parameters to be tested per factor. The individual mean was used to replace missing scores. Whilst it's considered to be an adequate imputation technique (see Shrive, 2006) it could have impacted the results. The language proficiency of the first sample was not measured so it is not possible to ascertain the respondents' ability to transition between the English and Maltese languages. However, in the absence of validated measures for eating behaviours in Maltese, distributing the EAT-26 in English and the DEBQ in Maltese to a sample of bilingual participants proved to be a feasible way to assess criterion-related validity. Both data sets were cross-sectional so the direction of associations cannot be clearly ascertained. Despite this, the results were in line with theory and substantiated by findings of other studies. This study focused solely on women so future studies will need to validate this translation of the DEBQ with Maltese men and persons younger than 18 years. Online data collection also carries a bias for respondents of higher educational achievement and of potentially higher socio-economic status (Bryman,

2008). However, the study attained samples from the Maltese community avoiding cohorts that are too homogenous such as University students. BMI data was based on self-reported weight and height which may lead to an underestimation of actual BMI (Engstrom, Paterson, Doherty, Trabulsi & Speer, 2003). Nonetheless, both samples had an average BMI and overall distribution that was representative of the national BMI data for Maltese women (see NSO, 2009).

5.5 Conclusion

In conclusion, this study extended literature on the dimensional validity of the DEBQ by reproducing its factor structure and ascertaining its reliability in a cohort of Maltese women. It has replicated findings noted in previous studies that shed light not only to the strengths of the instrument but also areas of weakness. In particular, it provided further evidence on the ambiguous nature of boredom and idleness as triggers for emotional eating as well as the potential multi-faceted nature of external eating. Nonetheless, the Maltese version of the DEBQ was able to differentiate between groups as hypothesized and proved to be a psychometrically sound tool for the assessment of eating behaviour among women. Finally, this study highlighted the critical role of Emotional and Restrained eating in dieting and overweight Maltese women, corroborating the themes that emerged from the qualitative phase of this research programme. This study paved the way for a fourth and final study, which aimed to investigate further the associations between psychological eating styles, BMI and eating behaviours.

CHAPTER 6: STUDY 4

6.1 Introduction

This chapter shall present the rationale, methodology and results of the final study in this research programme. It will start by providing a rationale and review key constructs that emerged from the previous studies in context of international literature. At the end of this section, the emerging aims and hypotheses will be put forward. Section 2 will then review the quantitative methodology employed. The key findings of this study are reviewed in Section 3, followed by a discussion of these results in Section 4.

6.1.1 Rationale & research context

Snacking has increased in Western diets (Bellisle, 2014; Duffey & Popkin, 2011) and its rise has coincided with increasing rates of overweight and obesity (Bellisle, 2014; Miller, Benelam, Stunner & Buttris, 2013). Some studies have linked the prevalence of snacking habits to a general fragmentation of meal patterns owed to changing household structures (see Buckley, Cowan & McCarthy, 2007). Mothers interviewed in the first two qualitative studies pointed at their need to juggle multiple roles which led them to opt for snacks such as crisps, chocolate or cheese which required no preparation and which they could eat quickly or whilst doing other chores. This is corroborated by studies which suggest that mothers are more likely to report insufficient time as a perceived barrier for healthy eating than women without children (Andajani'Sutjahjo, Ball, Warren, Inglis, & Crawford, 2004). Pressure from work and family commitments have also been linked to an increase in calorie-dense foods (Payne, Jones & Harris, 2012) and a decrease in fruit and vegetable consumption (Welch, McNaughton, Hunter et al., 2008). However, studies also suggest that parents may engage in adaptive food coping strategies, such as food planning (see Devine, et

al., 2009) which may mitigate against barrier to healthy eating. Moreover, individual characteristics such as eating styles (see van Strien et al., 1986) have been found to be strongly linked to eating behaviours including snack-food choices (see O'Connor et al., 2008).

6.1.1.1 Snacking and overweight

Snacking is believed to have a dual role in our diet (Bellisle, 2014). On the one hand it may provide the opportunity to eat foods such as fruits, nuts and pulses which are rich in nutrients and could contribute to energy balance and a healthful diet (Barnes, French, Harnack, Mitchell & Wolfson, 2015; Kong, Beresford, Alfano, Foster-Schubert, Neuhouser et al., 2011; Zizza & Xu, 2012). Eating small but frequent meals has also been linked to improved appetite control (Leidy, Harris & Campbell, 2011). On the other hand there is evidence that the intake of snack foods that are high in fat and sugar may have a deleterious influence on diet quality (Barnes et al., 2015) levels of satiety (Furchner-Evanson, Petrisko, Howarth, Nemoseck, & Kern, 2010) and body adiposity (O'Connor, Brage, Griffin, Wareham & Forouhi, 2015). Moreover, irregular snacking in response to environmental stimuli and in the absence of hunger may also impair weight loss maintenance (Bellisle, 2014). However, some studies have found no significant association between snacking and BMI (see for example Bachmann, Phelan, Wing, & Raynor, 2011; Viskaal - van Dongen, Kok & de Graaf, 2010). O'Connor et al., (2015) report that consumption of calorie-dense snacks was associated with increased weight in their study only for overweight participants. It is possible that normal weight people have better compensatory responses and that some individuals may snack in response to metabolic hunger, adjusting their energy requirements through the day (Bellisle, 2014; O'Connor et al., 2015).

No universal agreement on the definition of what constitutes a snack has been published (Chapelot, 2011). There is also evidence that the concept of what constitutes a meal as opposed to a snack and the number of expected meal times per day vary by

culture (see Chapelot, 2011; Lhuissier, Tichit, Caillavet, Cardon, Masullo et al., 2013; Miller et al., 2013). Whilst it is common to refer to snacks as those foods consumed between mealtimes (Chapelot, 2011), a large scale study (n=1045) among Maltese adults suggests that breakfast may not be thought as a first meal and that sweet snacks such as biscuits and chocolate were the most popular foods consumed for 'breakfast' or prior to 'breakfast' each day (Malta Standards Authority [MSA], 2010). This provides further basis to identify those factors that are linked to the consumption of health compromising snacks, in contrast to fresh, health promoting options, especially in light of the alarming increase in overweight and obesity rates both locally and globally (see Eurostat, 2014; World Health Organisation [WHO], 2007).

6.1.1.2 Eating styles as determinants to food choices

There is a growing body of research linking psychological eating styles to food and BMI, however the data is inconclusive (Brogan & Hevey, 2013; van Strien et al., 2012). O'Connor et al., (2008) reported that all three eating styles were key moderators in the relationship between daily-hassles and increased consumption of high fat and high sugar snacks in adults, particularly in women. However, results from the Stanislas Family Study, using 3-day food intake diaries, showed that while external eating was linked to higher energy intake, female restrained eaters had *lower* consumption and emotional eating was *not linked* to energy intake at all (Lluch et al., 2000). Several other studies have since corroborated these findings. For example, self-reported restrained eating was negatively associated with snacking (Adriaanse et al., 2011a) and high calorie food choices (Anschutz, vanStrien, Van de Ven & Engels, 2009; Brogan & Hevey, 2013). Similarly, emotional eating was not a significant contributor to snacking or food intake in healthy weight population groups (Adriaanse, et al., 2011a; Anschutz et al., 2009) or to food intake in an obese sample (Brogan & Hevey, 2013). Anschutz et al., (2009) found a positive association between external eating and high calorie food intake but this link was not replicated in an obese cohort (see Brogan & Hevey, 2013).

Lluch et al., (2000) recommend further research on the effect of eating styles on energy intake in order to shed light on these discrepant findings. Anschutz et al., (2009) further recommend adopting data analyses techniques that account for the cross-relations between the three eating styles that may partly account for the confounding results. This offers a rationale for this present study to identify the contribution of eating styles to snacking choices among normal weight and overweight Maltese women, thereby extending the literature on the associations between these constructs in a different cultural context.

6.1.1.3 The role of food planning in food choices

Mothers in the second study who were of normal weight or who identified themselves as weight loss maintainers, explained that food planning helped them to eat healthy foods and to keep their weight stable (see section 4.3.4.2, p.109). This is supported by other studies with parents (see for example Devine et al., 2009) who report that adaptive food coping strategies such as meal planning, cooking enough for leftovers and cooking more on days off can aid weight management. A number of researchers have also examined planning within the construct of 'implementing intentions' and it is credited with enhancing the predictive value of socio-cognitive models to eating behaviours (see Adriaansea et al., 2011b, for a review). Interventions and randomised control trials have demonstrated that planning can increase fruit and vegetable consumption (see Kreausukon et al., 2012; Gholami et al., 2013) reduce saturated fat intake (Luszczynska et al., 2007) and change unhealthy snacking habits when matched with individuals' self-regulatory orientations (Tam et al., 2010). Results from a large scale representative food-lifestyle survey in the UK (Buckley et al., 2007) identified four distinct convenience food lifestyles whereby individuals least likely to plan their meals were also most likely to snack and rate convenience higher than freshness in foods. In contrast, those most likely to engage in food planning were the least likely to snack and preferred fresh to convenience foods. This suggests that food planning is positively related to fresh, health promoting foods and negatively related to high calorie snack-food options. Further research into the role of food planning could help identify how it

interacts with psychological eating styles to explain snack food choices. This is a relevant pursuit as food planning could be a practical skill that health care professionals could feasibly address within the community to anticipate barriers and to devise strategies to overcome them (see Bukowska-Durawa, Haynes, Luszczynska, 2010).

6.1.2 Research aim and hypotheses

The aim of this study was to identify the role of BMI, emotional eating, external eating, restrained eating and food planning in explaining snack-food choices among Maltese mothers. In view of the inconsistencies reported in the literature and the relevance of snacking, eating styles and food planning for normal weight and overweight participants of the previous two qualitative studies, it was believed that this research could have practical implications on a local level as well as extend the knowledge of these constructs in the international literature.

Based on the reviewed literature it was hypothesized that:

- i. High calorie snacking would be positively associated to external eating, negatively associated to restrained eating and not associated to emotional eating. It was also expected to have a positive association to BMI and a negative association to food planning.
- ii. Fruit and vegetable snacking would be negatively associated to external eating, positively associated to restrained eating and not associated to emotional eating. It was also expected to have a negative association to BMI and a positive association to food planning.
- iii. BMI was expected to be negatively associated to food planning but positively correlated to all three eating styles. Emotional eating was expected to share the strongest association to BMI.
- iv. Food planning would mediate the influence of BMI, restrained eating, emotional eating and external eating to both dependent variables such that

higher food planning would result in lower high calorie snacking and higher fruit and vegetable snacking.

6.2 Methods

6.2.1 Research design

A cross-sectional research design was adopted in order to capture current differences between participants and relationships between variables. The study adopted a non-probability convenience sampling design complemented by snowballing. This allowed data collection to reach out further than the researcher's primary points of access potentially increasing the diversity of the sample gathered (Bryman, 2008). High calorie snacking and fruit and vegetable snacking were identified as the dependent variables of this study, while BMI, restrained eating, emotional eating, external eating and food planning were investigated as the independent variables.

6.2.2 Participants

The criteria for inclusion in the present study were, being a mother, over 18 years of age, able to speak, read and write in Maltese and with at least one child living in the same residence as the mother. No restrictions were made on the age of the child/children or the sexual orientation of the mother. The mother did not need to be the biological parent of the child. Pregnant women were excluded from participating. The sample ($n=315$) was composed of mothers with a mean age of 35.5 years ($SD=7.64$; Range: 18-60 years). The majority (84%) were married or cohabiting, 62% worked part-time or full-time while 25% identified themselves as full-time mothers. Almost half (47%) achieved a tertiary degree while 25% had obtained a post-secondary level of education. The majority of participants (59%) had at least one child under the age of 4 years (youngest child mean age=2.4 years; $SD=1.3$). The average BMI of this cohort was

26.7 ($SD=5.86$; Range: 16.9–48.8); 1.9% were under-weight; 43.5% were normal weight, 31.4% were overweight while 22.5% were obese. The distribution and average BMI were analogous to the national distribution and average BMI for Maltese female adults (see NSO, 2009).

6.2.3 Measures

A breakdown of the online survey (see Appendix 19, p.27) is provided in this section with an explanation of each variable and the source of the items or scales utilised.

6.2.3.1 Snacking

High calorie snacking and fruit and vegetable snacking were the principal outcome variables. Snacks were defined as; “small portions of food that can be eaten quickly, usually between meals or instead of a full meal.” This definition was based on common definitions in the snacking literature (see Bellisle, 2014 for a review).

Snacking was measured by type and frequency on four separate categories; savoury snacks, fast-food snacks, sweet snacks and fruit and vegetable snacks. This was based on recommendations that the snack food choice and macro-nutrient content was more relevant for health outcomes, including BMI (see Barnes et al., 2015). Examples of foods describing each category were included in the measure. Participants were asked to report their consumption over a one week reference period from Monday to Sunday. This 7-day recall time frame has been used successfully in other studies (see for example, Vereecken, Rossi, Giacchi & Maes, 2008). A 7-point frequency response scale was provided for each of these snacking options; never, less than once a week, 1-2 times a week, 3-4 times a week, once daily, 2-3 times per day, more than 3 times per day. Following data collection, nominal scores were converted to actual consumption scores. The first three categories were then computed as one composite score for High

calorie snacking (see Superintendence of Public Health, 2012; WHO, 2004). The scoring for the fourth category was used for analysis of Fruit and vegetable snacking.

6.2.3.2 Food planning

Food planning was measured using a six-item scale that was tailored to this study. Two items, namely “I always plan what we are going to eat a couple of days in advance” and “What I am going to have for supper is very often a last minute decision” were adapted from Brunso & Grunert (1995). A further three items were coined to refer to different planning scenarios based on food coping strategies suggested by Devine et al., (2010), for example “I plan cooking so that I purposely have left-overs for the next day”. A fourth reversed item was included “I don’t plan what I’m going to eat I just grab what is closest when I get hungry” to mitigate against response bias (see Bryman, 2008).

Following data filtering (see section 6.2.5, p.143) a principal component analysis for the 6 items measuring Food planning was performed with list-wise deletion and extraction of all components with an Eigenvalue higher than 1 (see Appendix 22, p.277). As expected, one component was extracted which loaded on all six items and accounted for 55.6% of the variance. Factor loadings ranged from 0.70 – 0.81 ($M = 0.74$). Internal reliability analysis for the 6-item scale produced a Cronbach Alpha of 0.84. The items were then computed as one variable and labelled Food planning.

6.2.3.3 Eating styles

Eating styles, namely, Emotional, External and Restrained eating were measured using the Maltese version of the Dutch Eating Behaviour Questionnaire [DEBQ] (van Strien et al., 1986). The process of translation of the DEBQ and its validation with Maltese women is reviewed in Chapter 5 (see Section 5.2.2, p.122) of this manuscript (see also Dutton & Dovey, in press). The Alpha internal reliability scores for the sub-scales in this

study were; Emotional eating – 12 items (0.96) External Eating – 9 items (0.83) and Restrained eating – 10 items (0.89).

6.2.3.4 Demographic & anthropometric questions

In addition to questions aimed at capturing the key outcome and explanatory variables, several questions were included in the survey to measure potential confounders and gain more insight on the respondents' personal characteristics. These questions tapped information pertaining to the participants' age, weight, height, educational level, occupation, number and ages of children living at home. Participants were given the option of reporting their weight in either stones or kilograms and their height in either feet or metres. This was because both systems of measurement were still prevalent within the Maltese islands which could mitigate against missing information or errors in self-reporting.

6.2.4 Data collection

Following ethics approval from the Brunel Research Ethics Committee (see Appendix 5, p.222) the link to the survey and an introduction explaining the scope of the research was uploaded on the researcher's own Facebook account and relevant on-line community group pages. The survey was launched online on Sunday 12th April and data collected over a period of 2 weeks. Replies were restricted to one response per IP address. Due to the plan to use SEM (see section 6.2.6, p.144) a sample of 600 cases was aimed for to achieve a sample to parameter ratio of 10:1 (see Byrne, 2010) and allow contingency for incomplete data (see Bryman, 2008).

6.2.5 Data Filtering and data reduction

Following data collection, data was exported from survey monkey to a Statistical software package (SPSS version 17.0). From a total of 430 submitted surveys, 82 surveys were either blank or did not fulfil participant criteria. This resulted in 348 valid questionnaires, achieving a response rate of 81%. A further 32 surveys were subsequently excluded from data analysis since they had more than 10% of the DEBQ items missing. One case was further excluded due to extreme scores on both snacking variables. Therefore the final data set was composed of 315 participants and was in line with recommendations for univariate normality; skewness < 2; kurtosis < 3 (Cohen, Cohen, West, & Aiken, 2003) and multivariate normality; kurtosis = 9.021(CR<5) (Byrne, 2010).

6.2.6 Data Analyses

Structured equation modelling (SEM) was chosen, as it allowed for both dependent variables to be examined in the same model and was suited to cases where the independent variables were expected to correlate with each other (see Anschutz et al., 2009; Byrne, 2010). A further advantage was that the use of unobserved (latent) variables with multiple indicators could better account for measurement error than other multivariate techniques (Byrne, 2010). However, since the sample size was smaller than that required, parcelling was employed to reduce the number of parameters (see Byrne, 2010). A similar strategy was adopted by Anschutz et al., (2009) in order to maintain an adequate sample to item ratio (see Little et al., 2002).

Food planning, Emotional eating, External eating and Restrained Eating were treated as latent factors and items were parcelled with two parcels per factor. The parcelling technique was identified a-priori whereby the two highest loading items on each factor were used to anchor the parcels and the lowest loading items were matched to the highest items until all items were distributed (Little et al., 2002). Descriptive statistics of each parcel are provided in Appendix 23 (p.279). BMI and the two dependent variables,

high calorie snacking (HCS) and fruit and vegetable snacking (FVS), were treated as observed variables. In the interest of preserving numbers, 36 cases (11%) that had up to two missing data points on one of the DEBQ sub-scales were replaced with the mean of that sub-scale before analysis. In all other cases pair-wise deletion was applied for missing values.

The following goodness of fit indices were used to guide interpretation in SEM: Likelihood-ratio Chi-square statistic (χ^2/df) < 3; Standardised root mean square residual (SRMSR) ≤ 0.08 ; Root mean square error of approximation (RMSEA) ≤ 0.08 (90% CI); Comparative Fit Index (CFI) ≥ 0.90 (see Browne & Cudeck, 1993; Byrne, 2010; Hu & Bentler, 1999). Internal consistency scores were calculated using Cronbach's alpha. All correlational analyses were carried out using Pearson R while mediation testing was carried out using Linear regression. Coefficients ≥ 0.60 were considered large while coefficients ≤ 0.20 were considered small (Cohen, 1992). AMOS Version 21.0 was used for SEM.

6.3 Results

6.3.1 Preliminary data analysis

The overall picture reported by the sample was generally one of health consciousness with over 60% consuming a fruit or vegetable snack at least once daily. However, nearly half of the respondents (44%) reported eating an average of two high calorie snacks per day. Sweet snacks appeared to be the preferred high calorie snack, with over a third (32.2%) reporting consuming a sweet snack daily in addition to 14.6% who reported consuming a sweet snack twice daily or more. Table 6.1 (see p.146) provides the mean scores and standard deviations (SD) on the main variables, for the whole sample and split by BMI group.

Table 6.1: Scores (Mean and SD) for model variables

	All Sample M (SD) N = 315	BMI 18.5 – 24.9 M (SD) n = 137	BMI ≥ 25 M (SD) n = 172
BMI	26.7 (5.86)	22.25 (1.67)	30.62 (5.16)
Emotional Eating (Range: 12 – 60)	31.01 (11.22)	27.93 (10.68)	33.70 (11.02)
Restrained Eating (Range: 10 – 50)	28.48 (7.55)	28.27 (8.04)	28.95 (7.00)
External Eating (Range: 9 – 45)	27.09 (5.47)	26.44 (5.31)	27.69 (5.57)
Food planning (Range: 6 – 30)	19.99 (4.55)	20.55 (4.69)	19.62 (4.35)
High Calorie Snacking [^]	11.15 (8.41)	11.32 (8.41)	11.09 (8.53)
Fruit & Vegetable snacking [^]	8.48 (6.74)	8.75 (6.86)	8.51 (6.64)

Notes: M = Mean; SD = Standard Deviation; [^]Data for Snacking is based on number of portions in a 7-day period

6.3.1.1 Bivariate and partial correlational analyses

Prior to testing the hypotheses through SEM, bivariate correlational analyses were carried out between the model variables (see Table 6.2 below). All correlations were in the expected directions except for external eating which was not correlated to FVS and BMI which did not share a significant association to any of the dependent variables. These paths were therefore dropped from further analyses.

Table 6.2: Bivariate Correlations between all model variables

	BMI	Emotional Eating	External Eating	Restrained Eating	Food Planning	Fruit-Veg Snacking
2. Emotional eating	.33**	-				
3. External eating	.12*	.41**	-			
4. Restrained eating	.12*	.17**	-.16**	-		
5. Food planning	-.15**	-.15**	-.28**	.34**	-	
6. Fruit & Veg Snacking	.03 ns	.03 ns	-.07 ns	.37**	.34**	-
7. High Calorie Snacking	.08 ns	.07 ns	.23**	-.25**	-.25**	-.14*

Notes: n=315; * = $p < 0.05$; ** = $p < 0.01$; BMI=Body Mass Index

The three eating style variables were found to be weakly to moderately correlated with each other but after controlling for BMI and Food planning, only Emotional eating maintained a significant relationship with External eating ($r(315) = 0.38$; $p < 0.001$) and Restrained eating ($r(315) = 0.19$; $p < 0.001$). Food planning shared a weak to moderate relationship with all other independent variables, however, after controlling for BMI,

only Restraint eating ($r(315)= 0.34;p<0.001$) and External eating ($r(315)=-0.28;p< 0.001$) remained significant.

6.3.1.2 Mediation analysis

Baron & Kenny's (1986) guidelines were used to determine the potential mediating role of food planning to the two dependent variables, HCS and FVS. A series of regression analyses were carried out in sequence (see Table 6.3, below) confirming that Food planning was partially mediating the relationship between; restrained eating and FVS, restrained eating and HCS and external eating and HCS.

Table 6.3: Mediation analysis for FVS and HCS

Variables	<i>B</i>	<i>SE B</i>	95% CI	β
1) Fruit & Veg Snacking (FVS)				
Step 1				
Outcome: FVS				
Predictor: Restrained eating	.33	.05	.24/.42	0.37**
Step 2				
Outcome: Food planning				
Predictor: Restrained eating	.21	.03	.15/.27	0.34**
Step 3				
Outcome: FVS				
Predictor: Restrained eating	.26	.05	.16/.35	0.24**
Mediator: Food planning	.36	.08	.20/.52	0.29**
2a) High Calorie Snacking (HCS)				
Step 1				
Outcome: HCS				
Predictor: Restrained eating	-.28	.06	-.40/-.16	0.25**
Step 2				
Outcome: Food planning				
Predictor: Restrained eating	.21	.03	.15/.27	0.34**
Step 3				
Outcome: HCS				
Predictor: Restrained eating	-.21	.06	-.34/-.09	-0.19*
Mediator: Food planning	-.34	.11	-.55/-.13	-0.19*
2b) High Calorie Snacking (HCS)				
Step 1				
Outcome: HCS				
Predictor: External eating	.36	.09	.19/.52	0.23**
Step 2				
Outcome: Food planning				
Predictor: External eating	-.23	.05	-.32/-.15	-0.28**
Step 3				
Outcome: HCS				

Predictor: External eating	.27	.09	.09/.44	.18*
Mediator: Food planning	-.37	.10	-.58/.17	-.20**

*p<0.01,**p<0.001

6.3.2 Structural equation modelling

Based on the hypotheses and the preliminary data generated, a hypothetical model was developed for testing with SEM (Amos 21.0). Only associations that resulted significant in the bivariate correlations were inputted. Figure 1.0 shows the hypothesized model with negative or positive notations indicating the hypothesized direction of effect. Covariance paths, item parcels, error and residual terms were removed for ease of interpretation. See Appendix 24 (p. 280) for the full model.

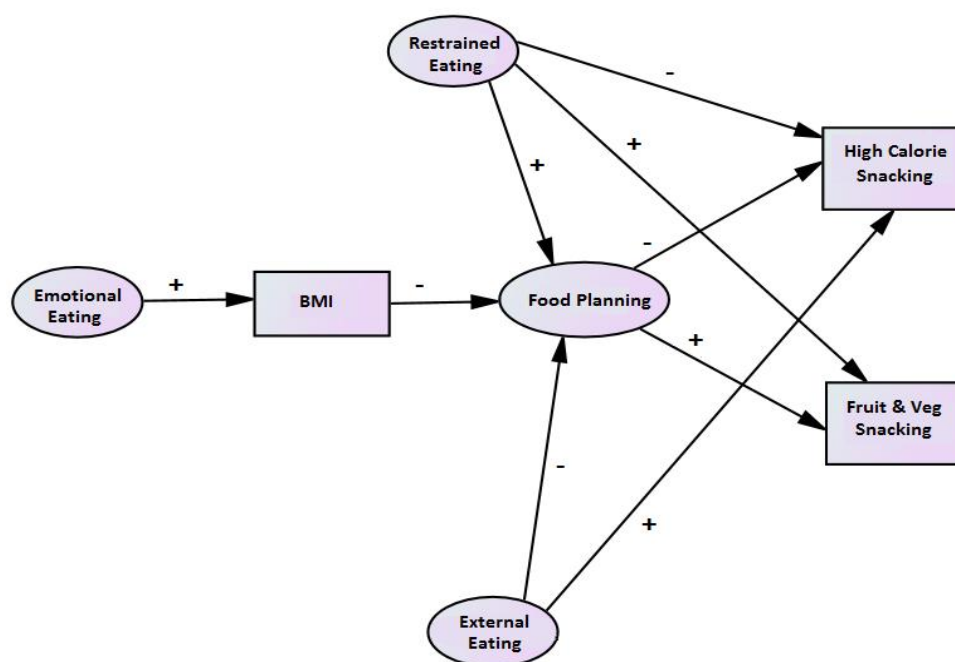


Fig.1. Note: Hypothesized Structural Model

This structural model provided a good fit to the data [$\chi^2(34) = 47.35, p < .064, \chi^2/df = 1.4, CFI = .99, RMSEA = .04 (CI = .01, .06), SRMR = .03$]. Figure 2.0 presents the final model with regression coefficients and levels of significance (see Appendix 25, p. 271, for the detailed output with unstandardized coefficients). All regression paths

maintained the expected direction and statistical significance. The links between all the parcels and their respective latent variables had loadings ranging from 0.74 – 0.98 indicating a good representation of each variable by its indicators. All modification indices (MI) were less than 10 and mainly focused on potential covariance between error terms. These were ignored based on parsimony, model replicability and the minimal improvement it would bring to the model (Byrne, 2010).

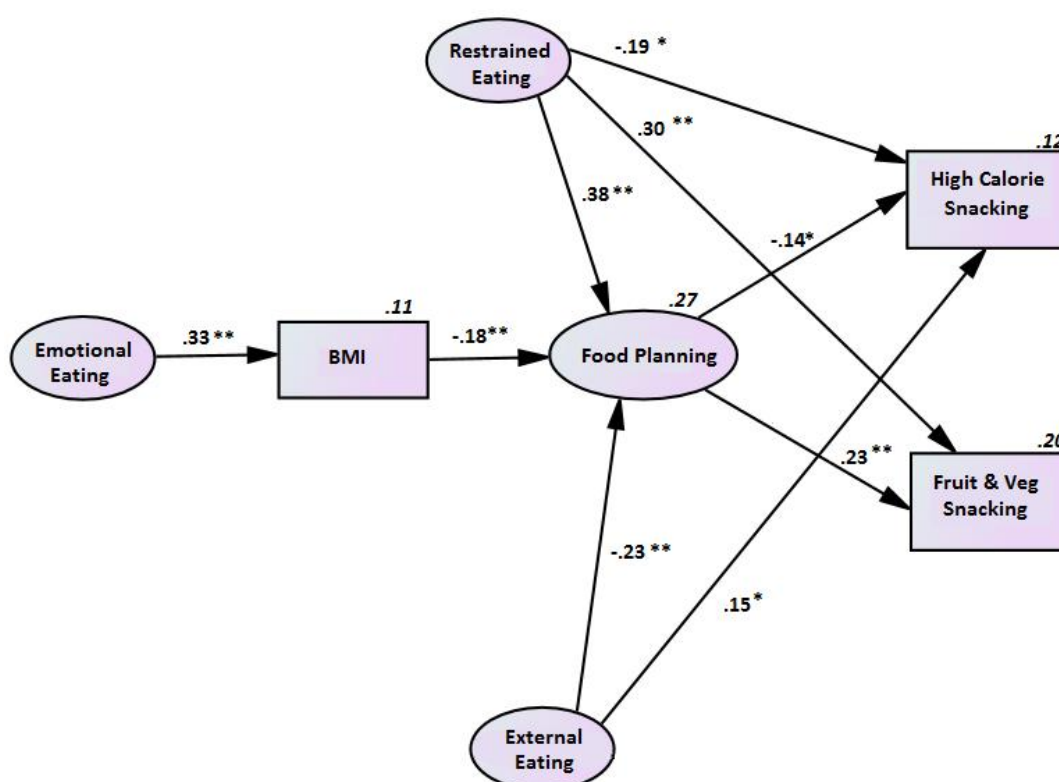


Fig. 2. Note: Model with standardised coefficients and multiple squared correlations. $N=315$; $\chi^2(34) = 47.35$, $p < .064$, $\chi^2/df = 1.4$, CFI = .99, RMSEA = .04 (CI = .01, .06), SRMR = .03; * $p < 0.05$; ** $p < 0.001$.

The model accounted for 20% of the variance in Fruit & vegetable snacking and 12% of the variance in High calorie snacking, while 27% of the variance in Food planning was explained by its predictors, BMI ($\beta = -.18$, $p = .001$), External eating ($\beta = -.23$, $p = .001$) and Restrainted eating ($\beta = .38$, $p = .001$). High calorie snacking was directly associated to Food planning ($\beta = -.14$, $p = .04$), External eating ($\beta = .15$, $p = .01$) and Restrainted

eating ($\beta = -.19, p < .01$). Similarly Fruit and vegetable snacking was directly related to Food planning ($\beta = .23, p < .001$) and Restrained eating ($\beta = .30, p < .001$). Indirect effects were tested with a bootstrap procedure which is recommended for smaller sample sizes (Shrout & Bolger, 2002). Examination of the 95% bias-corrected confidence intervals (CI) from 1,000 bootstrap samples revealed that the indirect effects of External eating [$\beta = .04, p = .01$ (CI = .01, .08)] and Restrained eating [$\beta = -.06, p = .02$ (CI = -.11, -.01)] on High calorie Snacking through Food planning were significant. Similarly, the indirect effects of Restrained eating [$\beta = .09, p = .001$ (CI = .01, .17)] on Fruit and Vegetable Snacking through Food planning was also significant.

6.4 Discussion

The aim of this study was to identify the role of BMI, emotional eating, external eating, restrained eating and food planning in explaining snack-food choices among Maltese mothers. This study used SEM to test the impact of the independent variables to high calorie and fruit and vegetable snacking which confirmed the fit of the hypothesized model. This section shall discuss the findings of this study making reference to international literature.

Studies investigating the link between snacking and BMI have yielded conflicting results (Bellisle, 2014). In this study, snacking was split in two categories; fruit and vegetable snacks and high calorie snacks, composed of high fat and high sugar foods. These categories were based on public health definitions (see Superintendence of Public Health, 2012; WHO, 2004) and based on studies that suggest that the type of snack consumed bears significance to BMI (Barnes et al., 2015; O'Connor et al., 2015). However, in this study BMI had no significant relationship with either snacking option. This is congruent with other experimental (see Viskaal-van Dongen et al., 2010) and prospective study designs (see Field, Austin, Gillman, Rosner, Rockett, & Colditz, 2004) that found no relationship between snacking and weight gain. It is plausible that snacking has become a common food intake pattern in the lives of adults (see Bellisle, 2014; Buckley et al., 2007) that it is not easily differentiated by BMI status. On the

other hand, O'Connor et al., (2015) suggest that normal weight individuals may be better at regulating food intake and compensate for snacking behaviour than overweight persons. Therefore, future research employing larger data sets could run separate structural models for the two BMI groups and verify whether there are differences to these observed results.

This study adds to the accumulating evidence around eating styles and energy intake. Specifically; restrained eating was negatively associated with high fat/sugar foods but positively associated to fruit and vegetable snacking, while in contrast external eating was positively associated to high calorie snacking but emotional eating was not a significant contributor to either snacking category (see Anschutz et al., 2009; Luch et al., 2000). While restraint theory (Herman & Polivy, 1980) links restrained eating to overweight and increased food intake, these results corroborate previous findings that when emotional and external eating are controlled for, restrained eating comes through as having a positive association to healthier food options and a negative association to calorie dense foods (see Anschutz et al., 2009). However, restraint was positively correlated to emotional and external eating, which has been reported in other studies (see Anschutz et al., 2009). Therefore, whilst healthy restraint cognitions may be encouraged, dieting behaviour should be discouraged for individuals who exhibit a tendency for emotional or external eating (see Mann, Tomiyama, Wesling, Lew, Samuels & Chatman, 2007). In contrast, external eating was found to have a positive association to high calorie food-intake. With high calorie foods becoming increasingly popular and available (Serna Saldivar, 2016), health care professionals may need to identify and address external eating as this may be at the core of individuals' susceptibility for increased consumption. Adriaanse et al., (2011) reported that people *low* on external eating had higher fruit and vegetable consumption. This was hypothesized in this study as well; however, in this study external eating was only significantly related to high calorie snacking and not fruit and vegetable snacking. This lack of association could be due to the wording of the external eating scale items since they mainly refer to delicious or tasty food (e.g. "If you see or smell something delicious, do you have a desire to eat it?") Arguably, the absence of desire for delicious food does not automatically equate to a desire for a healthier alternative such as fruit

or vegetables. It is also possible that within the Maltese mental representation of food categories, eating fruit and vegetables may be associated with dieting, which would explain the stronger link to restrained eating rather than a negative association to externality. National data suggests that snacking on biscuits and other high calorie snacks is prevalent across the population. It is plausible that snacking on fruit and vegetables would not be elicited by the absence of external eating but would only become salient when a conscious effort is being made by the individual to restrain caloric intake. Further studies are warranted to better understand the role of external eating in explaining low calorie food intake and understanding this impact across different cultural groups.

In addition to replicating the links between eating styles and snacking in Maltese women, this study also identified the mediating role of food planning to snack food choices for external and restrained eating styles. Previous studies have recognised the positive role of food planning in eating behaviour (Adriaanse et al., 2011; Devine et al., 2009) and the role of self-regulatory strategies in moderating the negative impact of the food environment on unhealthy snacking (see Stok, De Vet, Wardle, Chu, De Wit & De Ridder, 2015). The insight provided by the current data indicates that food planning is a mediator and provides a positive, protective influence between restrained eating and fruit and vegetable snacking. Therefore, planfulness further contributes to the consumption of healthier options in an obesogenic environment. Alternative explanations could be that food planning mediates a negative influence to high calorie snacking through bolstering both restrained cognitions and undermines external eating through increased awareness. This suggests that in the presence of external eating, food planning detracts from calorie dense food choices even when restrained eating is controlled for. This has important implications for practice, particularly for individuals who may be more psychologically sensitive to an obesogenic environment (see Wardle & Boniface, 2008) since planfulness can be integrated in eating behaviour interventions and imparted as a skill (see Duckworth, Grant, Loew, Oettingen, & Gollwitzer, 2011).

In line with the ongoing debate in the literature, this study raises the question of how external eating could be related to food intake but not BMI (see Anschutz et al., 2009) and how emotional eating could be related to BMI but not food intake (see Adriaanse et al., 2011; Lluich et al., 2000). Metabolic differences between external and non-external eaters could explain the lack of association to BMI (Anschutz et al., 2009) and studies have also suggested that external eating could be an adaptive evolutionary function in human beings and therefore not necessarily differentiated by BMI status (van Strien, Herman & Verheijden, 2009). Measures of emotional eating have potentially been under heavier scrutiny and doubts have been raised about their predictive validity (see Brogan & Hevey, 2013). Adriaanse et al., (2011) concluded that habit strength and restraint were better predictors of snacking and that the DEBQ emotional eating scale may reflect individuals' beliefs about the relationship between emotions and eating rather than actual consumption. However, emotional eating is a well-reported phenomenon (see Ganley, 1989) and is addressed in group therapy with overweight individuals diagnosed with binge eating disorders (BED), due to its ties with disordered eating (Keville, Byrne, Tatham & McCarron, 2008). Alternative reasons behind these insignificant findings could be related to the absence of negative life events during time of measurement (see van Strien et al., 2012) the items measuring *desire* to eat rather than actual consumption (Lluich et al., date) and the items measuring regular eating as opposed to *overeating* (Masheb & Grilo, 2005). Masheb & Grilo (2005) in fact noted that participants with BED identified themselves as 'emotional eaters'. This suggests that future research with eating styles as independent variables may need to consider the outcome measure used, and explore whether emotional eating gives rise to different results depending on the type of food intake (snack versus meal) measured.

6.4.1 Limitations and strengths

Prior to providing some future directions and conclusions based on this data, it is important to acknowledge some of its limitations. Snack food choices were measured using retrospective self-reported measures which are prone to recall and desirability bias (see Hebert, Clemow, Pbert, Ockene, & Ockene, 1995). However, the study used a

7-day recall period which is considered superior to shorter periods as it accounts for energy intake variations between weekdays and weekends (see Ma, Olendzki, Pagoto, Hurley, Magner et al., 2009). The study did not measure snacking in context of total caloric intake, however, Anschutz et al., (2009) demonstrate that the relationship of eating styles to total intake were the same as that for high calorie food intake. The study also used self-report measures for weight and height which may have led to an underestimation of BMI (Engstrom, Paterson, Doherty, Trabulsi & Speer, 2013) however, the distribution of BMI was found to be in-line with the BMI distribution for adult Maltese women (see NSO, 2009). The cross-sectional nature of this study could not account for direction of effect and future longitudinal research is necessary to understand how the relationships between eating styles, food planning, snacking and BMI evolve over time.

Several strengths must be noted. This is the first study to investigate the psychological eating styles among a sample of Maltese women and identify links to food intake in-line with international literature. The study has identified food planning as a key mediator for restrained eating and external eating to snack-food choices which extends the applicability of this variable in research and future interventions. Finally, the study applied SEM, which is considered to be a superior multivariate analytical technique, enabling it to factor for the mutual associations between the three different eating styles while explaining the relations to both dependent variables concurrently. It is believed that this research could pave the way for local health promotion interventions to apply culturally-relevant research-based variables to encourage healthier food choices.

6.4.2 Conclusion

This study investigated the contribution of BMI, Emotional Eating, External eating, Restrained Eating and food planning to snack food choices amongst a cohort of Maltese mothers. The findings corroborate the role of food planning as a protective factor in snack food choices and reveal the moderating role that food planning plays for both

restrained and external eating. Most salient is the moderating impact of food planning on external eating since it cancelled its positive association to high calorie food choices. These findings not only extend the knowledge of these constructs in international literature but may have practical implications within the community to help mothers anticipate barriers and adopt food planning as a strategy to improve their dietary behaviour.

CHAPTER 7: FINAL DISCUSSION & CONCLUSION

7.1 Introduction

This PhD programme was conceived in response to a gap in Maltese research on the area of obesity and food consumption (see Superintendence of Public Health, 2012). This is in context of critical overweight and obesity rates that have pushed the Maltese islands up the charts of this global pandemic (see Eurostat, 2014). The research aimed to look at the issues of obesity and weight management for women with families and gather local data that could point at behavioural-psychological factors that could be used in local interventions. The research also aimed to validate tools that are culturally sensitive while contributing to the global knowledge-base on eating styles, food planning and snack food choices.

The findings of this PhD revealed that weight management for Maltese mothers was enmeshed with gender norm expectations surrounding motherhood and that their relationship with food was a significant barrier to weight loss maintenance. The research successfully validated the Dutch Eating Behaviour Questionnaire (DEBQ) (van Strien et al., 1986) among Maltese women which was the first validation of an eating behaviours assessment tool in Maltese and the first validation of the DEBQ in a Semitic language. Finally, this PhD revealed how food planning could mediate a positive influence between restrained eating and fruit and vegetable snacking and mediate a negative influence to high calorie snacking for both restrained and external eating. This is a novel contribution to international literature and recognises food planning as a salient variable in eating behaviour interventions to counterbalance the impact of external eating.

7.2 Synthesis of empirical findings

The main empirical findings of this PhD programme are chapter specific and were summarized within the respective empirical chapters (see p.53 - p.135). This section will synthesize the empirical findings addressing the research questions that emerged from each study.

The first study was a pilot exploration of the experience of weight loss for obese Maltese mothers focusing on their beliefs around food, eating behaviour and their dietary strategies and barriers. The meaning of food on an emotive, psychological level emerged as a key theme and was identified as both the contributor to weight gain and a significant barrier to achieving or maintaining weight loss. On one hand, the participants shared a desire to lose weight, engaging in dietary behaviour and restraining themselves from eating preferred foods. Yet, equally strong were their emotional and external eating behaviours, often eating to comfort negative feelings or as a reaction to cues in the environment. These eating styles were discussed in light of the participants' own perceptions and expectations of their role as mothers and the tendency to put others first, as it seemed to indirectly hinder them for pursuing weight management goals effectively and increase the salience of emotional and external eating.

These findings were located in international literature (see for example Goodspeed Grant, 2008) and linked to existing theory (see Herman & Polivy, 1980; Kaplan & Kaplan, 1957; Schachter, 1964; Stroebe, 2008) which provided some direction for the research programme. However, it was unclear whether the themes unearthed featured as a phenomenon that was predominant due to the participants' obese status or whether they were shared among a wider, more diverse sample of Maltese mothers. This led to a second qualitative investigation among a more diverse cohort of twenty mothers, with the principal aim of gaining a deeper insight to the meaning attached to motherhood and how participants viewed their dietary behaviour in context of their familial obligations. Study two also aimed to explore further the eating styles and

dietary choices of Maltese mothers and compare the emergent themes between normal weight and overweight/obese mothers. Finally, the study attempted to capture any relevant factors that facilitated successful weight management and that could counter the barriers discussed by these participants.

The findings of the second study illustrated how weight management for Maltese mothers was enmeshed with the social values and gender norm expectations surrounding motherhood. Weight management did not sit neutrally within the lives of these women but was evaluated and contrasted in context of perceived values and obligations towards their family. However, there were differences within this cohort. Some mothers equated the stress from fulfilling multiple roles to their tendencies to seek food for comfort and to snack on high calorie foods when they perceived a lack of time to prepare nutritious meals. However, participants with a lower BMI did not experience emotional eating to the same degree as participants with a higher BMI. Participants who maintained a stable weight were also more likely to describe themselves as planful, structuring their day and distributing their time and energy to meet their multiple demands. Their planning skill extended to food purchasing, cooking and eating which aided their weight management goals and decreased uncontrolled eating.

A synthesis of the findings from the qualitative phase of research suggested that eating styles were predominant factors in the dietary choices of Maltese mothers and that the participants' weight status contributed to the strength of the association between eating styles and the type and quantity of food consumed. Snacking came through as a common food behaviour since it enabled the mothers to eat foods which required no preparation and which they could eat quickly or whilst doing other chores. Findings were aligned to studies which point at pressure from work and family commitments as increasing the consumption of calorie-dense foods (Payne et al., 2012) and decreasing fruit and vegetable consumption (Welch et al., 2008). However, it was also apparent

that participants who were able to plan their food purchases, cooking and eating schedule had better weight management and made less reference to emotional or external eating episodes. Studies do suggest that parents may engage in adaptive food coping strategies, such as food planning (see Devine et al., 2009) which may mitigate against barriers to healthy eating. However, it was unclear how food planning could interact with psychological eating styles to explain snack food choices. The literature also pointed at discrepant findings on the links between eating styles, BMI and snack food choices which deserved further research (see Lluch et al., 2000). Based on the data gathered in the qualitative phase and gaps in the international literature, a quantitative phase of research was conceived to better ascertain the presence and strength of these relationships. Based on the data gathered in the qualitative phase and gaps identified in the international literature, two studies were conceived to gather quantifiable data to better ascertain the presence and strength of these relationships.

The principal aim of the quantitative research phase was to identify the role that BMI, emotional eating, external eating, restrained eating and food planning had in explaining snack-food choices among Maltese mothers. Two studies were designed in order to address this aim. The third study in the research programme validated the Dutch Eating Behaviour Questionnaire (DEBQ) (van Strien et al., 1986) among Maltese women. The DEBQ is arguably the most widely used tool to measure eating styles (Brogan & Hevey, 2013) with a reported stable factor structure, high internal consistency and satisfactory test-retest reliability values (see Cebolla et al., 2014; Dakanalis et al., 2013; Wardle, 1986).

The literature calls for more cross-culturally validated instruments that are reliable and validated within the language and cultural context of a specific population group (See Cha et al., 2007; Sousa & Rojjanasrirat, 2011). To the knowledge of the researcher this was the first validation of an eating behaviours assessment tool in Maltese and the first validation of the DEBQ in a Semitic language. The main aim of the study was to

ascertain the psychometric validity and reliability of the Maltese DEBQ that could then serve as the main assessment tool for eating styles in the fourth study in this research programme. The study also assessed the DEBQ's predictive value in differentiating between normal weight and overweight/obese women and between dieters and weight maintainers. The results suggested that the Maltese DEBQ is a psychometrically valid and reliable instrument for assessing eating behaviours with women in the Maltese community. Through the application of an exploratory factor analysis (EFA) and confirmatory factor analysis (CFA) the findings confirmed that the Maltese version of the DEBQ maintained the theoretical three-factor structure, with most items loading on the 'Emotional eating', 'Restrained eating' and 'External eating' components. Good criterion-related validity was also ascertained through correlations with the EAT-26. Both internal reliability and test-retest reliability were high. The DEBQ was able to differentiate between women of differing weight status and as expected, overweight individuals or those on a diet had significantly higher scores on Emotional and Restrained eating. The correlational analyses between the DEBQ sub-scales, age and BMI also supported the findings of other studies (see Cebolla et al., 2014; Dakanalis et al., 2013; Wardle, 1987) suggesting congruence with the literature. This study achieved its aims to test the validity and reliability of the Maltese DEBQ whilst adding to the international literature base on the predictive value of the DEBQ, replicating results of other European studies.

The fourth and final study in this research focused on identifying the explanatory value of BMI, emotional eating, external eating, restrained eating and food planning to snack-food choices for Maltese mothers. Snack food choices were analysed as two variables; 'calorie dense snacks' and 'fruit and vegetable snacks'. Structured equation modelling (SEM) was chosen, as it allowed for both dependent variables to be examined in the same model and was suited to cases where the independent variables were expected to correlate with each other (see Anschutz et al., 2009; Byrne, 2010). Based on the hypotheses and the preliminary data generated, a hypothetical model was developed

for testing with SEM (Amos 21.0) (see section 6.3.2, p.140). This structural model provided a good fit to the data [$\chi^2(34) = 47.35, p < .064, \chi^2/df = 1.4, CFI = .99, RMSEA = .04$ (CI = .01, .06), SRMR = .03]. The model accounted for 20% of the variance in Fruit & vegetable snacking and 12% of the variance in High calorie snacking, while 27% of the variance in Food planning was explained by its predictors, BMI ($\beta = -.18, p = .001$), External eating ($\beta = -.23, p = .001$) and Restrained eating ($\beta = .38, p = .001$).

External eating and restrained eating featured as the two salient eating styles in explaining snacking while emotional eating was only associated to BMI. Restrained eating was significantly negatively associated to high calorie snacking and positively associated to fruit and vegetable snacking while external eating was only significantly positively associated to high calorie snacking. Emotional eating was only associated to BMI and BMI shared no association to either snacking categories but was associated to food planning.

A key finding of this study was that food planning played a central role in this explanatory model mediating the effects of restrained and external eating to snack food choices. Food planning mediated a positive influence between restrained eating and fruit and vegetable snacking; therefore, further contributing to the consumption of healthier snack options. In contrast, it mediated a negative influence to high calorie snacking for both restrained and external eating. This suggests that in the presence of external eating, food planning detracts from calorie dense food choices even when restrained eating is controlled for. In view of the inconsistencies reported in the literature and the relevance of snacking, eating styles and food planning for normal weight and overweight participants interviewed in the qualitative phase, it is argued that these findings could have practical implications on a local level as well as extend the knowledge of these constructs in the international literature.

7.3 Theoretical implications

The PhD research programme borrowed on three classical theories that explain why people overeat and how this may lead to obesity, namely; psychosomatic theory (Bruch, 1964; Kaplan & Kaplan, 1957), externality theory (Schachter, 1964) and restraint theory (Herman & Polivy, 1980). The three theories were a point of reference in the discussion of qualitative findings as they helped in the interpretation of the cognitions and the reported behaviours of the participants. Participants in both studies provided detailed accounts of eating in response to strong emotions or in response to the sight and smell of food in the environment. Those with a higher BMI were more likely to report this behaviour which gave credence to the psychosomatic and externality theories. Overweight and obese mothers were also more likely to discuss strict dietary patterns in which they restricted carbohydrates or whole food groups only to find themselves eating uncontrollably some time later. This provided evidence on the nature of restraint as identified in Restraint theory (Herman & Polivy, 1980) and expanded upon in the boundary model of eating behaviour (see Herman & Polivy, 1984).

In the quantitative phase the three theories were identified as the pillars for the eating styles measured with the DEBQ (see van Strien et al., 1986; Wardle, 1987). However, despite the alignment of qualitative data to the proposed theories, international literature linking psychological eating styles to food choices and BMI was found to be inconclusive (see Brogan & Hevey, 2013; van Strien et al., 2012). The quantitative research phase took on recommendations to investigate further the effect of eating styles on energy intake and BMI by adopting data analyses techniques that account for the cross-relations between the three eating styles (see Anschutz et al., 2009; Lluch et al., 2000).

The third study validated the DEBQ with Maltese women and confirmed the stability of its factor structure. The results provided support to the nature of restraint and emotional eating in predicting dieters and participants' weight status as proposed by their respective theories. The study also provided insight into the nature of external eating as the findings suggested that despite the general loadings of the sub-scale converging on one factor, external eating may be a multi-faceted component. This latches on to several references in the literature that have found this sub-scale to be weaker in comparison to those measuring emotional eating or restraint (see for example Dakanalis et al., 2013; Wardle, 1986). The study also corroborated findings of other researchers on the nature of boredom as an emotion measured by the emotional eating sub-scale and the lack of convergence for the item '-when I have nothing to do' which is arguably not measuring an actual emotion (see Cebolla et al., 2014).

Building on the validation of the DEBQ as its main assessment tool, the fourth study proceeded to collect further data to understand the explanatory value of eating styles, food planning, BMI and snack food choices. Study four employed structured equation modelling which allowed for the interpretation of singular associations whilst controlling for other variables in the model. A key finding was that when emotional and external eating were controlled for, restrained eating came through as having a *positive* association to healthier snack food options and a *negative* association to calorie dense snacks. Whilst this may seem to contradict the findings of study three which linked higher restraint to higher BMI, the SEM results corroborate previous research (for example Adriaanse, et al., 2011; Anschutz et al., 2009; Luch et al., 2000) and highlight the inter-correlations that exist between the eating styles and that may confound results (Anschutz et al., 2009). In fact, even in study four, restraint was still positively correlated to emotional and external eating and this has been reported in other studies (see Anschutz et al., 2009). Therefore, the quantitative findings of this research confirm that the role of restraint in food choices may be dependent on the existence of other eating styles. Future research may also need to better account for such cross-relations

that may confound results and consider the synergistic effect of multiple eating styles on eating behaviour.

Study four also contributed to the debate of how external eating could be related to food intake but not BMI (see Anschutz et al., 2009) and how emotional eating could be related to BMI but not food intake (see Adriaanse et al., 2011a; Luch et al., 2000). Metabolic differences between external and non-external eaters could explain the lack of association to BMI (Anschutz et al., 2009) and studies have also suggested that external eating could be an adaptive evolutionary function in human beings and therefore not necessarily differentiated by BMI status (van Strien et al., 2009). Researchers have also put into question the predictive validity of measures of emotional eating (see Brogan & Hevey, 2013) placing doubt as to whether 'emotional eaters' truly consume more food or whether they are emotional *about* eating (Adriaanse et al., 2011a). However, it is worth noting that the DEBQ emotional eating scale items measure *desire* to eat rather than actual consumption (Luch et al., 2000) and that the items measure regular eating as opposed to *overeating* (Masheb & Grilo, 2005). Masheb & Grilo (2005) noted that participants with binge eating disorder (BED) tend to identify themselves as 'emotional eaters'. Participants in the qualitative studies of this research programme also referred to themselves as 'comfort eaters' or 'emotional eaters' suggesting that this clinical term has found its way into colloquial discourse and may indeed be disguising undiagnosed disordered eating. Future research with eating styles as independent variables may need to consider the outcome measure used, and explore whether emotional eating gives rise to different results depending on the type of food intake measured. For example, it is plausible that snack food options as used in this research may be a suitable outcome measure for external and restrained eating but not emotional eating. It is also recommended that participants are screened for potential eating disorders, most notably BED, as this may influence the extent to which specific eating styles are expressed and how they may relate to specific food choices and BMI. In qualitative studies this could also provide a backdrop to interpret the findings gathered, particularly when conducting studies with community samples with no reference to clinical history.

A further contribution of this PhD programme to health psychology theory is in identifying the role that food planning may have in mediating the influence of external eating and restrained eating on snack food choices. Previous studies have recognised the positive role of food planning in eating behaviour (see Adriaanse et al., 2011b; Devine et al., 2009). Planning has been explored within the construct of 'implementing intentions' and it is credited with enhancing the predictive value of socio-cognitive models to eating behaviours (see Adriaanse et al., 2011b, for a review). Interventions and randomised control trials have demonstrated that planning can increase fruit and vegetable consumption (see Kreausukon et al., 2012; Gholami et al., 2013) reduce saturated fat intake (Luszczynska et al., 2007) and change unhealthy snacking habits when matched with individuals' self-regulatory orientations (Tam et al., 2010). What this study adds to the literature is that food planning could mediate a positive influence between restrained eating and fruit and vegetable snacking therefore further amplifying the consumption of healthier food options. On the other hand it could mediate a negative influence to high calorie snacking for both restrained and external eating. This suggests that in the presence of external eating, food planning detracts from calorie dense food choices even when restrained eating is controlled for, thus exerting a protective influence on health. These findings add credence to food planning as a salient variable in models for eating behaviour and suggest that interventions could target food planning to counterbalance the impact of external eating.

7.4 Implications and recommendations for practice

In this research programme, motherhood was discussed both as the context within which decisions were negotiated but also as the main barrier against participants' own dietary goals. The literature substantiates national data demonstrating that overweight and obesity rates among parents and married individuals are substantially different to those of single and childless adults. Findings of this research suggest that the answers for mothers may lie in the fabric of social norms and gender expectations of good parenting (see DeVault, 1991; Gilligan, 1982; Warin et al., 2008). Classified as a personal goal, the behaviours involved to maintain a healthier weight may challenge

the established ideology around motherhood which is associated with placing others' welfare before one's own (see Miller & Brown, 2005; Warin et al., 2008). This critically dilutes focus from personal weight goals and opens a role for food as both an agent of comfort and reward.

Whilst this research was only focused on Maltese mothers, it is plausible that similar dynamics may exist in countries with a similar socio-cultural framework, including countries around the Mediterranean basin (see Batnitzky, 2008). This has far-reaching implications for interventions, since in order to help mothers manage their weight successfully, practitioners may need to challenge women to put their own health as top-most priority which could go against the grain of what is considered pro-social and gender appropriate (see Batnitzky, 2008; Warin et al., 2008). Furthermore, efforts to encourage mothers to prioritise their health may be met with resistance. Firstly, due to personal beliefs that those around them would not be able to manage home and family life as well as they do. Secondly due to a potentially sub-conscious mechanism by which they can justify their lack of attention to their health goal and therefore placate any feelings of dissonance (Festinger, 1957) by emphasising the good parenting behaviour (see Chircop et al., 2013).

It is recommended that local interventions and public health messages acknowledge mothers' own perceptions and concerns about the priority they should give to their health and tailor such messages in a manner that is not threatening to the mothers' values. Campaigns would need to demonstrate that weight management goals are congruent to motherhood rather than a strain on the weekly agenda. Examples can be taken from the first two studies where mothers felt that keeping a healthy weight helped them feel better about themselves which enabled them to be positive with their children. Being of a normal weight was also associated with being more physically fit to deal with the hectic demands of parenting. Utilising the positive weight management messages that emerged from the interviews would ensure authenticity of the message

content for Maltese mothers and this could improve the effectiveness of interventions (see Resnicow et al, 1998; Sandelowski, 1996).

Another key outcome of this research was the participants' relationship to food and the prominence of eating styles as influential factors in food choices. In the first study, flavour and taste dominated the discussions around food and came through as key denominators for food choices. This leads one to argue that within the Maltese culture, public health campaigns may need to address community based norms about cooking and utilise messages that can resonate with individuals' practices at home (see Lewis et al., 2010; Resnicow et al., 1998). This is particularly relevant for traditional meals that require specific ingredients or cooking methods which would compromise the nutritional quality or substantially increase the caloric value of the foods consumed. Health care professionals focused on nutrition could review traditional food recipes and suggest alternatives that do not detract from the palatability or presentation of the meal. Local campaigns could also promote those traditional Mediterranean dishes than are highly nutritious but are low in saturated fats, sugars and salts, such as; baked rabbit, steamed fish and lentil and broad bean soup. This would provide mothers a repertoire of meals that are healthy, varied, aligned to their weight objectives and also culturally significant. Some participants who were managing their weight effectively did discuss strategies that were found to be in-line with weight management research, such as; being conscious of which foods enter the home and limiting portion sizes (see Byrne, 2002; Elfhag & Rössner, 2005). These tested strategies could be further recommended within local weight management programmes and the participants' own thought processes in implementing these strategies could offer valuable insight to health care professionals working with Maltese mothers.

In study four, having an external eating style was significantly positively associated with eating more calorie dense snacks. With high calorie foods becoming increasingly popular and available (Serna Saldivar, 2016; Stok et al., 2015), health care professionals

may need to identify and address external eating as this may be at the core of individuals' susceptibility for increased consumption. Health care professionals may also need to probe for emotional eating patterns as this was significantly positively associated to BMI corroborating literature that has linked emotional eating with weight gain and relapse in weight management (see Byrne, 2002; Elfhag & Rössner, 2005). People with such eating patterns may be helped through psychological interventions in individual and group settings (see for example, Keville et al., 2008) such that they may regain control over their eating behaviour and potentially be more likely to maintain the weight lost. It is also worth noting that the promotion of dieting may need to be exercised with caution by health care professionals, as findings from study four suggest that whilst restraint cognitions may be linked to increased fruit and vegetable snacking and decreased high calorie snacking, this is only the case when it's isolated from the impact of other eating styles with which it still has positive associations. Therefore, whilst healthy restraint cognitions may be encouraged, dieting behaviour should be discouraged for individuals who exhibit a tendency for emotional or external eating (see Mann et al., 2007).

Snacking was investigated as an outcome measure in the fourth study based on its popularity as an eating behaviour among the interview participants and inconclusive data in international literature on the relationship between snacking, eating styles and BMI. Following recommendations of other researchers (see Barnes et al., 2015) the study looked at high calorie snacking separately to fruit and vegetable snacking in order to potentially tease out specific differences, however, the findings corroborated studies that found no significant relationship between snacking and BMI (see Bachmann et al., 2011; Viskaal - van Dongen et al., 2010). Snacking was only significantly related to food planning, restrained eating and external eating. It is plausible that biases in self-reporting of food consumption (see Hebert et al., 1995) or metabolic differences (see Bellisle, 2014; O'Connor et al., 2015) accounted for the non-significant results. Yet, it is argued that these findings may still have implications for practice. Snacking is believed

to have a dual role in our diet (Bellisle, 2014) and while calorie dense snacks may increase susceptibility to cardiovascular conditions (see De Caterina, Zampolli, Del Turco, Madonna & Massaro, 2006) snacks that are high in fibre and vitamins, such as fruit, vegetables, nuts and pulses could contribute to energy balance and a healthful diet (Barnes et al., 2015; Gholami et al 2013; Kong, Beresford, Alfano, Foster-Schubert, Neuhouser et al., 2011; Zizza & Xu, 2012). Eating small but frequent meals has also been linked to improved appetite control (Leidy et al., 2011). Based on the findings of this research and international literature, it is recommended that healthcare professionals align with mothers' needs to opt for snacks which need minimal preparation, yet help them identify healthier snack options that may aid their overall nutrition, such as portions of fruits and vegetables.

This research employed structured equation modelling to test the mediating role of food planning to restrained and external eating and demonstrated that food planning was associated with higher intake of fruit and vegetable snacks and could counterbalance the effect of external eating on high calorie food snacking. Research shows that some individuals may be more psychologically sensitive to an obesogenic environment (see Stok et al., 2015; Wardle & Boniface, 2008) and that traits such as planfulness can be successfully integrated and imparted in eating behaviour interventions (see Duckworth, et al., 2011). It is therefore recommended that health care professionals include food planning as part of their eating-behaviour change consultations within the community. This would help mothers shift from a position of lack time (see Chircop et al., 2013) to one of active agency, in which they learn to anticipate barriers and devise strategies to overcome them (see Bukowska-Durawa, Haynes, Luszczynska, 2010).

Public health campaigns could also promote the consumption of fruit and vegetables by portraying mothers opting for such choices whilst going on their regular daily lives. Mothers would be more likely to pay attention to the health promoting message if it is provided in a context that they can identify with and that accounts for real factors that exist in their socio-cultural environment (see Resnicow et al., 1998). The qualitative

phase provided numerous scenarios in which mothers often opted for high calorie snacks such as when leaving home to drive children to their activities or during a busy day at work. Replacing these scenarios with healthier snack consumption could help mothers visualise the positive behaviours and help them plan the where, when and how of their health actions (see Adriaansea et al., 2011b). By targeting food planning as a skill, public health campaigns would also be enabling mothers to navigate through an obesogenic environment which would reap benefits not only for the mothers themselves but potentially on the whole family's nutrition (see Denham, 2002).

Finally, it is recommended that local public health authorities recognise the overlapping research interests, skills and experience in clinical psychology, health psychology, medicine and public health to push for an integrated effort in tackling obesity rather than see these professions as separate disciplines. Obesity is contributed by physiological, psychological, social and cultural determinants (Sobal, 2001) and it is only through the creation of inter-disciplinary teams that individuals can be assisted to address overweight and obesity within the context of the lives they lead.

7.5 Limitations, strengths and recommendations for future research

This section will outline the main limitations of the PhD programme in light of its strengths and potential avenues for further research. Specific limitations pertaining to each study are outlined in the discussion section of the four empirical chapters.

Both phases of research adopted a cross-sectional design which could not account for how or when specific constructs become salient or the direction of identified effects. Future qualitative longitudinal research could investigate how the experience of weight management may evolve over time. This could unearth valuable constructs that may emerge at the different stages of motherhood. Similarly, quantitative longitudinal studies could account for the direction of effect between key variables and identify

when specific relationships become stronger. This would enable public health interventions to target key moments in the lifespan of parents. However, in light of the limitations of time and financial support of this PhD programme, a cross-sectional approach was deemed adequate to provide an initial snapshot of the experience of weight management for Maltese mothers and how eating styles, BMI, food planning and snacking were interlinked. This could lay the groundwork for future longitudinal research in this area (see Bryman, 2008).

All four studies used self-report measures for weight and height which could have led to an underestimation of BMI (Engstrom et al., 2013). However, the distribution of BMI in the quantitative sample was found to be in-line with the BMI distribution for adult Maltese women (NSO, 2009). Similarly, the studies relied on self-reported information on eating patterns, including frequency of snack food consumption. This is an acknowledged methodological limitation of most self-report dietary assessment methods with the magnitude of underreporting tending to increase in overweight and obese participants (see Hebert et al., 1995). However, it is worth noting that the negative association between BMI and food planning and the positive association between BMI and emotional eating noted in the interview samples, were then verified quantitatively with the larger cohorts. Food planning was also associated to snack food choices as hypothesised, based on the self-reported information shared during the interviews. This suggests that despite the potential weaknesses of self-report data, the BMI and food choice data collected for both qualitative and quantitative studies seems sound.

The studies employed convenience and online snowball sampling and therefore findings may not be generalizable to all Maltese mothers. Although the Maltese-speaking community is relatively homogenous (NSO, 2012), the research focused on heterosexual mothers, living with a partner and whose children lived within the same household. This means that whole sub-groups of mothers, for example, single mothers,

were not targeted in this research. However, the recruited samples did include women with different job types, hailing from different industries and having a wide geographical representation. Mothers were also of different age groups and with children having a wide age range.

Income and socioeconomic status (SES) were not directly measured in this research programme. Literature suggests that there is an inverse association between SES and dietary behaviours (Inglis, Ball & Crawford, 2005), food coping strategies (Devine, et al., 2006) and BMI (Tyrrell et al., 2016; Superintendence of Public Health, 2012). Based on the economic means discussed by the interview participants and higher educational achievement reported by survey participants, it is likely that the participants in this PhD programme were of a middle to upper SES and therefore findings may not be generalizable to women of lower socio-economic means. It is suggested that future local research undertakes similar qualitative research with different sub-groups of women, for example, single mothers or mothers living in social housing to bring forth their experience of dietary weight management which may yield different outcomes to those presented in this thesis.

The sample sizes employed in both phases of research could have contributed to limitations in the findings. The first study had a sample of nine participants. Whilst information saturation could not be ascertained (see Lincoln & Guba, 1985) this was a pilot study and conducted purposefully to guide a second more narrow-focused investigation on the experiences of weight management, motherhood and eating behaviour. The sample size for the second study was contained at twenty participants when no new themes were being uncovered (see Lincoln & Guba, 1985). It is acknowledged that a larger sample size could have allowed for further diversity in the sample which could have provided more insight on the context within which certain constructs were most relevant. However, researchers also point out that larger sample sizes in qualitative research may not allow for enough depth in analysis which was

critical for underpinning the salient differences between participants (see Sandelowski, 1995). In fact, the sample size was enough to identify the significance of eating styles and food planning to snack food choices. These associations were confirmed through quantitative data adding to the validity to the emergent themes of study two. The sample sizes in studies three and four did not allow for a full assessment of all single parameters for the CFA and SEM, necessitating item-parcelling to test model fit. This limitation has to be seen in context since the total cohort in the quantitative phase (n=586) represented approximately 0.4% of the general population of adult Maltese women (N<150,000) (NSO, 2012). To mitigate against the sample size limitation, the parcelling technique was identified a-priori and parcels were kept small allowing for multiple parameters to be tested per factor. A similar strategy was adopted by Anschutz et al., (2009) in order to maintain an adequate sample to item ratio (see Little, Cunningham, Shahar & Widaman, 2002). Whilst parcelling is a contentious matter in CFA and SEM, this method has the advantage of ensuring a better representation of the data when large samples are harder to collect (Little et al., 2002). It also has the added advantage of increasing the range of scores within each parcel and improving their distribution, thus allowing Likert scale data to be more easily interpreted as a continuous variable (Little et al., 2002).

Participants were not screened for eating disorders which could have impacted the themes elicited or the quantitative findings. Future research may benefit screening for binge eating disorder specifically, since it bears the strongest ties to the emotional eating style (see Masheb & Grilo, 2005) which was found to be highly correlated to BMI. It is also worth noting that no national representative research has ever been carried out to assess the incidence of specific eating disorders within the Maltese population. In context of the eating patterns shared by the interview participants, it is argued that this is a worthy undertaking as it may provide further insight on the nature of obesity nationwide and help practitioners address the psychological determinants that may underlie specific eating patterns.

The study focused exclusively on women with a further focus on women with families. This narrow focus of research was deemed important in order to provide due attention to the multiple factors that may impact weight management and food choices for the female gender within the parenting dyad (see Sobal, 2001; Warin et al., 2008). However, the researcher acknowledges that overweight and obesity are of significant concern for men's health across the Mediterranean basin, including Malta (see Eurostat, 2014) and that a similar research programme on those factors that impinge on men's weight management is warranted. A question of note is whether similar social and gender norm expectations are perceived by Maltese men that may impact on their dietary behaviour or weight goals. Further to this, in most parts of the world women are still more likely to be responsible for food purchasing and food preparation (FAO, 2013) and this is predominantly the case locally as well. It is therefore poignant to understand whether food planning would still feature as a key variable and which other variables may be more salient for healthier food choices among Maltese men. Such studies would not only help practitioners target men's health but together with evidence from this present research may help in the development of interventions aimed at the parent dyad.

Partner support or the ability to mobilise support were not measured in the quantitative phase despite them coming through as main themes in the qualitative studies. This was due to the limitations on the number of parameters that could be feasibly investigated in the structured equation model and guidelines to keep explanatory models as parsimonious as possible (see Byrne, 2010). Partner support could be investigated on different levels; for example, participants discussed the availability of their partners' emotional support to weight loss objectives distinctly from their tangible support within the home. Similarly, the use and mobilisation of one's support network could branch into several facets. This would have added to the complexity of the model which was undesired. Future research could build on the

evidence generated in the qualitative phase, which suggests that an increased ability to mobilise support may bear a positive association to food planning with further positive impact on healthier food choices. Future research could also better untangle the different aspects of partner support (e.g. emotional, tangible) and how they may interact with eating styles, food planning, food choices and BMI.

Several strengths to this PhD research programme must be noted. This is the first research to investigate the experience of weight management and the role of eating styles, BMI and food planning in the food choices of Maltese mothers living in the community. This partly addresses the gap identified in the Maltese national strategy document for obesity, providing culturally-relevant data on which to base interventions and guide practice.

The research took an inductive approach to develop the research questions and allowed for key constructs to emerge from the qualitative analysis. Despite the fact that the researcher had prior exposure to working with clients managing weight, the literature was not reviewed prior to the pilot study which helped to ensure that the emerging constructs would not be tainted by prior scientific evidence. This also ensured that the variables and the relationships investigated were culturally relevant. The research then employed a deductive approach to investigate the relationships between those constructs, and further ensured cultural sensitivity by translating and validating the DEBQ as a main research tool, in Maltese. This answered the call for more cross-culturally validated instruments that are reliable and validated within the language and cultural context of a specific population group (See Cha et al., 2007; Sousa & Rojjanasrirat, 2011). It also adopted best practice for validating its factor structure and criterion-validity (see Cebolla et al., 2014; Dakanalis et al., 2013). The fourth study then applied SEM, which is considered to be a superior multivariate analytical technique, enabling it to factor for the mutual associations between the three different eating styles while explaining the relations to both dependent variables

concurrently (see Byrne, 2010). The research was able to identify links to food intake in-line with international literature and identified food planning as a key mediator for restrained eating and external eating to snack-food choices which extends the applicability of this variable in international research and future interventions.

7.6 Conclusion

Research suggests that changing dietary behaviours requires not only basic knowledge about nutrition, but also motivational and volitional factors that guide self-regulatory processes (see WHO, 2002). Such factors exist within a larger social context that may impact positively or negatively on people's health (see Berkman & Kawachi, 2014; WHO, 2004) including life events, such as parenthood, that are positively related to weight gain (Umberson et al., 2011). As the first research to investigate the psychological factors impacting weight management and food choices within the Maltese community, this PhD highlighted the critical role of eating styles and food planning in the dietary choices of Maltese mothers.

For mothers, food is ubiquitous. When their children are born, they are the channel for nourishment to the infant and often remain as primary care givers preparing the food and acting as food gate keepers with the household. Food strengthens and adds value to their role as mothers since it represents, in real form, the nourishment that they can provide. However, the very constant presence of food, represents a risk factor for weight management.

The mothers interviewed in the first and second study seemed to oscillate between their own individuality as women and their collective frame of mind that kept their family in focus. Having a healthy weight was believed to be both in their best interest and that of their children, meaning that their individual goal and the needs of their family were aligned. However, the actions to achieve a healthy weight were often

viewed to conflict with the fixed and non-negotiable obligations of being mothers. Weight management behaviour was often perceived as needing time that they would otherwise give to their partner and children. Across the interviews this dichotomy came through between the personal goal of successful weight management and the spoken and unspoken expectations from their families, which they felt were present in the larger social context of Maltese culture. In most cases the mothers discussed a lack of time for themselves which led them to snack on high calorie foods or to take shortcuts in cooking which lead to nutritionally poor meals. Additionally, the constant care for their family and diminished focus on personal goals seemed to elevate the status of food as the main means of reward, and eating, as the main source of pleasure. With food cues being a constant stimulus in daily life, maintaining a normal weight or losing weight were significant challenges, particularly for those women who discussed a heightened sensitivity for the smell or sight of palatable foods.

Planning came through as an adaptive coping mechanism in the second study and that had not featured in the discourse of the mothers interviewed in study one. This planning seemed to transcend from personal to family domains. The mothers discussed how planning ensured they could reach their personal weight goals, by placing conscious effort to purchase the right foods or cooking enough for leftovers such that they increased the healthfulness of their meals. This links with theories such as 'implementing intentions' (Gollwitzer, 1999) whereby the intentions are translated from cognition to concrete action by laying the where, when and how. A level of planning was also targeted at the family with some participants ensuring they had support for childcare or housework so that they had the free time required to do personal goals or planning ahead the time family members spent with each other while ensuring their other commitments such as career, study or weight goals were part of the family's agenda. Therefore, whilst these mothers were still conscious of their family's needs and their role in ensuring their children were adequately cared for, they

organised their life and that of their family in such a way that everyone, including themselves, was able to achieve the desired goal.

This planning behaviour was hypothesised to be linked with their ability to eat more healthful snacks such as fruit and vegetables and to snack less on high calorie foods. This was tested in the model presented in the fourth study that showed planning to be linked to snacking in the expected direction. This model also showed that planning was acting on two eating styles – externality and restrained eating – which amplified the effect on the two snacking variables. Potentially the most remarkable effect is the path that shows food planning to counterbalance the positive relationship between external eating and high calorie snacking. This could be a practical skill to include in interventions with mothers, particularly since they are in constant presence of food cues in their day-to-day environment.

This research confirmed the need to investigate obesity, weight management and eating behaviours within its social context (see Ogden, 2008; Sobal, 2001). It also underlined the need to design weight management interventions that are aligned to mothers' social values and perceived gender norm expectations (see Warin et al., 2008). Whilst substantial evidence exists in the international literature, further local research is warranted on the psychological determinants of obesity, weight management and eating behaviours that could help bolster current public health efforts within the Maltese community.

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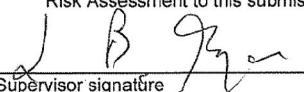

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APPENDICES

Appendix 1: Study 1: Ethics Approval, Brunel University London

1
<p>DEPARTMENT OF PSYCHOLOGY RESEARCH ETHICS CHECKLIST (Effective November 2009)</p> <p>If the ethics submission relates to staff research for which an application to an external funding agency will be/has been made, then please complete and submit the full University ethics submission form.</p>
<p>Section I: Project Details</p> <p>1. Project title: An exploration of the experience of weight management amongst Maltese overweight women</p>
<p>Section II: Applicant Details</p> <p>2. Name of researcher (applicant): Elaine Dutton 3. Status (please circle): Postgrad Student 4. Discipline (please circle): Psy 5. Email address: elaine.dutton@brunel.ac.uk 6. Telephone number: +356 99883272</p>
<p>Section III: For Students Only</p> <p>7. Student number: 0936851 8. Module name and number: PhD 9. Brunel supervisor's or module leader's name: Prof Lynn Myers 10. Brunel supervisor's email address: lynn.myers@brunel.ac.uk</p>
<p>To be completed for all research by the principal investigator, member of staff leading the research, or student supervisor.</p> <p><input checked="" type="checkbox"/> If applicable, the student states that he or she has read the Brunel University Code of Research Ethics.</p> <p><input checked="" type="checkbox"/> The topic merits further research.</p> <p><input checked="" type="checkbox"/> If applicable, the student will possess the skills to carry out the research by the time that he or she starts any work which could affect the well-being of other people. He or she will be deemed to have acquired such skills on passing the relevant research skills module.</p> <p><input checked="" type="checkbox"/> The participant information sheet or leaflet is appropriate.</p> <p><input checked="" type="checkbox"/> The procedures for recruitment and obtaining informed consent are appropriate.</p> <p>Please confirm the professional research ethics code that will guide the research (please circle) ASA/BPS/BSA/Other (please state) BPS</p> <p><input checked="" type="checkbox"/> Is a CRB check necessary for researchers/students working on this project? No If yes, please confirm by ticking this box that appropriate CRB procedures will be followed</p> <p><input checked="" type="checkbox"/> Is a new Risk Assessment required for this research? Yes If yes, please consult the information on the Psychology Ethics webpage, and attach the Risk Assessment to this submission.</p> <p style="text-align: center;">  PI/Staff/Supervisor signature </p> <p style="text-align: center;">  Date </p>

Section IV: Research Checklist


Please answer each question by ticking the appropriate box:

	YES	NO
1. Does the study involve participants who may be particularly vulnerable and/or unable to give informed consent, thus requiring the consent of parents or guardians? (e.g. children under the age of 16; people with certain learning disabilities)	<input type="checkbox"/>	<input checked="" type="checkbox"/>
2. Will all participants be age 18 and over?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
3a. Will the study require the co-operation of a gatekeeper for initial access to the groups or individuals to be recruited?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
3b. If the answer to Question 2a is Yes, then will the study involve people who could be deemed in any way to be vulnerable by virtue of their status within particular institutional settings? (e.g. students at school; disabled people; members of a self-help group; residents of a nursing home, prison, or any other institution where individuals cannot come and go freely)	<input type="checkbox"/>	<input checked="" type="checkbox"/>
4. Does the research involve observational/ethnographic methods?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
5. Will the study involve discussion by or with respondents or behaviour or drug use, where they have not given prior consent to such discussion?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
6. Are drugs, placebos or other substances (e.g. food substances, vitamins) to be administered to the study participants or will the study involve invasive, intrusive or potentially harmful procedures of any kind?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
7. Will blood or tissue samples be obtained from participants?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
8. Is pain or more than mild discomfort likely to result from the study?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
9. Could the study induce psychological stress or anxiety or cause harm or negative consequences beyond the risks encountered in normal life?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
10. Will the study involve prolonged or repetitive testing?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
11. Will financial inducements (other than reasonable expenses and compensation for time) be offered to participants?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
12. Will the study involve recruitment of patients or staff through the NHS?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
13a. Have you undertaken this study as part of your work placement?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
13b. If your answer to Question 12a is Yes, then have the employers at your work placement conducted their own research ethics review?	<input type="checkbox"/>	<input type="checkbox"/>
14. Does the research involve MRI, MEG, or EEG methods?	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Give a brief description of participants and procedure (methods, tests used etc) in up to 150 words

Eight women will be recruited through the Maltese Department for Health Promotion & Disease Prevention (DHPDP). Inclusion criteria are being overweight or obese (BMI \geq 25), aged between 25 and 50 years and are on the waiting list for the national weight-management programme run by the DHPDP. These women will be interviewed individually and will be asked questions about their experiences of managing their weight (interview attached).

Name of Principal Investigator at Brunel University (please print): Elaine Dutton

Signature of Principal Investigator at Brunel University: 

E-Mail Address: elaine.dutton@brunel.ac.uk

Date: 28 March 2011

This request for expedited review has been: **Approved** (no additional ethics form is necessary)

Declined (full University ethics form is necessary)

Signature of PsyREC Officer: PP. Ghali (signed on behalf of Tasha Wyvell - please see attached email)

Date: 31/3/2011

Appendix 2: Study 1: Ethics Approval, University of Malta

UNIVERSITY OF MALTA		
UNIVERSITY RESEARCH ETHICS COMMITTEE		
<i>Check list to be included with UREC proposal form</i>		
Please make sure to tick ALL the items. Incomplete forms will not be accepted.		
		YES NOT APP.
1a.	Recruitment letter / Information sheet for subjects, in English	<input type="checkbox"/> <input checked="" type="checkbox"/>
1b.	Recruitment letter / Information sheet for subjects, in Maltese	<input type="checkbox"/> <input checked="" type="checkbox"/>
2a	Consent form, in English, signed by supervisor, and including your contact details	<input checked="" type="checkbox"/> <input type="checkbox"/>
2b	Consent form, in Maltese, signed by supervisor, and including your contact details	<input checked="" type="checkbox"/> <input type="checkbox"/>
3a	In the case of children or other vulnerable groups, consent forms for parents/ guardians, in English	<input type="checkbox"/> <input checked="" type="checkbox"/>
3b	In the case of children or other vulnerable groups, consent forms for parents/ guardians, in Maltese	<input type="checkbox"/> <input checked="" type="checkbox"/>
4a	Tests, questionnaires, interview or focus group questions, etc, in English	<input checked="" type="checkbox"/> <input type="checkbox"/>
4b	Tests, questionnaires, interview or focus group questions, etc, in Maltese	<input checked="" type="checkbox"/> <input type="checkbox"/>
5a	Other institutional approval <i>for access to subjects</i> : Health Division, Directorate for Quality and Standards in Education, Department of Public Health, Curia...	<input checked="" type="checkbox"/> <input type="checkbox"/>
5b	Other institutional approval <i>for access to data</i> : Registrar, Data Protection Officer Health Division/Hospital, Directorate for Quality and Standards in Education, Department of Public Health...	<input type="checkbox"/> <input checked="" type="checkbox"/>
5c	Approval from person <i>directly responsible for subjects</i> : Medical Consultants, Nursing Officers, Head of School...	<input type="checkbox"/> <input checked="" type="checkbox"/>
Received by Faculty office on		
Discussed by Faculty Research Ethics Committee on		
Discussed by university Research Ethics Committee on		
1		

UNIVERSITY OF MALTA

Request for Approval of Human Subjects Research – Academic Staff

Please type. Handwritten forms will not be accepted

You may follow this format on separate sheets or use additional pages if necessary.

<p>FROM: <i>(name, address for correspondence)</i></p> <p>Elaine Dutton 50 Regent Flats, Flt 6, St Monica Street Pieta, PTA 1115</p>	<p>PROJECT TITLE:</p> <p>An exploration of the experience of weight management amongst Maltese overweight women</p>
<p>TELEPHONE: +356 99883272</p>	
<p>E-MAIL: elaine.dutton@gmail.com</p>	
<p>FACULTY: Education</p>	
<p>DURATION OF ENTIRE PROJECT:</p> <p>from <u>May 2011</u> to <u>Dec 2011</u></p>	

ANTICIPATED FUNDING SOURCE: Malta Government Scholarship Scheme (MGSS) as part *(include grant or contract number if known)* of the grant supporting my PhD in Health Psychology

1. Please give a brief summary of the purpose of the research, in non-technical language.

This research aims to explore experience of weight management amongst overweight Maltese women. Although Malta has one of the highest rates of adult obesity world wide (IOTF, 2005) very little is known about the psycho-social determinants that lead Maltese adults to put on weight and their experience of managing extra weight. Based on literature which suggests that women often occupy a gate-keeping role for food consumption and dietary practices in the home, this study shall be focusing on adult women (age 25 - 50 years).

2. Give details of procedures that relate to subjects' participation

(a) How are subjects recruited? What inducement is offered? *(Append copy of letter or advertisement or poster, if any.)*

Eight women will be recruited through the Maltese Department for Health Promotion & Disease Prevention (DHPDP). Potential participants who meet the research criteria will be asked by the staff at the DHPDP if they wished to participate in this study. Participation is voluntary and no inducement is offered. Participants will be interviewed individually and will be asked questions about their experiences of weight gain and weight management (see interview guide attached).

(b) Salient characteristics of subjects—number who will participate, age range, sex, institutional affiliation, other special criteria:

Inclusion criteria are:

- women of Maltese nationality
- overweight or obese (BMI \geq 25)
- aged between 25 and 50 years
- are on the waiting list for the national weight-management programme run by the DHPDP

(c) Describe how permission has been obtained from cooperating institution(s)—school, hospital, organization, prison, or other relevant organization. (*Append letters.*) Is the approval of another Research Ethics Committee required?

The Director of the Health Promotion & Disease Prevention (DHPDP) has already given her consent to access the sample through the department provided that this research obtains the necessary ethical approval (see attached letter). The Maltese Commission for Data Protection have been contacted and they confirmed that this study will need ethical approval from the University in which the student is studying (University of Brunel) and approval from an ethics board in the country from which participants will be recruited (Malta). This study has already obtained approval from University of Brunel (see attached form).

(d) What do subjects do, or what is done to them, or what information is gathered? (*Append copies of instructions or tests or questionnaires.*) How many times will observations, tests, etc., be conducted? How long will their participation take?

Subjects will be interviewed individually (see interview guide attached) on their experience related to weight gain and weight management. The question guide will be used as a reference and aims to elicit information further to the quantitative descriptive data supplied by the Maltese lifestyle survey (NSO, 2007) and Maltese household budgetary survey (2008). The interview will be recorded and participation will take between 1 to 1.5 hrs .

(e) Which of the following data categories are collected? Please indicate 'Yes' or 'No'.

Data that reveals – race or ethnic origin	No
political opinions	No
religious or philosophical beliefs	No
trade union memberships	No
health	Yes
sex life	No
genetic information	No

3. How do you explain the research to subjects and obtain their informed consent to participate? (If in writing, append a copy of consent form.) If subjects are minors, mentally infirm, or otherwise not legally competent to consent to participation, how is their assent obtained and from whom is proxy consent obtained? How is it made clear to subjects that they can quit the study at any time?

The procedure of the interview and nature of the questions will be explained to participants in either Maltese or English (depending on their language proficiency). A consent form (in either languages) will be available for them to read and sign. This consent form states that participation is voluntary and that individuals have a right to stop at any time without giving an explanation (refer to consent form attached). Participants will be given a copy of this form. After the interview a debrief form explaining the aims of the research and including the contact details of the primary researcher will also be provided.

4. Do subjects risk *any* harm—physical, psychological, legal, social—by participating in the research? Are the risks necessary? What safeguards do you take to minimize the risks?

The questions asked during the interview will focus on the individuals' perception to being overweight and their general beliefs towards weight loss strategies such as dieting and exercise. Whilst such questions may elicit mild distress, it is unlikely that this will be a detriment to the health of the individual or different than if the person had to contemplate on these issues alone. However, I will act responsibly throughout the interview and if I see the participant becoming distressed, I will remind the participant that she can still stop the interview and will ensure to get her permission to continue before asking further questions. In such an event, I will give the participant the contact details of free counselling services (e.g. Caritas) should she feel the need to discuss these issues in further depth with a professional.

4

5. Are subjects deliberately deceived in *any* way? If so, what is the nature of the deception? Is it likely to be significant to subjects? Is there any other way to conduct the research that would not involve deception, and, if so, why have you not chosen that alternative? What explanation for the deception do you give to subjects following their participation?

No deception will be used at any point of this research.

6. How will participation in this research benefit subjects? If subjects will be “debriefed” or receive information about the research project following its conclusion, how do you ensure the educational value of the process? (*Include copies of any debriefing or educational materials*)

A debrief note (see attached) will be given to each participant containing the aims of the research and three research articles that are related to the issues discussed in the interview. This debrief note also contains the contact details of the primary researcher should participants wish to ask questions following the interview.


This research will indirectly benefit participants since findings will be shared with the DHPDP with the aim of improving the services and weight management interventions currently offered. (Note: Information shared will be in the form of general themes and will in no way jeopardise the rights to confidentiality of individual participants). This research will also provide the ground work for future research in this area and relevant findings shall be written for publication such that it may benefit the community at large.

TERMS AND CONDITIONS FOR APPROVAL IN TERMS OF THE DATA PROTECTION ACT

- Personal data shall only be collected and processed for the specific research purpose.
- The data shall be adequate, relevant and not excessive in relation to the processing purpose.
- All reasonable measures shall be taken to ensure the correctness of personal data.
- Personal data shall not be disclosed to third parties and may only be required by the University or the supervisor for verification purposes. All necessary measures shall be implemented to ensure confidentiality and, where possible, data shall be anonymised.
- Unless otherwise authorised by the University Research Ethics Committee, the researcher shall obtain the consent from the data subject (respondent) and provide him with the following information: The researcher's identity and habitual residence, the purpose of processing and the recipients to whom personal data may be disclosed. The data subject shall also be informed about his rights to access, rectify, and where applicable erase the data concerning him.

I, the undersigned hereby undertake to abide by the terms and conditions for approval as attached to this application.


I, the undersigned, also give my consent to the University of Malta's Research Ethics Committee to process my personal data for the purpose of evaluating my request and other matters related to this application. I also understand that, I can request in writing a copy of my personal information. I shall also request rectification, blocking or erasure of such personal data that has not been processed in accordance with the Act.

Signature: 

APPLICANT'S SIGNATURE:

I hereby declare that I will not start my research on human subjects before UREC approval

DATE


20 | 4 | 11

Return the completed application to your faculty Research Ethics Committee



elaine dutton <elaine.dutton@gmail.com>

Ethics Proposal Ref. No EDU/068/11

2 messages

Ayrton Deguara <ayrton.deguara@um.edu.mt>


Fri, May 13, 2011 at 9:03
AM

To: Elaine Dutton <elaine.dutton@gmail.com>

Dear Ms Dutton,

Please note that your Research Ethics Proposal (EDU/068/11: *An exploration of the experience of weight management amongst Maltese overweight*) has been **approved by UREC**. Hence, you may start your research.

Thanks and regards,
Ayrton Deguara for Prof Mary Darmanin,
Secretary,
Faculty Research Ethics Committee.

 **ayrton_deguara.vcf**
1K

elaine dutton <elaine.dutton@gmail.com>
To: Ayrton Deguara <ayrton.deguara@um.edu.mt>

Fri, May 13, 2011 at 9:41 AM

Dear Ayrton
Thank you for your email - that's very good news :)
Regards
Elaine

Appendix 3: Study 2: Ethics Approval, Brunel University London

SSS Research Ethics Review Checklist – Part 1

Section I: Project details

1. Project title: The experience of weight management amongst Maltese mothers	
2. Proposed start date: 20.01.13	3. Proposed end date: 30.06.13

Section II: Applicant details

4. Name of researcher (applicant)	Elaine Dutton
5. Student Number	0936851
6. Status	Postgraduate (Part-time)
7. Department	Psychology
8. Brunel e-mail address	elaine.dutton@gmail.com
9. Telephone number	00356 99883272

Section III: For students only

10. Module name and number:	PhD (Student ID: 0936851)
11. Supervisor's name:	Prof. Lynn Myers
12. Brunel supervisor's e-mail address:	lynn.myers@brunel.ac.uk

	Yes	No
13. Does this research involve human participants?	Y	
14. Does this research raise any ethical or risk concerns as set out in the University Code of Research Ethics or relevant disciplinary code?		N
15. Risk Assessment – are there any elements of risk related to the proposed research? (See Risk Assessment – FAQs)		N

If you have answered **Yes** to any of questions 13-15, you must **complete Part 2** of this form.

Students: If you have answered No, please email this document to your supervisor who will confirm that the research does not involve ethical issues. Once electronically signed by your supervisor, please submit Part 1 of this form via BBL within 1 week. Please keep a copy for yourself and bind it into your dissertation/thesis as an appendix.

Staff: If you have answered No, please sign below and submit your form via BBL. Please keep a copy for yourself.

If your research methodology changes significantly, you must submit a new form.

For Supervisor's/Staff e- signature

I confirm that there are no ethical or risk issues relating to this research and the applicant can proceed with the proposed research.
e-signature/ Date:

SSS Research Ethics Review Checklist – Part 2

Section IV: Description of project

Please provide a short description of your project:

This project shall explore the experiences of weight management amongst Maltese mothers with multiple responsibilities. The research will involve semi-structured interviews with a sample of approximately 25 participants with a BMI range of 18 – 20. This research builds on a previous qualitative study on weight management amongst obese mothers and aims to expand on key themes elicited from this first study.

Section V: Research checklist

Please answer each question by ticking the appropriate box:

	YES	NO
1. Does the project involve participants who are particularly vulnerable or unable to give informed consent (e.g. children/ young people under 18, people with learning disabilities, your own students)?		N
2. Will the research involve people who could be deemed in any way to be vulnerable by virtue of their status within particular institutional settings (e.g., students at school, residents of nursing home, prison or other institution where individuals cannot come and go freely)?		N
3. Will it be necessary for participants to take part in the study without their knowledge and consent (e.g., covert observation of people in non-public places)?		N
4. Will the study involve discussion of sensitive topics (e.g., sexual activity, drug use) where participants have not given prior consent to this?		N
5. Will the study involve work with participants engaged in breaking the law?		N
6. Will the publications/reports resulting from the study identify participants by name or in any other way that may identify them, bring them to the attention of the authorities, or any other persons, group or faction?		N
7. Are drugs, placebos or other substances (e.g. food substances, vitamins) to be administered to the study participants or will the study involve invasive, intrusive or potentially harmful procedures of any kind?		N
8. Will the study involve the use of human tissue or other human biological material?		N
9. Will blood or tissue samples be obtained from participants?		N
10. Is pain or more than mild discomfort likely to result from the study?		N

	YES	NO
11. Could the study induce psychological stress or anxiety or cause harm or negative consequences beyond the risks encountered in normal life?		N
12. Will the study involve prolonged or repetitive testing?		N
13. Will financial inducements (other than reasonable expenses and compensation for time) be offered to participants?		N


	YES	NO
14. Will the study require the co-operation of another individual/ organisation for initial access to the groups or individuals to be recruited? If yes please attach the letters of permission from them.		N
15. Will you be undertaking this research as part of a work placement or in conjunction with an external organisation? If Yes and the organisation has conducted its own research ethics review, please attach the ethical approval.		N

If you have answered 'yes' to any of questions 1-13, you will need to complete the University [Application Form for Research Ethics Approval](#).

Students: If you have answered 'No' to all of questions 1-13, please **sign below and submit this completed Checklist, consent form, information leaflet and any other documents and attachments for your supervisor's approval by email. Once you have received it back from your supervisor you will be able to submit via BBL. Forms that do not have your supervisor's approval will be rejected.**

Staff: If you have answered 'No' to all of questions 1-13, please **sign below and submit this completed Checklist, consent form, information sheet and any other documents and attachments via BBL.**

Please note that it is your responsibility to follow the University's Code of Research Ethics and any relevant academic or professional guidelines in the conduct of your study. **This includes providing appropriate information sheets and consent forms, and ensuring confidentiality in the storage and use of data.** Any significant change in protocol over the course of the research should be notified to the Departmental Ethics Coordinator and may require a new application for ethics approval.

Applicant (Principal Investigator) Name: Elaine Dutton
Applicant's e-signature: 
Date: 28/12/13

Supervisor Section (for students only)

Please tick the appropriate boxes. The study should not be submitted until all boxes are ticked:

✓	The student has read the University's Code of Research Ethics
✓	The topic merits further research
✓	The student has the skills to carry out the research
✓	The consent form is appropriate
✓	The participant information leaflet is appropriate
✓	The procedures for recruitment and obtaining informed consent are appropriate
✓	An initial risk assessment has been completed
<input type="checkbox"/>	If there are issues of risk in the research, a full risk assessment has been undertaken in line with the 'School of Social Sciences Risk Assessment– FAQs' document and a risk assessment is attached.
<input type="checkbox"/>	A DBS check has been obtained (where appropriate)
✓	The debriefing form is appropriate (NB for psychology only - please refer to BBL)

Any comments from supervisor:

Supervisor or module leader (where appropriate): [see below for signature]
E-signature:
Date:

Supervisors: Please **email** this form to the student who will then need to submit it and related appendices via BBL.

Student: Once you have received this form back from your supervisor, submit this completed Checklist, consent form, information sheet and any other documents and attachments via BBL.

Please tick the appropriate boxes. The study should not be submitted until all boxes are ticked:

<input checked="" type="checkbox"/>	The student has read the University's Code of Research Ethics
<input checked="" type="checkbox"/>	The topic merits further research
<input checked="" type="checkbox"/>	The student has the skills to carry out the research
<input checked="" type="checkbox"/>	The consent form is appropriate
<input checked="" type="checkbox"/>	The participant information leaflet is appropriate
<input checked="" type="checkbox"/>	The procedures for recruitment and obtaining informed consent are appropriate
<input checked="" type="checkbox"/>	An initial risk assessment has been completed
<input type="checkbox"/>	If there are issues of risk in the research, a full risk assessment has been undertaken in line with the 'School of Social Sciences Risk Assessment- FAQs' document and a risk assessment is attached.
<input type="checkbox"/>	A DBS check has been obtained (where appropriate)
<input checked="" type="checkbox"/>	The debriefing form is appropriate (NB for psychology only - please refer to BBL)

Any comments from supervisor:

--

Supervisor or module leader (where appropriate):

E-signature:

Date:

A B Owen
22/11/14

Supervisors: Please email this form to the student who will then need to submit it and related appendices via BBL.

Student: Once you have received this form back from your supervisor, submit this completed Checklist, consent form, information sheet and any other documents and attachments via BBL.

Version 2013 - V1

Page 5

Approval Feedback from BlackBoardLearn - 24/01/14 14:28

Dear Elaine,

your study received ethical approval; however, you need to add to your information leaflet that should your participants have any complaints about your study; they can contact the co-chairs of our department's ethics committee, Bridget Dibb or me; please provide our email addresses.

Best wishes

Achim

Appendix 4: Study 3: Ethics Approval, Brunel University London



Department of Life Sciences Research Ethics Committee
 Brunel University London
 Kingston Lane
 Uxbridge
 UB8 3PH
 United Kingdom
 www.brunel.ac.uk

27 January 2016

LETTER OF APPROVAL

Applicant: Ms Elaine Dutton
 Project Title: Validation of DEBQ-Maltese version
 Reference: 1891-LR-Jan2016-1478

Dear Ms Elaine Dutton

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:

- 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

Department of Life Sciences Research Ethics Committee
 Brunel University London

Appendix 5: Study 4: Ethics Approval, Brunel University London

SCHOOL OF SOCIAL SCIENCES ETHICS CHECKLIST

**ETHICAL MATTERS MUST BE CONSIDERED BEFORE ANY RESEARCH TAKES PLACE
FAILURE TO FOLLOW THE CORRECT ETHICAL PROCEDURES OR CONDUCTING RESEARCH
WITHOUT ETHICAL APPROVAL WHERE IT IS REQUIRED MAY LEAD TO DISCIPLINARY ACTION**

Guidance

This Ethics Checklist has been designed to help determine the level of risk or harm to participants' welfare entailed in a proposed study. It also contains a sample consent form and information leaflet checklist that you can use/adapt as appropriate.

NB: If your research requires NHS ethics approval, you should not complete this form. Please provide the School with a copy of your letter of NHS approval once you receive this.

Who Completes the Checklist?

The Principal Investigator (PI) is the main researcher and can be a student. The PI (or where the PI is a student, the supervisor) is responsible for exercising appropriate professional judgement in this review.

Underpinning Codes of Ethics

Before completing this checklist, you must refer to the University [Code of Research Ethics](#) as well as the relevant code of ethics for your discipline. These are listed in the Useful Links section at the end of this guidance. It is your responsibility to follow these Codes of Research Ethics in the conduct of your study. This includes providing appropriate documentation and ensuring confidentiality in the storage and use of data (see section 3.3.2 of the University Code of Research Ethics).

The Checklist

This Checklist is in two parts:

Part 1: This must be completed by all students and staff undertaking research. This section aims to confirm that there are no ethical or risk assessment issues related to your research.

Part 2: This is for all Principal Investigators who identify that there are ethical and/or risk assessment issues in their proposed research.

YOU MUST HAVE YOUR APPLICATION, CONSENT FORM AND INFORMATION SHEET APPROVED BY YOUR DEPARTMENTAL ETHICS COORDINATOR (OR IF APPROPRIATE, UNIVERSITY ETHICS COMMITTEE) BEFORE YOU START YOUR RESEARCH AND APPROACH POTENTIAL PARTICIPANTS.

What do I have to do if I need to complete the University Research Ethics Committee Application Form?

You will need to complete and submit this via BBL. In most cases, the School will be able to review and approve the ethics form. If the research needs University level approval, your form will be submitted to the University Research Ethics Committee by the Research Office.

Risk Assessment

All Principal Investigators (and their supervisor where relevant) are required to consider matters of risk and conduct a risk assessment as part of the University's Health and Safety Policy. If issues of risk are identified, a risk assessment is required and must be attached to this form. For further information about Risk Assessments and guidance on how to undertake one, see the document 'RISK ASSESSMENT – FAQs' which can be found in the School of Social Sciences Ethics Organisation, under my Organisations in BBL.

Disclosure and Barring Service (formerly Criminal Record Bureau) Checks

If your research involves vulnerable persons, you are required to follow University guidelines for Disclosure and Barring Service (DBS) checks. If you need a DBS check please contact the DBS Administrator in Admissions who will send you the information you need to make a DBS application.

How to submit Checklist and appendices on Blackboard Learn

Stage 1: Log into BBL

Stage 2: Click on the School of Social Sciences Research Ethics Organisation, under the My Organisations list on the right hand side

Stage 3: Download the Ethics Checklist from the folder on the homepage titled 'Research Ethics Application Form'.

Stage 3: Click on your appropriate department folder

Stage 4: Click on the Ethics Checklist Submission Assignment Tool

Stage 5: Upload your Ethics Checklist and appendices eg consent form, information leaflet, using the Browse My Computer link, and ensure you have uploaded the correct documents

Stage 6: Once you have confirmed they are the correct documents, click submit

Stage 7: You will receive an email receipt of your submission to your Brunel email account

Stage 8: Click on the My Grades link in the School of Social Sciences Research Ethics Organisation to find the outcome and feedback once it has been reviewed by your Departmental Ethics Coordinator.

Further information about how to submit is available in the School of Social Sciences Ethics Organisation, under My Organisations, in BBL.

What happens after I have received ethical approval?

Once you have received ethical approval, you can start your research.

Students are required to retain a copy of the approved Checklist, consent form and information leaflet and submit these with their research report/dissertation/thesis.

All undergraduate and postgraduate work submitted/conducted without ethical approval may be subject to academic penalties and disciplinary action.

If your research is delayed and will extend beyond the dates stated on your form, please contact your Departmental Ethics Coordinator to seek approval for an extension.

Useful Links and Resources

University Research Code of Ethics [LINK](#)

UREC website - [LINK](#)

Code of Ethics – Anthropology [LINK](#)

Code of Ethics – Economics and Finance (Use University Research Code of Ethics)

Code of Ethics – Politics and History (Use University Research Code of Ethics)

Code of Human Research Ethics – Psychology [PDF](#)

Code of Ethics – Sociology and Communications - [LINK](#)

Risk Assessment – FAQs – School of Social Sciences Ethics Organisation, under my Organisations in BBL.

Contacts

Anthropology Ethics Coordinator:	Dr Isak Niehaus
Economics and Finance Ethics Coordinator:	Professor Frank Skinner
Politics and History Ethics Coordinator:	Dr John MacMillan
Psychology Ethics Coordinator:	Dr Achim Schutzwohl/ Dr Bridget Dibb
Sociology and Communications Ethics Coordinator:	Dr Simon Weaver
Research Ethics Administrator:	Ms Amreen Malik

SSS Research Ethics Review Checklist – Part 1

Section I: Project details

1. Project title: Eating styles among Maltese mothers	
2. Proposed start date: 01.04.15	3. Proposed end date: 01.10.15

Section II: Applicant details

4. Name of researcher (applicant)	Elaine Dutton
5. Student Number	0936851
6. Status	PGR Student
7. Department	Psychology
8. Brunel e-mail address	elaine.dutton@brunel.ac.uk
9. Telephone number	00356 99883272

Section III: For students only

10. Module name and number:	PhD (Student ID: 0936851)
11. Supervisor's name:	Prof. Lynn Myers
12. Brunel supervisor's e-mail address:	lynn.myers@brunel.ac.uk

	Yes	No
13. Does this research involve human participants?	<input checked="" type="radio"/>	<input type="radio"/>
14. Does this research raise any ethical or risk concerns as set out in the University Code of Research Ethics or relevant disciplinary code?	<input type="radio"/>	<input checked="" type="radio"/>
15. Risk Assessment – are there any elements of risk related to the proposed research? (See Risk Assessment – FAQs)	<input type="radio"/>	<input checked="" type="radio"/>

If you have answered **Yes** to any of questions 13-15, you must **complete Part 2** of this form.

Students: If you have answered No, please email this document to your supervisor who will confirm that the research does not involve ethical issues. Once electronically signed by your supervisor, please submit Part 1 of this form via BBL within 1 week. Please keep a copy for yourself and bind it into your dissertation/thesis as an appendix.

Staff: If you have answered No, please sign below and submit your form via BBL. Please keep a copy for yourself.

If your research methodology changes significantly, you must submit a new form.

For Supervisor's/Staff e- signature

I confirm that there are no ethical or risk issues relating to this research and the applicant can proceed with the proposed research.

e-signature/ Date:

SSS Research Ethics Review Checklist – Part 2

Section IV: Description of project

Please provide a short description of your project:

This project sets to explain eating patterns among Maltese mothers by examining differences in snacking behaviour, eating styles, BMI, planning, working hours, perceived barriers from family commitments and time pressure. The research will involve an online survey distributed among a sample of approximately 350 female participants who have at least one child under the age of 18 years living at home. A paper based survey will also be available. Consent will be gained at the time of completing the questionnaire. The questionnaire should take no more than 15 minutes to complete.

This study builds on two previous qualitative studies on weight management amongst Maltese mothers and aims to test hypotheses that have emerged from qualitative data.

Section V: Research checklist

Please answer each question by ticking the appropriate box:

	YES	NO
1. Does the project involve participants who are particularly vulnerable or unable to give informed consent (e.g. children/ young people under 18, people with learning disabilities, your own students)?	<input type="radio"/>	<input checked="" type="radio"/>
2. Will the research involve people who could be deemed in any way to be vulnerable by virtue of their status within particular institutional settings (e.g., students at school, residents of nursing home, prison or other institution where individuals cannot come and go freely)?	<input type="radio"/>	<input checked="" type="radio"/>
3. Will it be necessary for participants to take part in the study without their knowledge and consent (e.g., covert observation of people in non-public places)?	<input type="radio"/>	<input checked="" type="radio"/>
4. Will the study involve discussion of sensitive topics (e.g., sexual activity, drug use) where participants have not given prior consent to this?	<input type="radio"/>	<input checked="" type="radio"/>
5. Will the study involve work with participants engaged in breaking the law?	<input type="radio"/>	<input checked="" type="radio"/>
6. Will the publications/reports resulting from the study identify participants by name or in any other way that may identify them, bring them to the attention of the authorities, or any other persons, group or faction?	<input type="radio"/>	<input checked="" type="radio"/>
7. Are drugs, placebos or other substances (e.g. food substances, vitamins) to be administered to the study participants or will the study involve invasive, intrusive or	<input type="radio"/>	<input checked="" type="radio"/>

	YES	NO
potentially harmful procedures of any kind?		
8. Will the study involve the use of human tissue or other human biological material?	<input type="radio"/>	<input checked="" type="radio"/>
9. Will blood or tissue samples be obtained from participants?	<input type="radio"/>	<input checked="" type="radio"/>
10. Is pain or more than mild discomfort likely to result from the study?	<input type="radio"/>	<input checked="" type="radio"/>
11. Could the study induce psychological stress or anxiety or cause harm or negative consequences beyond the risks encountered in normal life?	<input type="radio"/>	<input checked="" type="radio"/>
12. Will the study involve prolonged or repetitive testing?	<input type="radio"/>	<input checked="" type="radio"/>
13. Will financial inducements (other than reasonable expenses and compensation for time) be offered to participants?	<input type="radio"/>	<input checked="" type="radio"/>
	YES	NO
14. Will the study require the co-operation of another individual/ organisation for initial access to the groups or individuals to be recruited? If yes please attach the letters of permission from them.	<input type="radio"/>	<input checked="" type="radio"/>
15. Will you be undertaking this research as part of a work placement or in conjunction with an external organisation? If Yes and the organisation has conducted its own research ethics review, please attach the ethical approval.	<input type="radio"/>	<input checked="" type="radio"/>


If you have answered 'yes' to any of questions 1-13, you will need to complete the University [Application Form for Research Ethics Approval](#).

Students: If you have answered 'No' to all of questions 1-13, please **sign below and submit this completed Checklist, consent form, information leaflet and any other documents and attachments for your supervisor's approval by email . Once you have received it back from your supervisor you will be able to submit via BBL. Forms that do not have your supervisor's approval will be rejected.**

Staff: If you have answered 'No' to all of questions 1-13, please **sign below and submit this completed Checklist, consent form, information sheet and any other documents and attachments via BBL.**

Please note that it is your responsibility to follow the University's Code of Research Ethics and any relevant academic or professional guidelines in the conduct of your study. **This includes providing appropriate information sheets and consent forms, and ensuring confidentiality in the storage and use of data.** Any significant change in protocol over the course of the research should be notified to the Departmental Ethics Coordinator and may require a new application for ethics approval.

Applicant (Principal Investigator) Name: Elaine Dutton

Applicant's e-signature: 

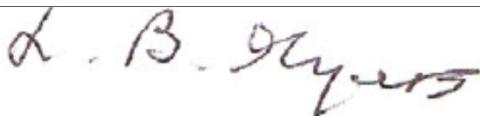
Date: 21.02.15

Supervisor Section (for students only)

Please tick the appropriate boxes. The study should not be submitted until all boxes are ticked:

<input checked="" type="checkbox"/>	The student has read the University's Code of Research Ethics
<input checked="" type="checkbox"/>	The topic merits further research
<input checked="" type="checkbox"/>	The student has the skills to carry out the research
<input checked="" type="checkbox"/>	The consent form is appropriate
<input checked="" type="checkbox"/>	The participant information leaflet is appropriate
<input checked="" type="checkbox"/>	The procedures for recruitment and obtaining informed consent are appropriate
<input checked="" type="checkbox"/>	An initial risk assessment has been completed
<input type="checkbox"/>	If there are issues of risk in the research, a full risk assessment has been undertaken in line with the 'School of Social Sciences Risk Assessment– FAQs' document and a risk assessment is attached.
<input type="checkbox"/>	A DBS check has been obtained (where appropriate)
<input checked="" type="checkbox"/>	The debriefing form is appropriate (NB for psychology only - please refer to BBL)

Any comments from supervisor:

Supervisor or module leader (where appropriate):

E-signature:
Date: 23.2.15

Supervisors: Please **email** this form to the student who will then need to submit it and related appendices via BBL.

Student: Once you have received this form back from your supervisor, submit this completed Checklist, consent form, information sheet and any other documents and attachments via BBL.

RECEIPT:

Your submission has been received. We have recorded the following details:

Submission _319927_1 was submitted by ELAINE DUTTON 0936851 for assignment

Ethics Approval - Psychology _63198_1 on course Psychology Ethics Applications (2014-15) O.GPY.ETHICS at 3/2/15 5:59 PM as recorded by our server. This submission contained the following attached files:

EthicsApplicationDuttonE_0936851_020315.docx of size 173 KB

Appendix 6: Study 1: Interview Guide

INTERVIEW GUIDE

An exploration of the experiences of weight management amongst Maltese overweight women

Pre Interview questions:

- Please indicate your:
- Age
- Nationality
- Locality
- Weight and Height (can be measured by myself)
- How long have you been overweight?
- Civil status
- Employment
- Educational background

Key:

- = prompts for researcher

Question Guide

1. What, in your opinion, has lead to you gaining weight?
2. Are there any difficulties in being overweight?
 - If yes, what are they?
3. Are there any positive aspects being overweight?
 - If yes, what are they?
4. What perceptions do you feel people hold about you?
 - Do you feel that being overweight changes people's perceptions about you?
 - If yes, how and in what way?
 - If no, why do you think this is?
5. Do you consider any of your family members & friends to be overweight?
 - If yes, Who?
 - How does this make you feel? Why?
6. How do you feel about being overweight?
 - Physical, emotional, social, intimate-relational
7. What made you enroll on this programme to lose weight?
8. (If relevant) How many times have you tried to lose weight?
9. (If relevant) Could you tell me more about these times?
 - Is there a pattern in the way you go about losing weight?
 - Key strategies vs difficulties?
 - Experience: physically, emotionally, socially (within family/ during leisure/ with people you don't know well/ occasions & feasts)/ logistically/ financially
10. In your opinion, what it the best way to lose weight?
 - Have you adopted some of these strategies? How? With what effect?

11. In your opinion, what is a healthy diet?
 - Amounts of food/ type?
12. What does food mean to you?
 - i.e. If you had to give an adjective, a way to describe what food is to you – what would that be? How did you come to see food in this way?
 - (If person mentions that food is friend/ comfort) – what type of emotions/ conditions usually lead you to see food in this light?
 - Do you eat food when you're stressed/ feeling down? Can you tell me more about it?
13. Where would you normally buy your food from?
 - What influences your decision of where to shop and what to buy?
14. Does your family influence your choice of the food that you buy?
 - If yes, How?
15. Do your friends influence your choice of the food that you buy?
 - If yes, How?
16. Does your family influence your choice of the food that you eat?
 - If yes, How?
17. Do your friends influence your choice of the food that you eat?
 - If yes, How?
18. Do you exercise?
 - If yes, what exercise? How often? How long have you been doing X?
 - If yes, why do you exercise? (family; friends; time for me; socializing)? What influences the type of exercise you choose to do?
 - If no, why don't you exercise? (family; friends; physical limitations; time)
19. Is there anything else that you'd like to add to what we have been discussing?

Appendix 7: Study 1: Letter of Acceptance, HPDP



Direttorat għall-Promozzjoni tas-Saħħa u Prevenzjoni tal-Mard
Dipartiment għar-Regolazzjoni Saħħa Pubblika

Ministeri tas-Saħħa, l-Anzjani u Kurazzjoni Komunitarja

14th March 2010

To whom it may concern,

The Health Promotion and Disease Prevention Directorate acknowledges the request made by Ms. Elaine Dutton to carry out a qualitative pilot study on the perceptions of Maltese overweight women towards weight loss strategies. We support such initiative and are willing to support her to recruit her sample of women based on the participation criteria outlined in her letter. Potential participants will be recruited from the waiting list of the weight management programmes that the department runs in the community health centres. Persons who fulfil the participation criteria will be contacted by personnel in the department to safeguard data protection and will be given Ms Dutton's contact details should they wish to be part of the study.

It is understood that participation in this research will be on a voluntary basis and that information will be kept confidential. It is also understood that this research will have been granted Ethics approval by the University of Brunel, approval from local Data Protection Commissioner and that Ms. Dutton shall be carrying out her study under the supervision of Prof Lynn Myers (Department of Psychology).

It would be appreciated if any relevant information that may help us improve the service offered on the weight management programmes is shared with the department.

Dr Charmaine Gauci MD, MSc, Dip(Fit&Nut), Ph.D, FRSPH, FFPH



Health Promotion and Disease Prevention Directorate

5B, The Emporium, C. De Brocktorff Str., Msida MSD 1421 Malta. Tel: (+356) 2326 6000, Tel: (+356) 2326 6125,
 Fax: (+356) 2326 6104. www.ehealth.gov.mt

Appendix 8: Study 1: Participant Recruitment letter

Dear Madam,

I am a Maltese Psychologist currently enrolled in a PhD in Psychology at the University of Brunel, UK. My research is about weight management amongst Maltese women and I am looking for participants who would be willing to share their experiences with me. If you wish to be part of this research, you can choose a place, date and time that are most convenient to you so that we can carry out an interview of approximately one hour. The questions will focus on your experience of managing your weight. The interview will be recorded and transcribed but no reference will be made to your name or your identity.

Should you choose to participate, all that is said in the interview will be kept confidential. Your participation in this research will be voluntary and you can choose to withdraw from the study at any point. This means that if at any point in the interview you feel that you wouldn't wish to continue our discussion, you are free to stop the interview without any repercussions.

This research has been approved by the ethics board of the University of Malta and University of Brunel. My supervisor is Prof Lynn Myers.

If you wish to participate, you need to be:

- A woman of Maltese nationality
- Speak Maltese fluently
- Between 30 – 55 years
- Married with children

If you would like more information, or if you're interested to participate, kindly give your telephone number to the facilitator of your course or call me/ send me an sms directly on 99883272. You may also email me on elaine.dutton@brunel.ac.uk. I will then contact you back and explain the study in more depth.

Thanks in advance,

Elaine Dutton

Appendix 10: Study 1: Debrief form

2

DEBRIEFING FORM:**An exploration of the experience of weight management amongst Maltese overweight women**

The aim of this study is to understand the experiences of Maltese women who are trying to lose weight as very little is known about these experiences. It is hoped this research will help improve weight management programmes.

The following studies might be of interest to you:

Byrne, S. M. (2002). Psychological aspect of weight maintenance and relapse in obesity. *Journal of Psychosomatic research*, **53**, 1029 – 1036.

Chapman, K. & Ogden J. (2009). How do people change their diet? An exploration into mechanisms of dietary change. *Journal of Health Psychology*, **14**, 1229 – 1242.

Thomsson, (1999). Yes I used to exercise, but... - A Feminist study of exercise in the life of Swedish women. *Journal of Leisure Research*, **31**, 35 – 56.

Once again, thank you for taking part in this study.

Elaine Dutton
elaine.dutton@brunel.ac.uk

Appendix 11: Study 2: Interview Guide

An exploration of the experience of weight Management amongst Maltese mothers

Pre Interview questions:

- Age
- No of children & their age
- Locality
- Weight and Height
- Civil status
- Employment
- Educational background

Question Guide

1. [Name of Participant] it is my understanding that you are a full-time/ working mum. Was it your choice to work at home/ outside the home/ self-employed basis?
 - How does this make you feel?
2. It is becoming increasingly more common in Malta for women to remain in the labour force after they have had children. What are your thoughts about this?
 - a. What has your experience of being a working/ full-time mum been like so far?
 - b. Are there any main benefits/ disadvantages for you/ for your family?
3. Women in other studies talk about being 'a good mum' – what does this mean to you?
 - a. How do you think Maltese society looks at the role of the mother?
 - b. What about your partner/ immediate family – what do you feel is their opinion of motherhood?
4. Women in other studies talk about lack of time for oneself. Is this something you have experienced?
 - If yes – Expand. What are the barriers to time for yourself? What would you change or add to your current lifestyle? What would be required for you to have more time? What would you do with this extra time if you had it?
 - If no – How do you find time for yourself? What factors have helped you so far in juggling work (paid/ housework) and being a mum? (E.g. Personal characteristics / Wider support network/ work benefits?)
5. Are there moments when you feel stressed or that you can't cope?
 - How do you generally deal with these feelings?.
6. As you're aware this study focuses on weight management amongst mothers. What is your experience of this?

- Were you always of this stature? If no, when did that change?
 - Are you currently trying to increase/ decrease/ maintain your weight?
 - If relevant, what has lead to you gaining weight?
 - If relevant, how do you maintain a normal weight?
7. Is keeping a relatively normal weight important for you?
- Why/ Why not?
 - What are the main factors (physical, emotional, social, intimate-relational)
8. Are there any key strategies that you adopt in order to achieve the weight goal/ maintain your weight as it is?
- For example, do you pay attention to diet or do physical activity?
 - Experience: physically, emotionally, socially (within family/ during leisure/ with people you don't know well/ occasions & feasts)/ logistically/ financially
9. Are there factors that help you to succeed to achieve the weight goal/ maintain your weight as it is?
- Partner support/ Family/ Financial stability/ Good time management/ Others?
10. Are there things that act as barriers to succeed to achieve the weight goal/ maintain your weight as it is?
- Partner support/ Family/ Financial issues/ Time pressure/ Social gatherings?
11. What influences what you eat on a particular day/ week?
- a. Did this change since having children? If yes, how?
 - b. Is this conditioned by any specific diet? If so, expand.
12. What relationship would you say you have with food?
- i.e. If you had to give an adjective, a way to describe what food is to you – what would that be? *How did you come to see food in this way?*
 - (If person mentions that food is friend/ comfort) – what type of emotions/ conditions usually lead you to see food in this light?
13. Can you tell me more about your current exercise habits?
- a. What exercise do you do (if any)? How often?
 - b. Why do you exercise? (family; friends; time for me; socializing)
14. What influences whether you exercise or not?
- a. Did this change since having children? If yes, how?
 - b. If planning to exercise in the future – what is the plan? How will it work?
15. What influences the type of exercise you choose to do?
- a. Did this change since having children? If yes, how?
16. Is there anything else that you'd like to add to what we have been discussing?

Appendix 12 : Study 2 : Participant recruitment letter**PARTICIPANT INFORMATION**

Dear Participant,

I am a PhD candidate at the University of Brunel (UK) and I am carrying out a study entitled 'The experience of weight management amongst Maltese mothers'. This study will explore the lifestyle of Maltese mothers with the aim of better understanding how Maltese women juggle multiple responsibilities.

If you choose to take part, you will be invited for an interview of approximately 1 hour. This interview will be audio recorded for the purposes of data transcription. Your responses will be kept strictly confidential and no reference will be made to your name or your identity throughout the process of this research. Your participation is completely voluntary and you may withdraw from this study at any time. Therefore, if at any time during the session you feel unable or unwilling to continue, you are free to stop the interview without negative consequences. A consent form will be provided to you in which you can clearly confirm your consent to participate in this study.

The findings of this research will be included in my PhD thesis which will be presented to the University of Brunel. Findings may also be presented in research conferences and written for publication in International journals. Other published articles related to my field of research are included in the debrief sheet which will be provided to you if you choose to take part.

Whilst thanking you in advance, please don't hesitate to contact me should you require further information.

Regards

Elaine Dutton
elaine.dutton@brunel.ac.uk
Mob: 99883272

Appendix 13 : Study 2 : Informed consent form



The experience of weight management amongst Maltese mothers.

Dear participant, kindly answer every question:

	YES	NO
1. I have read the Research Participant Information Sheet.	<input type="checkbox"/>	<input type="checkbox"/>
2. I have had an opportunity to ask questions and discuss this study.	<input type="checkbox"/>	<input type="checkbox"/>
3. I understand that I am free to withdraw from the study:		
- at any time (Please note that you will unable to withdraw once your data has been included in any reports, publications etc)	<input type="checkbox"/>	<input type="checkbox"/>
- without having to give a reason for withdrawing	<input type="checkbox"/>	<input type="checkbox"/>
- without it affecting my future care	<input type="checkbox"/>	<input type="checkbox"/>
4. I agree to my interview being recorded	<input type="checkbox"/>	<input type="checkbox"/>
5. I understand that I will not be referred to by name in any report/publications resulting from this study	<input type="checkbox"/>	<input type="checkbox"/>
6. I agree that my comments can be quoted as long as they do not directly identify me when the study is written up or published	<input type="checkbox"/>	<input type="checkbox"/>
7. I agree to take part in this study	<input type="checkbox"/>	<input type="checkbox"/>
Research Participant Name:		
Research Participant signature:		
Date:		
Principal Investigator name:		
Principal Investigator signature:		
Date:		

One copy to be kept by the participant and one by the researcher

Appendix 14 : Study 2 : Debrief form



DEBRIEF FORM

Dear Participant,

Thank you for participating in my study 'The experience of weight management amongst Maltese mothers'. The aim of this study is to explore the lifestyle of Maltese mothers and how Maltese women juggle multiple responsibilities as very little is known about these experiences. It is hoped this research will help improve parenting and health promotion programmes.

The following studies might be of interest to you:

Bellows-Riecken, K. H., & Rhodes, R. E. (2008). A birth of inactivity? A review of physical activity and parenthood. *Preventive Medicine*, **46**, 99 – 110.

Brown, P. R., Brown, W. J., Miller, Y. D & Hansen, V. (2001). Perceived constraints and social support for active leisure among mothers with young children. *Leisure Sciences*, **23**, 131 – 144.

Laroche, H. H., Wallace, R. B., Snetselaar, L., et al. (2012). Changes in diet behaviour when adults become parents. *Journal of the Academy of Nutrition and Dietetics*, **11**, 832 – 840.

I thank you once again for taking part in this research,

Regards

Elaine Dutton
elaine.dutton@brunel.ac.uk
Mob: 99883272

Appendix 15 : Approval from Vodafone Malta

1/15/2016

Gmail - Request for approval to disseminate survey at VF Malta



Elaine Dutton <elaine.dutton@gmail.com>

Request for approval to disseminate survey at VF Malta

Mifsud, Claire, Vodafone Malta <Claire.Mifsud@vodafone.com>

Thu, Jan 14, 2016 at 5:26 PM

To: Elaine Dutton <elaine.dutton@gmail.com>

Cc: Elaine Dutton <Elaine.Dutton@brunel.ac.uk>, "Terence Dovey (Terry)" <Terence.Dovey@brunel.ac.uk>

Dear Elaine,

As discussed you are welcome to do the online questionnaire and we appreciate your time for the workshop. I am positive our employees will find it of interest.

Thanks & Regards

Claire



Claire Mifsud
Human Resources Manager

Vodafone Malta Limited
Mobile: +356 9943 1111
Email: claire.mifsud@vodafone.com

Vodafone Malta Limited, Level 6, SkyPerks Business Centre, Malta
International Airport, Luqa LQA 4000, Malta

vodafone.com.mt

Disclaimer VF Malta

From: Elaine Dutton [mailto:elaine.dutton@gmail.com]

Sent: 14 January 2016 17:04

To: Mifsud, Claire, Vodafone Malta

Cc: Elaine Dutton; Terence Dovey (Terry)

Subject: Request for approval to disseminate survey at VF Malta

[Quoted text hidden]

Appendix 16: Participant information – Sample 1

College of Health and Life Sciences
Department of Life Sciences

EATING STYLES AMONG MALTESE WOMEN**PARTICIPANT INFORMATION SHEET**

Dear Participant,

I am a Maltese PhD student at the Brunel University London and I am carrying out a study on the Eating styles of Maltese women. International research suggests that there are three predominant styles that influence how we eat and that could lead to overweight. This research explores whether this is the case for Maltese women as well.

Before you decide whether you wish to take part, please take the time to read the following information carefully and discuss it with others if you wish. Ask 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.

Elaine Dutton
elaine.dutton@brunel.ac.uk
(Mob: 00356 99883272)

.....

Purpose of study

This study is looking at the eating styles of Maltese women

Who is doing this research?

The researchers are from Brunel University, Elaine Dutton and Dr Terence Dovey(Supervisor).

Why have I been chosen?

You have been invited to take part in the study because your opinions and experiences as a woman are valuable to this research.

Do I have to take part?

No. Once you have read this information sheet, if you decide to take part you will be asked to sign a consent form. If you decide to take part, you may withdraw at any time, without giving a reason.

What will happen to me if I agree to take part? What do I have to do?

If you choose to take part, you will need to fill in a survey that will take approximately 15 minutes. The survey will ask you questions about your eating patterns.

What will happen if I decide to withdraw from the project?

You may withdraw from participation at any time by stopping to reply to the survey and not submitting your responses. There will be no effect on your professional status and you do not need to give any reason.

What are the possible advantages/disadvantages of taking part?

The advantage of taking part will include the generation of information about the eating style of Maltese women which could help future Health promotion campaigns. There are no foreseeable disadvantages of taking part.

Will my taking part in this study be kept confidential?

If you take part in the research all information collected from you will be kept strictly confidential. All survey responses will be coded and there will be no way of linking your identity to your answers. The information will be kept in a secure location, accessible only to the researchers.

What will happen to the results of the research study?

The results will be coded (for anonymity) and analysed by the research team before being reported. The results may also be presented in appropriate scientific journals and conferences. If you take part in this research, you can obtain copies of these publications from the research team. The data will be stored by Elaine Dutton and Dr Terence Dovey at Brunel University under conditions specified by the Departmental Data Protection Advisor.

Who is organising and funding the research?

The project does not have any external funding. This survey is being run by Elaine Dutton, of Division of Psychology, Department of Life Sciences.

What are the indemnity arrangements?

Brunel University holds Public liability insurance policies which apply to this study. If you can demonstrate that you experienced harm as a result of your participation in 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.

Contact for further information and complaints

You can contact myself, Elaine Dutton on elaine.dutton@brunel.ac.uk or my supervisor Dr Terence Dovey (Terence.dovey@brunel.ac.uk). If you feel unable for whatever reason what-so-ever to talk with myself or my Supervisor please contact the Division of Psychology Research ethics coordinators Achim.Schuetzwohl@brunel.ac.uk, 01895 266367 and Martina.Reynolds@brunel.ac.uk , 01895 265482.

Appendix 17: Online Survey – Sample 1

Dear Participant,

I am a Maltese PhD student at Brunel University London and I am carrying out a study on the Eating styles of Maltese women. International research suggests that there are three predominant styles that influence how we eat and that could lead to overweight. This research explores whether this is the case for Maltese women as well.

Before you decide whether you wish to take part, please take the time to read the following information carefully and discuss it with others if you wish. Ask 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.

**Elaine Dutton
elaine.dutton@brunel.ac.uk
(Mob:99883272)**

.....

Purpose of study

This research is looking at the eating styles among Maltese women.

Who is doing this research?

The researchers are from Brunel University, Elaine Dutton and Dr Terence Dovey(Supervisor).

Why have I been chosen?

You have been invited to take part in the study because your opinions and experiences as a woman are valuable to this research.

Do I have to take part?

No. Once you have read this information sheet, if you decide to take part you will be asked to sign a consent form. If you decide to take part, you may withdraw at any time, without giving a reason.

What will happen to me if I agree to take part? What do I have to do?

If you choose to take part, you will need to fill in a survey that will take approximately 15 minutes. The survey will ask you questions about your eating patterns and your opinions on managing your weight.

What will happen if I decide to withdraw from the project?

You may withdraw from participation at any time by stopping to reply to the survey and not submitting your responses. There will be no effect on your professional status and you do not need to give any reason.

What are the possible advantages/disadvantages of taking part?

The advantage of taking part will include the generation of information about the eating style of Maltese women which could help future Health promotion campaigns. There are no foreseeable disadvantages of taking part.

Will my taking part in this study be kept confidential?

If you take part in the research all information collected from you will be kept strictly confidential. All survey responses will be coded and there will be no way of linking your identity to your answers. The information will be kept in a secure location, accessible only to the researchers.

What will happen to the results of the research study?

The results will be coded (for anonymity) and analysed by the research team before being reported. The results may also be presented in appropriate scientific journals and conferences. If you take part in this research, you can obtain copies of these publications from the research team. The data will be stored by Elaine Dutton and Dr Terence Dovey at Brunel University under conditions specified by the Departmental Data Protection Advisor.

Who is organising and funding the research?

The project does not have any external funding. This survey is being run by Elaine Dutton, Division of Psychology, Department of Life Sciences.

What are the indemnity arrangements?

Brunel University holds Public liability insurance policies which apply to this study. If you can demonstrate that you experienced harm as a result of your participation in this study

* 1. Before proceeding, kindly read and confirm the following statements:

- I am a woman, over 18 years of age and of Maltese nationality;
- I confirm that I have read and understood the information about the research;
- I have had an opportunity to consider the information, ask questions and discuss this study, and have had these answered satisfactorily;
- I understand that the survey is anonymous and that I will not be referred to by name in any report/publications resulting from this study;
- I understand that I can stop answering the survey at any time without having to give a reason;
- I agree to take part in this study.

Yes

No

2. This section is about your Snacking pattern. Snacks are small portions of food that can be eaten quickly, usually between meals or instead of a full meal.

Please indicate how many times you snack on foods, both at work and at home, in a typical week from Monday to Sunday.

	Never	1/month or less	Less than once a week	1-2times/ week	Once a day	3-4times/ week	2-3times/ day or more
Salty snacks (e.g. crisps, cup a soup, salted peanuts, slice of salami, piece of cheese)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Fast food hot snacks (e.g. pastizz, sausage roll; chips)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/> qassatata;
Sweet snacks (e.g. a biscuit, packet of sweets, a chocolate, ice cream, piece of cake)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
Fruit & vegetables (e.g. a banana, an carrot, handful of dried fruit)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/> apple, a raw

* 3. Please indicate your current weight (in kg or stones)

* 4. Please indicate your current height (in metres or in feet)

5. Choose the statement that applies to you at the moment

- I am currently trying to lose weight
- I am currently trying to keep my weight stable
- I am currently trying to put on weight

This section contains questions on your Eating style.

Please indicate how frequently each statement applies to you at this time in your life.

6. When you have put on weight, do you eat less than you usually do?

- Never Rarely Sometimes Often Very often

7. Do you have a desire to eat when you are emotionally upset?

- Never Rarely Sometimes Often Very often

8. If food tastes good do you eat more than usual?

- Never Rarely Sometimes Often Very often

9. Do you have a desire to eat when you are irritated?

- Never Rarely Sometimes Often Very often

10. Do you try to eat less at mealtimes than you would like to eat?

- Never Rarely Sometimes Often Very often

11. If food smells and looks good do you eat more than usual?

- Never Rarely Sometimes Often Very often

Page 5 of 12: Eating styles Continued...

12. Do you have a desire to eat when you have nothing to do?

- Never Rarely Sometimes Often Very often

13. How often do you refuse food or drink offered to you because you are concerned about your weight?

Never Rarely Sometimes Often Very often

14. If you see or smell something delicious do you have a desire to eat it?

Never Rarely Sometimes Often Very often

15. Do you have a desire to eat when you are depressed?

Never Rarely Sometimes Often Very often

16. Do you watch exactly what you eat?

Never Rarely Sometimes Often Very often

17. Do you have a desire to eat when you are frightened?

Never Rarely Sometimes Often Very often

Page 6 of 12: Eating styles Continued...

18. If you have something delicious to eat do you eat it straight away?

Never Rarely Sometimes Often Very often

19. Do you have a desire to eat when you are feeling lonely?

Never Rarely Sometimes Often Very often

20. Do you deliberately eat foods that are slimming?

Never Rarely Sometimes Often Very often

21. If you see others eating do you also want to eat?

Never Rarely Sometimes Often Very often

22. Do you have a desire to eat when somebody lets you down?

Never Rarely Sometimes Often Very often

Never Rarely Sometimes Often Very often

23. When you have eaten too much do you eat less than usual the following day?

Page 7 of 12: Eating styles Continued...

24. Do you have a desire to eat when you are bored (or restless)?

Never Rarely Sometimes Often Very often

25. Do you eat more than usual when you see others eating?

Never Rarely Sometimes Often Very often

26. Do you have a desire to eat when you are angry?

Never Rarely Sometimes Often Very often

27. Do you deliberately eat less in order not to become heavier?

Never Rarely Sometimes Often Very often

28. When preparing a meal are you inclined to eat something?

Never Rarely Sometimes Often Very often

29. Do you have a desire to eat when something unpleasant is about to happen?

Never Rarely Sometimes Often Very often

Page 8 of 12: Eating styles Continued...

30. How often do you try not to eat between meals because you are watching your weight?

Never Rarely Sometimes Often Very often

31. Do you have a desire to eat when you are disappointed?

Never Rarely Sometimes Often Very often

32. If you walk past a bread shop/ confectionery do you have the desire to buy something delicious?

Never Rarely Sometimes Often Very often

33. Do you have a desire to eat when you are anxious or worried?

Never Rarely Sometimes Often Very often

34. How often in the evening do you try not to eat because you are watching your weight?

Never Rarely Sometimes Often Very often

35. If you walk past a pastizzeria do you have the desire to buy something delicious?

Never Rarely Sometimes Often Very often

End of Eating styles section

36. Do you have a desire to eat when things are going against you?

Never Rarely Sometimes Often Very often

37. Do you take your weight into account with what you eat?

Never Rarely Sometimes Often Very often

38. Can you resist eating delicious food?

Never Rarely Sometimes Often Very often

39. This section is about your dieting behaviour. Please answer all questions even if they sound similar to the ones in the previous section.

	Never	Seldom	Sometimes	Often	Regularly	Always
I engage in dieting behaviour	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I eat diet foods	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel uncomfortable after eating sweets	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I enjoy trying new rich foods	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I avoid foods with sugar in them	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I particularly avoid foods high in carbohydrates	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am preoccupied with a desire to be thinner	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I like my stomach to be empty	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I think about burning up calories when I exercise	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel extremely guilty after eating	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am terrified about being overweight	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am preoccupied with the thought of having fat on my body	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am aware of the calorie content of the foods I eat	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

40. This section is about your eating pattern. Please answer all questions in this section.

	Never	Seldom	Sometimes	Often	Regularly	Always
I feel that food controls my life	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I find myself preoccupied with food	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I give too much time and thought to food	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I have gone on eating binges where I feel I may not be able to stop	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I vomit after I have eaten	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I have the impulse to vomit after meals	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I cut my food into small pieces	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I take longer than others to eat meals	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other people think I am too thin	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel that others would prefer if I ate more	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel that others pressure me to eat	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I avoid eating when I am hungry	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I display self-control around food	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

In this last section you are kindly required to provide some general information about yourself

41. Civil Staus

- Married/ Cohabiting
- Single/ Separated/ Divorced

42. Do you have children

- Yes
- No

43. How would you describe your occupation

- Employed Full time (40 hrs)
- Reduced hours/ part-time (30 - 39 hrs)
- Reduced hours/ part-time (20 - 29 hrs)
- Reduced hours/ part-time (0 - 19 hrs)

Other (please specify)

44. Please indicate your age

Thank you!

I would like to take this opportunity to say Thank You for taking the time to answer my survey.

Please be assured, all data collected will be treated in the strictest confidence. You are free to withdraw your data from the research at any time by contacting me on elaine.dutton@brunel.ac.uk or my supervisor Dr Terence Dovey (Terence.dovey@brunel.ac.uk).

The completed research will help to gain an understanding of eating patterns among Maltese women and this can help future health promotion programs focused on women's health.

If you were unduly or unexpectedly affected by taking part in the study please feel free to feed it back to me or my supervisor on the emails provided above. If you feel unable for whatever reason what-so-ever to talk with myself or my Supervisor please contact the Division of Psychology Research ethics coordinators Achim.Schuetzwohl@brunel.ac.uk, 01895 266367 and Martina.Reynolds@brunel.ac.uk, 01895 265482. Confidential psychological support can be access via the Malta Psychological Association (info@mpaonline.net).

Regards
Elaine Dutton
elaine.dutton@brunel.ac.uk
k Mob: 00356
99883272

45. You are welcome to share any additional comments

Appendix 18: Participant information – Sample 2



EATING STYLES AMONG MALTESE MOTHERS

Dear Participant,

I am a Maltese PhD student at the University of Brunel (UK) and I am carrying out a study on the Eating styles of Maltese mothers. International research suggests that women often need to make lifestyle changes once they become mothers that affect their eating patterns. This research explores whether this is the case for Maltese mothers as well.

Before you decide whether you wish to take part, please take the time to read the following information carefully and discuss it with others if you wish. Ask 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.

In gratitude for your time, a donation of 50c will be given to *Puttinu Cares* for every completed survey received.

Purpose of study

This research is looking at the eating styles among Maltese mothers.

Who is doing this research?

The researchers are from Brunel University, Elaine Dutton and Prof Lynn Myers (Supervisor).

Why have I been chosen?

You have been invited to take part in the study because your opinions and experiences as a mother are valuable to this research.

Do I have to take part?

No. Once you have read this information sheet, if you decide to take part you will be asked to sign a consent form. If you decide to take part, you may withdraw at any time, without giving a reason.

What will happen to me if I agree to take part? What do I have to do?

If you choose to take part, you will need to fill in a survey that will take approximately 15 minutes. The survey will ask you questions about your eating patterns and your opinions on managing your weight.

What will happen if I decide to withdraw from the project?

You may withdraw from participation at any time by stopping to reply to the survey and not submitting your responses. There will be no effect on your professional status and you do not need to give any reason.

What are the possible advantages/disadvantages of taking part?

The advantage of taking part will include the generation of information about the eating style of Maltese mothers which could help future Health promotion campaigns. There are no foreseeable disadvantages of taking part.

Will my taking part in this study be kept confidential?

If you take part in the research all information collected from you will be kept strictly confidential. All survey responses will be coded and there will be no way of linking your identity to your answers. The information will be kept in a secure location, accessible only to the researchers.

A public seminar will be organized in October 2015 with information that came out of this study. Entrance will be free for those who took part in this research. If you would like to receive an invite you can supply your email address. This is optional. If you decide to let me contact you again, your email address is STRICTLY confidential and will be removed from my records when the data collection is complete. Your email address will not be shared with anyone else, and you will NOT BE SPAMMED.

What will happen to the results of the research study?

The results will be coded (for anonymity) and analysed by the research team before being reported. The results may also be presented in appropriate scientific journals and conferences. If you take part in this research, you can obtain copies of these publications from the research team. The data will be stored by Elaine Dutton and Prof Lynn Myers at Brunel University under conditions specified by the Departmental Data Protection Advisor.

Who is organising and funding the research?

The project does not have any external funding. This survey is being run by Elaine Dutton, Department of Psychology, Brunel University.

What are the indemnity arrangements?

Brunel University holds Public liability 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 David Anderson-Ford, the Chair of the University Research Ethics Committee (David.Anderson-Ford@brunel.ac.uk) if you would like further information about the insurance arrangements which apply to this study.

Who has reviewed the study?

The study has been reviewed by the Brunel Psychology Research Ethics Committee.

Who do I contact for more information?

Available contacts include: elaine.dutton@brunel.ac.uk (Mob:99883272);
lynn.myers@brunel.ac.uk

What if I have any concerns?

If you have any concerns about this study or the way it has been carried out you should contact the Ethics Coordinators, Dr Achim Schuetzwohl (Achim.Schuetzwohl@brunel.ac.uk, 01895 266367) or Dr Bridget Dibb (bridget.dibb@brunel.ac.uk, 01895 266564)

Thank you for reading this information sheet.

Appendix 19: Online Survey – Sample 2

Participant Information

Dear Participant,

I am a Maltese PhD student at the University of Brunel (UK) and I am carrying out a study on the Eating styles of Maltese mothers. International research suggests that women often need to make lifestyle changes once they become mothers that affect their eating patterns. This study explores whether this is the case for Maltese mothers as well. The survey contains 60 questions and should not take longer than 15 minutes.

Before you decide whether you wish to take part, please take the time to read the following information carefully and discuss it with others if you wish. Ask 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.

In gratitude for your time, a donation of 50c will be given to Puttinu Cares for every completed survey received. A public seminar will also be organised with results that come out of the survey.

**Elaine Dutton
elaine.dutton@brunel.
ac.uk
(Mob:99883272)**

.....

More information about this study:

Purpose of study

This research is looking at the eating styles among Maltese mothers.

Who is doing this research?

The researchers are from Brunel University, Elaine Dutton and Prof Lynn Myers (Supervisor).

Why have I been chosen?

You have been invited to take part in the study because your opinions and experiences as a mother are valuable to this research.

Do I have to take part?

No. Once you have read this information sheet, if you decide to take part you will be asked to sign a consent form. If you decide to take part, you may withdraw at any time, without giving a reason.

What will happen to me if I agree to take part? What do I have to do?

If you choose to take part, you will need to fill in a survey that will take approximately 15 minutes. The survey will ask you questions about your eating patterns and your opinions on managing your weight.

What will happen if I decide to withdraw from the project?

You may withdraw from participation at any time by stopping to reply to the survey and not submitting your responses. There will be no effect on your professional status and you do not need to give any reason.

What are the possible advantages/disadvantages of taking part?

The advantage of taking part will include the generation of information about the eating style of Maltese mothers which could help future Health promotion campaigns. There are no foreseeable disadvantages of taking part.

Will my taking part in this study be kept confidential?

If you take part in the research all information collected from you will be kept strictly confidential. All survey responses will be coded and there will be no way of linking your identity to your answers. The information will be kept in a secure location, accessible only to the researchers.

A public seminar will be organized in October 2015 with information that came out of this study. Entrance will be free for those who took part in this research. If you would like to receive an invite you can supply your email address. This is optional. If you decide to let me contact you again, your email address is STRICTLY confidential and will be removed from my records when the data collection is complete. Your email address will not be shared with anyone else, and you will NOT BE SPAMMED.

What will happen to the results of the research study?

The results will be coded (for anonymity) and analysed by the research team before being reported. The results may also be presented in appropriate scientific journals and conferences. If you take part in this research, you can obtain copies of these publications from the research team. The data will be stored by Elaine Dutton and Prof Lynn Myers at Brunel University under conditions specified by the Departmental Data Protection Advisor.

Who is organising and funding the research?

The project does not have any external funding. This survey is being run by Elaine Dutton, Department of Psychology, Brunel University.

What are the indemnity arrangements?

Brunel University holds Public liability insurance policies which apply to this study. If you can demonstrate that you experienced harm as a result of your participation in this study,

* 1. Before proceeding, kindly read and confirm the following statements:

- I am a mother, over 18 years of age and of Maltese nationality;
- I am NOT pregnant, breastfeeding or suffer from any health condition that could effect my weight or my eating pattern?
- I confirm that I have read and understood the information about the research;
- I have had an opportunity to consider the information, ask questions and discuss this study, and have had these answered satisfactorily;
- I understand that the survey is anonymous and that I will not be referred to by name in any report/publications resulting from this study;
- I understand that I can stop answering the survey at any time without having to give a reason;
- I agree to take part in this study.

Yes

No

2. If you would like to receive an invite for future seminars on Nutrition and Health for Maltese mothers, please provide your E-mail address. (This will not be shared with anyone.)

Part 2 of 6: Eating pattern

3. This question is about your consumption of take-away food (e.g. pizza, KFC, chinese, doner-kebab, indian, burger & chips).

In a typical week from Monday to Sunday, please indicate how frequently you eat take-away meals for lunch or dinner.

Never

Less than 1/ week

1-2 times/ week

- 3-4 times/ week
- Once a day
- 2-3 times/ day
- More than 3/day

4. This question is about your Snacking pattern. Snacks are small portions of food that can be eaten quickly, usually between meals or instead of a full meal.

Please indicate how many times you snack on foods from the following categories in a typical week from Monday to Sunday.

	Never	Less than 1/ week	1-2 times/ week	3-4 times/ week	Once a day	2-3 times/ day	More than 3/day
Savoury snacks (e.g. crisps, cup a soup, pieces of cheese, slice of salami, bread & butter)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Fast food hot snacks (e.g. pastizz, qassatata; sausage roll; chips)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Sweet snacks (e.g. a biscuit, packet of sweets, a chocolate, ice cream, piece of cake)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Fruit & vegetables (e.g. a banana, an apple, a raw carrot, handful of dried fruit)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Children's leftovers (e.g. uneaten pasta, a chicken nugget, veg or meat from their plate)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Part 3 of 6: Perceptions of Time

This section contains questions on how you view your time.

For each question indicate whether you agree or disagree based on how you feel about yourself at this moment in your life.

5. I need more hours in the day to get everything done

- Strongly disagree Disagree Neutral Agree Strongly Agree

6. "So much to do so little time", this saying applies to me very well

Strongly disagree Disagree Neutral Agree Strongly agree

7. I feel like I have a lot of time on my hands

Strongly disagree Disagree Neutral Agree Strongly agree

8. I feel like no matter how hard I work, I will never catch up

Strongly disagree Disagree Neutral Agree Strongly agree

9. As a mother my life is so busy that I am always running after the clock

Strongly disagree Disagree Neutral Agree Strongly agree

10. I am always in a rush

Strongly disagree Disagree Neutral Agree Strongly agree

Part 4 of 6: Meal planning

This section contains questions on your Meal planning.

Please indicate how frequently each statement applies to you at this time in your life.

11. What I am going to eat during the day is very often a last-minute decision

Never Rarely Sometimes Often Very often

12. I don't wait to get hungry, I plan in advance what I would be eating later in the day

Never Rarely Sometimes Often Very often

13. I plan which foods I want to have around me so I limit the unhealthy choices

Never Rarely Sometimes Often Very often

14. I plan my shopping so I have healthy foods to eat during the week

Never Rarely Sometimes Often Very often

15. I plan my cooking so I have healthy foods for the next day

Never Rarely Sometimes Often Very often

16. I don't plan what I will eat, I just grab what is closest once I am hungry

Never Rarely Sometimes Often Very often

Part 5 of 6: Eating styles

This section contains 34 questions on your Eating style. Please answer each one by indicating how frequently each statement applies to you at this time in your life.

17. When you have put on weight, do you eat less than you usually do?

Never Rarely Sometimes Often Very often

18. Do you have a desire to eat when you are emotionally upset?

Never Rarely Sometimes Often Very often

19. If food tastes good do you eat more than usual?

Never Rarely Sometimes Often Very often

20. Do you have a desire to eat when you are irritated?

Never Rarely Sometimes Often Very often

21. Do you try to eat less at mealtimes than you would like to eat?

Never Rarely Sometimes Often Very often

22. If food smells and looks good do you eat more than usual?

Never Rarely Sometimes Often Very often

23. Do you have a desire to eat when you have nothing to do?

Never Rarely Sometimes Often Very often

Part 5 of 6: Eating styles Continued...

24. How often do you refuse food or drink offered to you because you are concerned about your weight?

Never Rarely Sometimes Often Very often

25. If you see or smell something delicious do you have a desire to eat it?

Never Rarely Sometimes Often Very often

26. Do you have a desire to eat when you are depressed?

Never Rarely Sometimes Often Very often

27. Do you watch exactly what you eat?

Never Rarely Sometimes Often Very often

28. Do you have a desire to eat when you are frightened?

Never Rarely Sometimes Often Very often

29. If you have something delicious to eat do you eat it straight away?

Never Rarely Sometimes Often Very often

30. Do you have a desire to eat when you are feeling lonely?

Never Rarely Sometimes Often Very often

Part 5 of 6: Eating styles Continued...

31. Do you deliberately eat foods that are slimming?

Never Rarely Sometimes Often Very often

32. If you see others eating do you also want to eat?

Never Rarely Sometimes Often Very often

33. Do you have a desire to eat when somebody lets you down?

Never Rarely Sometimes Often Very often

34. When you have eaten too much do you eat less than usual the following day?

Never Rarely Sometimes Often Very often

35. Do you have a desire to eat when you are bored (or restless)?

Never Rarely Sometimes Often Very often

36. Do you eat more than usual when you see others eating?

Never Rarely Sometimes Often Very often

37. Do you have a desire to eat when you are angry?

Never Rarely Sometimes Often Very often

Part 5 of 6: Eating styles Continued...

38. Do you deliberately eat less in order not to become heavier?

Never Rarely Sometimes Often Very often

39. When preparing a meal are you inclined to eat something?

Never Rarely Sometimes Often Very often

40. Do you have a desire to eat when something unpleasant is about to happen?

Never Rarely Sometimes Often Very often

41. How often do you try not to eat between meals because you are watching your weight?

Never Rarely Sometimes Often Very often

42. Do you have a desire to eat when you are disappointed?

Never Rarely Sometimes Often Very often

43. If you walk past a bread shop/ confectionery do you have the desire to buy something delicious?

Never Rarely Sometimes Often Very often

Part 5 of 6: Eating styles Continued...

44. Do you have a desire to eat when you are anxious or worried?

Never Rarely Sometimes Often Very often

45. How often in the evening do you try not to eat because you are watching your weight?

Never Rarely Sometimes Often Very often

46. If you walk past a pastizzeria do you have the desire to buy something delicious?

Never Rarely Sometimes Often Very often

47. Do you have a desire to eat when things are going against you?

Never Rarely Sometimes Often Very often

48. Do you take your weight into account with what you eat?

Never Rarely Sometimes Often Very often

49. Can you resist eating delicious food?

Never Rarely Sometimes Often Very often

50. Do you have a desire to eat when you have a lot of things on your mind?

Never Rarely Sometimes Often Very often

51. Do you have a desire to eat when you are feeling stressed?

Never Rarely Sometimes Often Very often

Part 6 of 6: Personal information

In this last section you are kindly required to provide some general information about yourself

* 52. Your age

* 53. Your weight (in kg or stones)

* 54. Your height (in metres or in feet)

* 55. Your occupation

Full time mum (on maternity leave/ career break)

Full time mum (not returning to paid work)

Full-time employee (40hrs+)

Reduced hours (20 - 39hrs)

Part-time employee (less than 20 hrs)

Self-employed/ Business owner

Other (please specify)

* 56. Your highest educational level

Primary

Secondary

Post-secondary (6th form)

Tertiary/Post Grad

Currently studying

Other (please specify)

57. Number of children living at home with you

58. The ages of your children (who still live at home with you)

59. Marital status

Single/ Separated/ Divorced

Married/ Cohabiting

Thank you!

Thank you for participating in my study 'Eating styles among Maltese mothers'. This study focused on mothers' eating patterns and whether there are differences based on working hours, family commitments and time pressures. It is hoped this research will help improve the experience of parenthood and health promotion programmes focused on women's health.

The following studies might be of interest to you:

Beshara, M., Hutchinson, A. & Wilson, C (2010). Preparing meals under time stress. The experience of working mothers. *Appetite*, 55, 695 – 700.

Laroche, H. H., Wallace, R. B., Snetselaar, L., et al. (2012). Changes in diet behaviour when adults become parents. *Journal of the Academy of Nutrition and Dietetics*, 11, 832 – 840.

I thank you once again for taking part in this research,

Regards
Elaine
Dutton
elaine.dutton@brunel.ac.uk
Mob:
9988327
2

60. You are welcome to share any additional comments

Appendix 20: Participant information sheet – Test-ReTest Sample

College of Health and Life Sciences
Department of Life Sciences



EATING STYLES AMONG MALTESE MOTHERS PARTICIPANT INFORMATION SHEET

Dear Participant,

I am a Maltese PhD student at the Brunel University London. Last year you kindly participated in my study by filling in a questionnaire on the **Eating styles of Maltese mothers**. Your participation was most helpful and it is already allowing me to find similarities with International research in this area. Thanks to your participation I was also able to donate the sum of Eur200 to Puttinu Cares Charity.

I am contacting you again because you provided me with your email address in the previous questionnaire. In order to complete my findings for this research I need to repeat a small part of the survey. There are only 35 questions and it will not take you longer than 10 minutes to answer them.

There is no obligation on your part to participate. Before you decide whether you wish to take part, please take the time to read the following information carefully and discuss it with others if you wish. Ask 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.

Elaine Dutton
elaine.dutton@brunel.ac.uk
(Mob: 00356 99883272)

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Purpose of study

This study is aiming to replicate the findings gathered in 2015 on the eating styles of Maltese women.

Who is doing this research?

The researchers are from Brunel University, Elaine Dutton and Dr Terence Dovey(Supervisor).

Why have I been chosen?

You have been invited to take part in the study because your opinions and experiences as a woman are valuable to this research.

Do I have to take part?

No. Once you have read this information sheet, if you decide to take part you will be asked to sign a consent form. If you decide to take part, you may withdraw at any time, without giving a reason.

What will happen to me if I agree to take part? What do I have to do?

If you choose to take part, you will need to fill in a survey that will take approximately 10 minutes. The survey will ask you questions about your eating patterns.

What will happen if I decide to withdraw from the project?

You may withdraw from participation at any time by stopping to reply to the survey and not submitting your responses. There will be no effect on your professional status and you do not need to give any reason.

What are the possible advantages/disadvantages of taking part?

The advantage of taking part will include the generation of information about the eating style of Maltese women which could help future Health promotion campaigns. There are no foreseeable disadvantages of taking part.

Will my taking part in this study be kept confidential?

If you take part in the research all information collected from you will be kept strictly confidential. All survey responses will be coded and there will be no way of linking your identity to your answers. The information will be kept in a secure location, accessible only to the researchers.

What will happen to the results of the research study?

The results will be coded (for anonymity) and analysed by the research team before being reported. The results may also be presented in appropriate scientific journals and conferences. If you take part in this research, you can obtain copies of these publications from the research team. The data will be stored by Elaine Dutton and Dr Terence Dovey at Brunel University under conditions specified by the Departmental Data Protection Advisor.

Who is organising and funding the research?

The project does not have any external funding. This survey is being run by Elaine Dutton, Division of Psychology, Department of Life Sciences.

What are the indemnity arrangements?

Brunel University holds Public liability insurance policies which apply to this study. If you can demonstrate that you experienced harm as a result of your participation in 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.

Contact for further information and complaints

You can contact myself, Elaine Dutton on elaine.dutton@brunel.ac.uk or my supervisor Dr Terence Dovey (Terence.dovey@brunel.ac.uk). If you feel unable for whatever reason what-so-ever to talk with myself or my Supervisor please contact the Division of Psychology Research ethics coordinators Achim.Schuetzwohl@brunel.ac.uk, 01895 266367 and Martina.Reynolds@brunel.ac.uk , 01895 265482.

Appendix 21: Online Survey – Test-Retest Sample

Participant Information

Dear Participant,

I am a Maltese PhD student at Brunel University London. Last year you kindly participated in my study by filling in a questionnaire on the Eating styles of Maltese mothers. Your participation was most helpful and it is already allowing me to find similarities with International research in this area.

Thanks to your participation I was also able to donate the sum of Eur200 to Puttinu Cares Charity.

I am contacting you again because you provided me with your email address in the previous questionnaire. In order to complete my findings for this research I need to repeat a small part of the survey. There are only 35 questions and it will not take you longer than 10 minutes to answer them.

There is no obligation on your part to participate. Before you decide whether you wish to take part, please take the time to read the following information carefully and discuss it with others if you wish. Ask 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.

Elaine Dutton

elaine.dutton@brunel.a

c.uk

(Mob:99883272)

.....

Purpose of study

This study is aiming to replicate the findings gathered in 2015 on the eating styles of Maltese women.

Who is doing this research?

The researchers are from Brunel University, Elaine Dutton and Dr Terence Dovey(Supervisor).

Why have I been chosen?

You have been invited to take part in the study because your opinions and experiences as a woman are valuable to this research.

Do I have to take part?

No. Once you have read this information sheet, if you decide to take part you will be asked to sign a consent form. If you decide to take part, you may withdraw at any time, without giving a reason.

What will happen to me if I agree to take part? What do I have to do?

If you choose to take part, you will need to fill in a survey that will take approximately 10 minutes. The survey will ask you questions about your eating patterns.

What will happen if I decide to withdraw from the project?

You may withdraw from participation at any time by stopping to reply to the survey and not submitting your responses. There will be no effect on your professional status and you do not need to give any reason.

What are the possible advantages/disadvantages of taking part?

The advantage of taking part will include the generation of information about the eating style of Maltese women which could help future Health promotion campaigns. There are no foreseeable disadvantages of taking part.

Will my taking part in this study be kept confidential?

If you take part in the research all information collected from you will be kept strictly confidential. All survey responses will be coded and there will be no way of linking your identity to your answers. The information will be kept in a secure location, accessible only to the researchers.

What will happen to the results of the research study?

The results will be coded (for anonymity) and analysed by the research team before being reported. The results may also be presented in appropriate scientific journals and conferences. If you take part in this research, you can obtain copies of these publications from the research team. The data will be stored by Elaine Dutton and Dr Terence Dovey at Brunel University under conditions specified by the Departmental Data Protection Advisor.

Who is organising and funding the research?

The project does not have any external funding. This survey is being run by Elaine Dutton, Division of Psychology, Department of Life Sciences.

What are the indemnity arrangements?

Brunel University holds Public liability insurance policies which apply to this study. If you can demonstrate that you experienced harm as a result of your participation in this study,

* 1. Before proceeding, kindly read and confirm the following statements:

- I am a woman, over 18 years of age and of Maltese nationality;

- I confirm that I have read and understood the information about the research;
- I have had an opportunity to consider the information, ask questions and discuss this study, and have had these answered satisfactorily;
- I understand that the survey is anonymous and that I will not be referred to by name in any report/publications resulting from this study;
- I understand that I can stop answering the survey at any time without having to give a reason;
- I agree to take part in this study.
 - Yes
 - No

Page 3 of 8: Weight management & Eating styles

2. Choose the statement that applies to you at the moment

- I am currently trying to lose weight
- I am currently trying to keep my weight stable
- I am currently trying to put on weight

3. When you have put on weight, do you eat less than you usually do?

- Never Rarely Sometimes Often Very often

4. Do you have a desire to eat when you are emotionally upset?

- Never Rarely Sometimes Often Very often

5. If food tastes good do you eat more than usual?

- Never Rarely Sometimes Often Very often

6. Do you have a desire to eat when you are irritated?

- Never Rarely Sometimes Often Very often

7. Do you try to eat less at mealtimes than you would like to eat?

- Never Rarely Sometimes Often Very often

8. If food smells and looks good do you eat more than usual?

- Never Rarely Sometimes Often Very often

9. Do you have a desire to eat when you have nothing to do?

Never Rarely Sometimes Ofte Very often

10. How often do you refuse food or drink offered to you because you are concerned about your weight?

Never Rarely Sometimes Ofte Very often

11. If you see or smell something delicious do you have a desire to eat it?

Never Rarely Sometimes Ofte Very often

12. Do you have a desire to eat when you are depressed?

Never Rarely Sometimes Ofte Very often

13. Do you watch exactly what you eat?

Never Rarely Sometimes Ofte Very often

14. Do you have a desire to eat when you are frightened?

Never Rarely Sometimes Ofte Very often

Page 5 of 8

15. If you have something delicious to eat do you eat it straight away?

Never Rarely Sometimes Ofte Very often

16. Do you have a desire to eat when you are feeling lonely?

Never Rarely Sometimes Ofte Very often

17. Do you deliberately eat foods that are slimming?

Never Rarely Sometimes Ofte Very often

18. If you see others eating do you also want to eat?

Never Rarely Sometimes Ofte Very often

19. Do you have a desire to eat when somebody lets you down?

Never Rarely Sometimes Ofte Very often

20. When you have eaten too much do you eat less than usual the following day?

Never Rarely Sometimes Ofte Very often

Page 6 of 8

21. Do you have a desire to eat when you are bored (or restless)?

Never Rarely Sometimes Ofte Very often

22. Do you eat more than usual when you see others eating?

Never Rarely Sometimes Ofte Very often

23. Do you have a desire to eat when you are angry?
 Never Rarely Sometimes Ofte Very often
24. Do you deliberately eat less in order not to become heavier?
 Never Rarely Sometimes Ofte Very often
25. When preparing a meal are you inclined to eat something?
 Never Rarely Sometimes Ofte Very often
26. Do you have a desire to eat when something unpleasant is about to happen?
 Never Rarely Sometimes Ofte Very often

Page 7 of 8

27. How often do you try not to eat between meals because you are watching your weight?
 Never Rarely Sometimes Ofte Very often
28. Do you have a desire to eat when you are disappointed?
 Never Rarely Sometimes Ofte Very often
29. If you walk past a bread shop/ confectionery do you have the desire to buy something delicious?
 Never Rarely Sometimes Ofte Very often
30. Do you have a desire to eat when you are anxious or worried?
 Never Rarely Sometimes Ofte Very often
31. How often in the evening do you try not to eat because you are watching your weight?
 Never Rarely Sometimes Ofte Very often
32. If you walk past a pastizzeria do you have the desire to buy something delicious?
 Never Rarely Sometimes Ofte Very often

Page 8 of 8: End of section

33. Do you have a desire to eat when things are going against you?
 Never Rarely Sometimes Ofte Very often
34. Do you take your weight into account with what you eat?
 Never Rarely Sometimes Ofte Very often
35. Can you resist eating delicious food?
 Never Rarely Sometimes Ofte Very often

Thank you!

I would like to take this opportunity to say Thank You for taking the time to answer my survey.

Please be assured, all data collected will be treated in the strictest confidence. You are free to withdraw your data from the research at any time by contacting me on elaine.dutton@brunel.ac.uk or my supervisor Dr Terence Dovey (Terence.dovey@brunel.ac.uk).

The completed research will help to gain an understanding of eating patterns among Maltese women and this can help future health promotion programs focused on women's health.

If you were unduly or unexpectedly affected by taking part in the study please feel free to feed it back to me or my supervisor on the emails provided above. If you feel unable for whatever reason what-so-ever to talk with myself or my Supervisor please contact the Division of Psychology Research ethics coordinators Achim.Schuetzwohl@brunel.ac.uk, 01895 266367 and Martina.Reynolds@brunel.ac.uk , 01895 265482. Confidential psychological support can be access via the Malta Psychological Association (info@mpaonline.net).

Regards
Elaine Dutton
elaine.dutton@brunel.ac.uk
Mob: 00356 99883272

36. You are welcome to share any additional comments

Appendix 22: Principal Component Analysis: Food planning scale

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.826
Approx. Chi-Square		687.092
Bartlett's Test of Sphericity	df	15
	Sig.	.000

Communalities

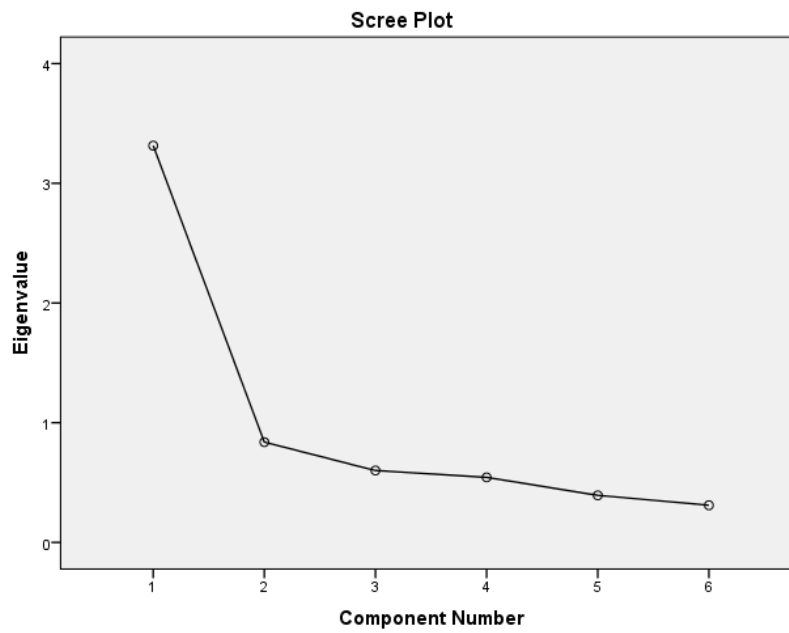
	Initial	Extraction
Plan_1Rec	1.000	.475
Plan_2	1.000	.503
Plan_3	1.000	.599
Plan_4	1.000	.659
Plan_5	1.000	.504
Plan_6Rec	1.000	.576

Extraction Method: Principal Component Analysis.

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	3.314	55.241	55.241	3.314	55.241	55.241
2	.838	13.961	69.203			
3	.600	10.008	79.211			
4	.543	9.056	88.267			
5	.393	6.556	94.824			
6	.311	5.176	100.000			

Extraction Method: Principal Component Analysis.



Component Matrix^a

	Component
	1
Plan_1Rec	.689
Plan_2	.709
Plan_3	.774
Plan_4	.812
Plan_5	.710
Plan_6Rec	.759

Extraction Method: Principal Component Analysis.

a. 1 components extracted.

**Rotated
Component
Matrix^a**

--

a. Only one component was extracted. The solution cannot be rotated.

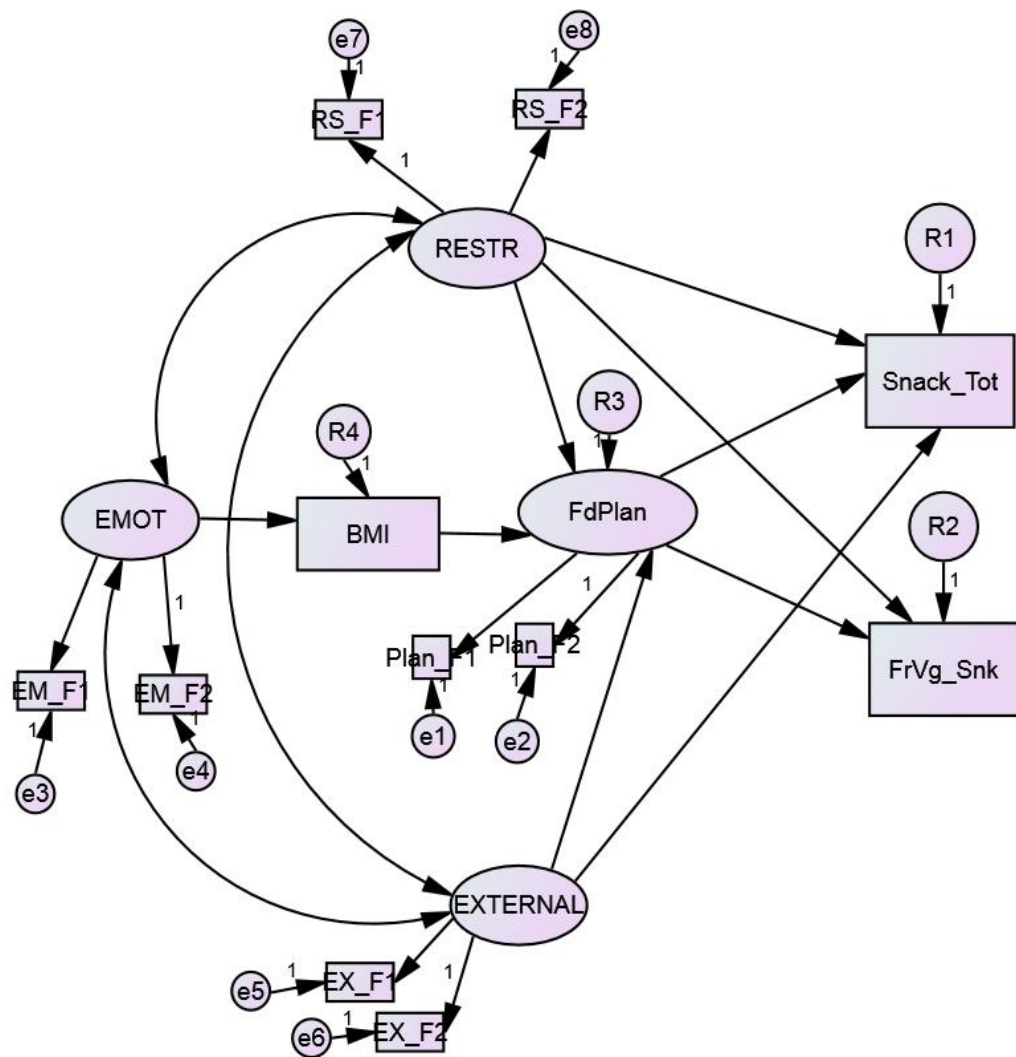
Appendix 23: Descriptive Statistics – SEM Parcels

Descriptive Statistics – SEM Parcels (Study 4)

	N	Minimum	Maximum	Mean	Std. Deviation
Planning_Parcel1	315	4.00	15.00	9.8095	2.46670
Planning_Parcel2	315	3.00	15.00	10.1778	2.41811
EmotionalEat_Parcel1	315	6.00	30.00	14.8032	5.66467
EmotionalEat_Parcel2	315	6.00	30.00	16.2095	5.79154
RestrainEat_Parcel1	315	5.00	24.00	14.1810	4.19686
RestrainEat_Parcel2	315	5.00	24.00	14.3016	3.76387
ExternalEat_Parcel1	315	6.00	24.00	15.4857	3.23431
ExternalEat_Parcel1	315	4.00	19.00	11.6032	2.71197
Valid N (listwise)	315				

Appendix 24: Tested Structured Equation Model

Note: The tested SEM with covariances, error terms and residuals included



Appendix 25: SEM output with Unstandardised coefficients

