

A Social Marketing Perspective of Young People's Sexual Health

A Thesis Submitted for the Degree of Doctor of Public Health

By

Anthony Simiyu Wakhisi

School of Health and Social Care, Brunel University

January 2012

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Abstract

Background

Unintended pregnancy and sexually transmitted infections among young people are priority public health issues in the UK. Social marketing is the preferred Government approach to intervention despite limited evidence on efficacy. There is need to understand its applicability and effectiveness in addressing the specified sexual health issues.

Methods

Three studies were carried out, of which the first was a systematic review of 12 studies assessing the effectiveness of social marketing in reducing unintended teenage pregnancies. The second and third were *consumer research* applications examining factors associated with Long Acting Reversible Contraceptive (LARC) use and Chlamydia screening respectively. The second study involved analysing five ONS Contraception survey datasets while the third involved analysing Havering PCT Chlamydia screening records and qualitative data from 28 participants. Data were analysed using Stata.10 and Framework statistical packages and maps drawn using MapInfo.10.5

Results

The systematic review showed that nine studies achieved significant effects on at least one of the specified outcomes (reduced pregnancy rates and related behaviour changes). The second study showed that the NICE guidelines published in 2005 successfully addressed the disparity in LARC uptake previously experienced by women aged below 20. The third study identified females and non-white participants as more likely to take Chlamydia tests. Motivating factors for testing included convenient access to kits and fear of infertility, while barriers included ignorance and fear of results.

Conclusion

Social marketing appears to be effective in reducing unintended teenage pregnancies but evidence is limited to particular outcomes and context. *Consumer research* provides vital intelligence about target populations necessary for designing effective interventions and addressing inequalities. However to assess its influence on outcomes, studies that feature all social marketing components are required. Overall there is need for more studies that specifically utilize social marketing principles to enable more robust evaluations.

Acknowledgements

I wish to express my sincere gratitude to the following who have contributed immeasurably to the successful completion of my research work and thesis:

- My supervisors Dr. Geraldine Barrett and Professor Daniel Reidpath for their expert guidance, encouragement and patience throughout my academic journey.
- Professor Pascale Allotey for her excellent contribution towards the foundational years of my doctoral study and journal article publication.
- Professor Jeff French for facilitating my first placement/research and mentorship at the National Social Marketing Centre, London.
- Dr Louise Dibsall for her support and mentorship during my placement at NHS Havering, London.
- The NHS Havering Public Health team especially Sarah Copley and the Chlamydia Screening team for their invaluable contribution and participation in my research projects.
- Davinia Springer for her thorough review and proof reading of the final draft.
- My dear wife Doreen and children Ivy and Mark for their belief in me, encouragement and consistent support.

Chapter 1: Introduction

Young people's sexual health is of immense significance to public health. This is because the adverse consequences of unsafe sexual behaviour such as unintended pregnancy and sexually transmitted infections (STI) affect not only individual young people and their families but the wider society as well (Nicoll et al., 1999; Department of Health, 2004; Tripp & Viner, 2005; Healthcare Commission, 2007; Department of Health, 2009c). Evidence shows that unintended teenage pregnancy is associated with poor health, social, educational and economic outcomes for the affected mother and child (Seamark & Pereira Gray, 1997; Swann et al., 2003; Berrington et al., 2005; Imamura et al., 2007). *Chlamydia trachomatis* which is the most common sexually transmitted infection among young people in the UK if untreated can lead to infertility and increased susceptibility to Human Immunodeficiency Virus (HIV) (Cohen et al., 2000; Farley et al., 2003; McClure et al., 2006). The financial implications of sexual ill health to the national economy are significant. The UK which has the highest teenage pregnancy and abortion rates in Western Europe spends approximately £500 million annually on unintended pregnancy related interventions such as abortion, miscarriage and live birth services (Bayer Health Care & Bayer Schering Pharma, 2008) and another £100 million annually on management of Chlamydia related complications such as infertility, ectopic pregnancy and pelvic inflammatory disease (The National Chlamydia Screening Programme, 2009).

Policy Context

In England, sexual health is considered a key public health issue (Healthcare Commission, 2007; Guilleband, 2007; Department of Children, Schools and Families, 2010; Family Planning Association, 2010). The current sexual health strategy is based on a policy document published by the Department of Health in 2001 entitled, "Better Prevention Better Services, Better Sexual Health: The National Strategy for Sexual Health and HIV" (Department of Health, 2001a). The strategy's main aims are:

- To reduce the transmission of HIV & STIs
- To reduce unintended pregnancy rates
- To reduce the prevalence of undiagnosed HIV & STIs
- To improve the health and social care of people living with HIV
- To reduce the stigma associated with HIV & STIs.

The Government's vision has been to modernise sexual health services, make them more accessible, comprehensive and based on patient need (Department of Health, 2001a; The Medical Foundation for AIDS & Sexual Health (MedFASH), 2008). Prior to the publication of the strategy, evaluations carried out had indicated that sexual health services in England were fragmented, poorly advertised, inaccessible in some parts of the country and too narrowly focused (Department of Health, 2001a). The strategy has mainly four dimensions to its approach:

- Strengthening the prevention of ill sexual health by providing appropriate information to people of all ages and targeting specific groups known to be at high risk of ill sexual health such as young people.
- Improving the quality of services by making them comprehensive. These include contraception and abortion services, diagnosis and treatment of STI, offering psychological support at GP practices, Community Family Planning and Genitourinary Medicine (GUM) clinics and specific services for vulnerable groups such as young people.
- Better commissioning of sexual health services by Primary Care Trusts (PCTs) that are responsive to local needs, multi-agency, multidisciplinary and involves users, with clear targets and outcomes.
- Supporting change through improved information and data collection, improved evidence base and staff development and training.

In order to monitor and support the implementation of the strategy an independent advisory group (IAG) on Sexual Health and HIV was formed in 2003. This followed concerns that the strategy was having no impact on improving population sexual health (The Medical Foundation for AIDS & Sexual Health (MedFASH), 2008). In the same year (2003), the Government introduced the National Chlamydia Screening Programme targeting young people below age 25 whom evidence had shown were most affected. The programme continues to be implemented by Primary Care Trusts and in a variety of health and non-healthcare settings such as youth services, prisons, colleges and military bases (The National Chlamydia Screening Programme, 2009). In 2005, the National Institute for Clinical Excellence (NICE) commissioned by the Department of Health published guidelines on promoting use of Long Acting Reversible Contraceptives (LARC) among

women of reproductive age. This was to address the high rate of unintended pregnancies which evidence had shown were mostly due to reliance on methods with high failure rate such as pills and condoms (Schunmann & Glasier, 2006; Rowlands, 2007).

The need to address health behaviour as a key determinant of population health was first highlighted in the Acheson report in 1998 (Department of Health, 1998). Previously the public health policy in England was mainly focused on meeting morbidity and mortality reduction targets through an improved health care service (Department of Health, 2004; Wanless, 2004; Department of Health, 1992), hence the infamous reference to the National Health Service (NHS) as a “National Sickness Service” (Wanless, 2004). Although there had been efforts towards encouraging people to lead healthy lifestyles in the past, the approach was often “top down” and passive, mainly consisting of mass media campaigns coordinated by the Health Education Authority (HEA) (Department of Health, 2004; Wanless, 2004). The closure of the HEA in 2000 and transfer of health education function to Department of Health appears not to have helped as observed by the Wanless report:

“At a time when full engagement requires the public and the health workforce to have more support, it has been noted that the educational role, previously played by the Health Education Authority, is not a clearly assigned responsibility. There is no single easily accessible source of advice for interested or confused individuals” (Wanless, 2004, p.185).

Wanless (2004) further noted that the approach to health behaviour change was having a minimal impact due to what he termed as “information failure”. This was attributed to the failure to craft messages carefully according to target audiences and desired outcomes. The report recommended the undertaking of market research within target populations and using results to design interventions that would fully engage the population. The choice of social marketing¹ as the preferred model to achieve this was first articulated and published in the 2004 Public Health White Paper (Department of Health, 2004). The publication highlighted the potential of social marketing in building public awareness and facilitating health behaviour change. This was followed by the commissioning of an independent

¹ Social marketing in health is defined as the systematic application of marketing concepts and techniques to achieve specific behavioural goals in order to improve health and reduce health inequalities (National Social Marketing Centre, 2007).

review to explore the potential of social marketing in augmenting national and local health improvement initiatives. As a result of this review, the National Social Marketing Centre (NSMC) was established in 2006 as a strategic partnership between the Department of Health and the National Consumer Council. To date the NSMC has implemented several pilot projects in sexual health e.g. the Chlamydia Outreach Advice Screening and Treatment (COAST) programme in Yorkshire and Humber and the Design and Sexual Health Programme in North East England which have reported promising outcomes (National Social Marketing Centre, 2011).

Research Projects

Whereas there is substantial evidence on the effectiveness and application of social marketing principles in health behaviour change initiatives in the developing countries (Centres for Disease Control and Prevention, 2005; National Social Marketing Centre, 2009; Centres for Disease Control and Prevention, 2011), in the UK and other developed countries the evidence base is limited owing to the relatively recent adoption of the approach. The three studies reported in this thesis therefore address this identified gap by firstly assessing the effectiveness of a social marketing approach in reducing unintended teenage pregnancies. Secondly, by exploring the application of the *consumer research/orientation* component of social marketing in the understanding of factors associated with the use of Long Acting Reversible Contraceptives, the uptake of Chlamydia screening services and Chlamydia prevalence among young people. The following were the specific aims of the three studies:

- To determine the effectiveness of a social marketing approach in the reduction of unintended teenage pregnancies in developed countries.
- To examine factors associated with use of Long Acting Reversible Contraceptives among young women aged 16-24 in the UK.
- To determine factors associated with Chlamydia screening and prevalence among young people of ages 16-24 living in the London Borough of Havering.

The first study (Unintended teenage pregnancy) was a systematic review of research conducted in the UK and USA. The study was carried out during my first internship at the National Social Marketing Centre, London in 2008. The institution was by then newly

established and was engaged in building an evidence base on the effectiveness of social marketing in various health behaviour change interventions including sexual health. Professor Jeff French who was the director at the centre provided the necessary supervision throughout the internship period while liaising with my academic supervisors at the graduate school (Professors Daniel Reidpath and Pascale Allotey). The second study (Long Acting Reversible Contraceptives) involved analysing five data sets of the Office for National Statistics (ONS) Opinion Surveys on contraception use carried out between 2002 and 2007. The study was conducted entirely at the graduate school with supervision from Dr Geraldine Barrett and Professor Daniel Reidpath. The third study (Chlamydia screening) was carried out during my second internship with the National Health Service (NHS) at Havering, London (2009-2010) and involved analysing records of young people who had been screened for Chlamydia between September 2008 and August 2009. I also collected qualitative data from 28 young people on their perceptions of barriers and motivating factors in relation to Chlamydia screening. The Chlamydia screening programme at NHS Havering where the study was undertaken was then newly established and struggling to meet the set national target of screening at least 17% of the 16 – 24 year olds population. The coordinating team was therefore interested in developing a strategy that would enhance screening uptake by identifying and addressing key factors among the target population. The study was therefore designed in response to this need. Supervision was provided by my academic supervisors in collaboration with the NHS Havering's associate director for health improvement Dr. Louise Dibsall.

Overview of Chapters

The thesis consists of seven chapters. In Chapter 2, I review the available evidence on the application of social marketing principles in young people's sexual health interventions in general and specifically to the three areas of study (Unintended teenage pregnancy, Long Acting Reversible Contraception and Chlamydia screening). In Chapter 3, I describe the first study on the effectiveness of a social marketing approach in the reduction of unintended teenage pregnancies and in Chapter 4, the second study on factors associated with use of LARC methods among young women aged 16-24 in the UK. In Chapter 5, I describe the third study on factors associated with Chlamydia prevalence and screening uptake among young people living in the London borough of Havering. Each of the three

chapters (3, 4 & 5) features an introduction section describing the rationale for the study, policy context and a discussion on evidence from other related studies, a methods section with a list of the study's aim and objectives, and a description of methods and ethics approval process. Also included is a results section with findings from analyses, a discussion section with a review of main findings, their implications for public health policy/practice and social marketing and study strengths/limitations. The last sections include conclusions, recommendations and suggestions for further research. In Chapter 6, I discuss the main findings from the three studies and their implications for public health policy and practice in the UK. In Chapter 7, I highlight the main findings from the three studies and draw conclusions on the effectiveness and applicability of social marketing in reducing unintended teenage pregnancies, increasing LARC uptake and Chlamydia screening among young people and make suggestions on further research.

Chapter 2: Literature Review

In this chapter, I explain what social marketing is and provide a brief history of its origin and adoption in public health. I also review available evidence on the application of social marketing principles in young people's sexual health interventions in general and specifically to the three areas of study (unintended teenage pregnancy, long acting reversible contraception and Chlamydia screening).

2.1. What is Social Marketing?

Social Marketing was first explicitly defined in 1971 by Kotler & Zaltman (1971, p.5) as:

“The application of principles and tools of marketing to achieve socially desirable goals, with benefits for society as a whole rather than for profit or other organizational goals and includes the design, implementation and control of programs calculated to influence the acceptability of social ideas and involves considerations of product planning, pricing, communications and market research.”

Although since then other social marketing definitions have emerged (Kotler et al. 2002; Maibach, 2002; Andreasen, 2002), they appear similar with all emphasising the use of marketing principles for social good. The most widely used definition in the UK public health sector is by the National Social Marketing Centre which states:

“Social marketing is the systematic application of marketing concepts and techniques, to achieve specific behavioural goals to improve health and reduce health inequalities” (French & Blair Stevens, 2007, p.33).

The original idea of social marketing is accredited to Wiebe who in 1952 in an article entitled, “Merchandising Commodities and Citizenship on Television,” he demonstrated how mass media campaigns can motivate people to take action, and challenged the marketing community by asking, “Why can't you sell brotherhood and rational thinking like you sell soap?” (Weibe, 1952). This became the precursor to serious thinking about marketing methods being successfully used to influence behaviour in the commercial sector being transferred to the non-profit area (Gordon et al., 2006). The unique aspect of

social marketing is indeed thought to be the application of marketing tools that have been proven to work in commercial marketing to the resolution of social and health problems (Lazer & Kelley, 1973). The adoption of social marketing principles to social causes initially met resistance from traditional marketers. Luck (1974) for example objected to the concept of replacing marketing of tangible products with ideas/values and thought this threatened the economic exchange concept. Others feared it would lead to social control and propaganda (Lacznia et al., 1979). However, the opposition appears to have helped the proponents of social marketing to refine their ideas and address cited ethical concerns (McFadyen et al., 1999).

2.2 Features of social marketing

Social marketing it is argued is not a theory but rather a discipline that draws from other bodies of knowledge such as sociology, anthropology and communication to understand how to influence people's behaviour (Kotler & Zaltman, 1971). Social marketing has mainly four features that distinguish it from other health improvement approaches:

- Behavioural change is voluntary i.e. not by coercion or enforcement.
- It operates on the principle of exchange i.e. there has to be a clear benefit for the customer (target group or individual) if change is to occur.
- Uses marketing techniques such as consumer oriented market research, segmentation and targeting and marketing mix.
- The ultimate goal is to improve individual and societal welfare not make profit for the organization carrying out the intervention as is the case with commercial marketing.

(Houston & Gassenheimer, 1987; MacFadyen et al. 2002)

Andreasen (2002) further clarifies what a social marketing approach to health improvement and behaviour change entails by describing what he terms as the essential benchmarks of a genuine social marketing approach. He names the six main components as: *consumer research/orientation, specific behaviour change goal, segmentation and targeting, marketing mix, exchange and competition*. More recently, the National Social Marketing Centre, England reviewed the six benchmark criteria and included two more components namely, "Insight Driven" and "Theory Based and Informed." The two

components emphasize the need for deep understanding (insight) of what moves and motivates consumers and for interventions to be guided by behavioural theory respectively. The eight components in total make up the National Bench Mark Criteria for England which guides policy and strategy development as well as implementation and delivery of social marketing interventions (National Social Marketing Centre, 2007). The six components of social marketing as originally defined by Andreasen (2002) are summarised in Table 2.1 and thereafter discussed.

Table 2.1: Andreasen’s benchmark criteria for social marketing interventions

Benchmark	Explanation
Behaviour change	Intervention seeks to change behaviour and has specific measurable behavioural objectives.
Consumer research	Intervention is based on an understanding of consumer experiences, values and needs. Formative research is conducted to identify these. Intervention elements are pre-tested with the target group.
Segmentation and targeting	Different segmentation variables are considered when selecting the intervention target group. Intervention strategy is tailored for the selected segment/s.
Marketing mix	Intervention considers the best strategic application of the “marketing mix”. This consists of the four Ps of “product”, “price”, “place” and “promotion”. Other Ps might include “policy change” or “people” (e.g. training is provided to intervention delivery agents). Interventions which only use the promotion P are social advertising, not social marketing.
Exchange	Intervention considers what will motivate people to engage voluntarily with the intervention and offers them something beneficial in return. The offered benefit may be intangible (e.g. personal satisfaction) or tangible (e.g. rewards for participating in the programme and making behavioural changes).
Competition	Competing forces to the behaviour change are analysed. Intervention considers the appeal of competing behaviours (including current behaviour) and uses strategies that seek to remove or minimise this competition.

Source: (Andreasen, 2002)

Behaviour Change

Behaviour change by clients leading to the adoption of suggested health behaviour is the ultimate goal in social marketing. This could be use of a particular health product such as contraception or a particular service such as taking a Chlamydia or HIV test. However other desired process related outcomes may include raised awareness of health service or increase in knowledge on how to access appropriate healthcare. In social marketing it is recommended that the desired behaviour change is clearly defined and be supported by Specific, Measurable, Realistic and Time bound (SMART) objectives to guide the implementation and evaluation process (National Social Marketing Centre, 2007; French et al., 2010).

Consumer Research/Orientation

In commercial marketing, a commitment to understanding consumers of a product or service is emphasised. This is based on the fact that the consumers' needs and wants determine whether a product or service will be bought or not. In social marketing, the same principle applies, as there is a need to understand the people whose behaviour an intervention intends to change (Andreasen, 1995). Formative research with the target population is therefore important in understanding what motivates or deters people from adopting recommended behaviours such as using a condom for protection against sexually transmitted infections (STI), or taking a Chlamydia test. Consumer research also provides vital information on population subgroups and their social cultural environment which is important in making decisions on what segments of the population to target and how (Grier & Bryant, 2005). Consumer research also includes other stakeholders who are not necessarily beneficiaries such as community leaders, health workers and other professionals who may have significant impact on programme implementation (National Social Marketing Centre, 2007). Consumer research therefore can be described as the main foundation for social marketing interventions.

Audience Segmentation & Targeting

This component is derived from *consumer research* and uses its results to differentiate populations into subgroups or segments of people who share needs, wants, lifestyles, behaviour and values that make them more likely to respond to public health interventions. These include gender, age, ethnicity and socio-economic status but also include distinct

current behaviour such as high and low risk sexual behaviour or use or non-use of contraception. The identification of target segments is crucial in the design of the *marketing mix* component (Grier & Bryant, 2005; French et al., 2010).

Competition

Whereas in commercial marketing competition refers to products and companies that try to satisfy similar needs and wants as the product being promoted, in social marketing, competition refers to behavioural options that compete with public health recommendations such as the glamorisation of risky sexual behaviour, alcohol and drug misuse among youth by some television channels, music and magazines (Grier & Bryant, 2005). A social marketer would therefore in designing an intervention consider how to counter the existing competition and develop a sustainable competitive advantage (Hastings, 2007).

Exchange

Contrary to commercial exchanges where a consumer receives a product for cash, in public health situations rarely is there an immediate, explicit payback to target audiences in return for their adoption of specified health behaviour. This in the past has been considered a significant barrier to health behaviour change and uptake of some services such as screening which have no immediate rewards. Social marketing therefore emphasises the need to consider using incentives either tangible or intangible and outlining that clearly to the consumer/client who must feel that he or she is receiving valued benefits in return of effort (National Social Marketing Centre, 2007; Grier & Bryant, 2005).

Marketing mix

In commercial marketing, the main goal is about getting the right “product” at the right “price,” in the right “place,” presented in such way as to satisfy the consumer (“promotion”). These are in brief termed as the four Ps of marketing and make up what is also called the *marketing mix* which has been adopted by social marketing as a key component of its approach (Stead & Hastings, 1997; Kotler, 1999).

Product

In social marketing a product may be tangible (for example, contraceptives, Chlamydia test kit or medication) or intangible (for example, health education or counselling service) (National Social Marketing Centre, 2007).

Price

Unlike commercial marketing where price refers to the monetary cost of buying a product, in social marketing this represents what consumers must give up if they are to adopt a certain health behaviour often emotional and psychological e.g. looking different in one's peer group e.g. taking a Chlamydia test which is often stigmatised or practical efforts such as seeking for a screening kit at a sexual health clinic or attending a health talk (National Social Marketing Centre, 2007).

Place

Place refers to channels by which a particular product is made available to consumers in commercial marketing. In social marketing this refers to places in which consumers can obtain certain products such as contraceptives or services such as screening or counselling. Place includes settings such as working places, homes, schools, colleges, and health institutions (National Social Marketing Centre, 2007).

Promotion

As in commercial marketing this refers to the means and messages by which the benefits of a particular product or behaviour change are communicated. Most common means include advertisement (radio, televisions, billboards), leaflets, posters, dedicated websites and community outreach activities. However, social marketers have since recognised the limitations of applying the four Ps to public health, and therefore also recommend that building "partnerships" with other stakeholders, influencing "policy" and "politics" for the benefit of public health are included as well (Kotler, 1999; National Social Marketing Centre, 2007).

Branding

Branding is considered a vital aspect of a marketing mix strategy. A brand is defined as a name, term, sign, logo, symbol or design or a combination of them intended to identify the goods or services of one seller or a group of sellers and to differentiate them from those of

other competing sellers (Hastings, 2007; French et al., 2010). The importance of branding has been proven in commercial marketing and is now increasingly used in social marketing interventions. The creation of a powerful brand that would engage with the target audience and influence its position in the market in relation to similar or opposing products or services involves understanding the needs and wants of customers achieved through conducting a robust *consumer research* (French et al., 2010). A successful brand reinforces the functional and emotional benefits of a product or service or behaviour hence encouraging consumption, behaviour change and loyalty (Hastings, 2007). Examples of social marketing interventions where branding has been successfully employed include The Florida Anti-smoking Truth campaign (The Social Marketing Institute, 2011), The VERB Summer Score Card – a physical activity promotion programme (Wong et al., 2004) and The Heart Truth (Long et al. 2008).

2.3 Social marketing and Public health

The adoption of social marketing by public health is thought to have been formalized when Weibe (1952) evaluated four different social change campaigns in the United States of America (USA) and concluded that the more similarity they had with commercial marketing, the more successful they were. Public health experts developed and refined this thinking by examining international development efforts where social marketing was being used mainly in family planning and disease control and made a similar observation (Manoff, 1985; Gordon et al., 2006). Although initially social marketing was mainly practiced in developing countries, the approach has spread rapidly to most developed countries in the past two decades (Centres for Disease Control and Prevention, 2005). In the USA social marketing is increasingly being advocated as the core public health strategy for influencing voluntary behaviours such as smoking, drinking, drug use and diet (Centres for Disease Control and Prevention, 2005). In the UK the potential for social marketing was recognized in the 2004 Public Health White Paper (Department of Health, 2004) which highlighted the power of social marketing and marketing tools being used to build public awareness and behaviour change. This was followed by the creation of the National Social Marketing Centre in 2005 with a mission to help realize the full potential of effective social marketing in contributing to national and local efforts to improve health and reduce health inequality (Gordon et al., 2006). The National Social Marketing Centre in collaboration with the Department of Health released the first strategic framework for

maximizing the potential of social marketing and health related behaviour in 2008 (Department of Health, 2008a). In 2009 a specific social marketing and sexual health strategy document was published which has since guided the implementation of government sexual health programmes (Department of Health, 2009d). More recently the UK Department of Health published a new social marketing strategy for public health (Department of Health, 2011). In this policy paper, the government reiterates its commitment to using social marketing in improving public health and highlights achievements of social marketing interventions so far such as the Change4Life programme addressing obesity (Department of Health, 2010a), Smokefree England campaign (Department of Health, 2008b) and ActFAST – a stroke awareness campaign (Department of Health, 2009a). There is a notable change in this strategy with a shift away from addressing single issues and instead taking a life course approach of delivering support on all topics that are relevant to a person at a given stage. Among young people this implies that the strategy will focus on influencing behaviours such as risky sexual lifestyles alongside other related issues such as binge drinking, experimenting with drugs and smoking (Department of Health, 2011).

2.4 Critique of social marketing

Literature on the critique of social marketing is limited in quantity and scope. A few scholars (Buchanan et al. 1994) have questioned the validity of the two main components of social marketing namely *consumer research/orientation* and *marketing mix* especially the aspects of integrated approach and profitability. They have also challenged social marketing by questioning if it was offering anything new or just repackaging familiar ideas overlaid with marketing jargon and also whether social marketing is more effective than current health promotion practices (Buchanan et al. 1994; The National Social Marketing Centre, 2006).

Consumer research/orientation

Critics of social marketing have acknowledged that the social marketing emphasis on consumer orientation has brought a refreshing antidote to the provider approach otherwise known as the “top down” approach to health interventions (Buchanan et al. 1994). But they have also pointed out that this insight has existed in health promotion since as early as 1945, when Derryberry recognized that people had to be involved from the outset of any

program for it to be successful (Derryberry, 1945). They further argue that recent health promotion documents such as, Planned Approach to Community Health (National Centre for Chronic Disease Prevention and Health promotion, 1991), Community Participation in Local Health and Sustainable Development: Approaches and Techniques (The World Health Organisation, 2002), Community Participation in Public Health: World Health Report (The World Health Organisation, 2004) emphasize the importance of people involvement which they consider to be synonymous with *consumer research*. They also point out that the first step in public health campaigns is widely accepted as a needs assessment which is directly comparable to *consumer research/orientation* as referred to in social marketing (Buchanan et al., 1994). However, Hastings & Haywood (1991) in their response argue that in social marketing *consumer orientation* goes beyond needs assessment and people involvement. It is more about gaining competitive advantage in a market place characterized by contradicting messages.

Integrated approach

The integrated approach in social marketing otherwise termed as *marketing mix* or the four Ps: Promotion, Product, Price and Place has also been under scrutiny by health promotion specialists. According to Hill (2001) & Buchanan et al. (1994) these ideas are not new to public health and they represent a comprehensive approach which is the bedrock of public health founded on the familiar triad: agent, host and environment. They further point out that the need for multisectoral approach was emphasized as early as 1978 during the Declaration of Alma-Ata (The World Health Organisation, 1978). The four Ps it is argued are not easily manipulated in the health field. For example, “stop smoking” (product) is difficult (price) and involves a degree of suffering by the targeted individual from withdrawal symptoms and loss of social capital (Buchanan et al., 1994). Barach (1984) and Bloom & Novelli (1981) further assert that it is less difficult to sell soap than brotherhood. In recognition of the difficulty in applying the four Ps/marketing mix, social marketers advocate for a thorough consumer orientation through research and use of data systems. It is recommended that this is followed by a broad and robust analysis of behavioural patterns and trends to determine the problem and desired behaviour. The understanding of the key influences of behaviour and what moves and motivates consumers is also emphasized (National Social Marketing Centre, 2007).

Voluntary Behaviour Change

The social marketing principle about the understanding of what moves or motivates people towards a particular behaviour (*consumer research/orientation*) and utilizing that knowledge in designing effective interventions that result in voluntary behaviour change has been challenged. Thaler & Sustein (2008) in their book entitled: “Nudge: Improving Decisions about Health, Wealth and Happiness,” describe a concept termed as “nudging” based on the idea of behavioural economics. They argue that most health behaviour challenges observed among populations result from personal choice, environment, culture and economic factors and that people don’t always act in a logical manner or make decisions that are advantageous to them. They further explain that most people do not dispassionately analyse their behavioural decisions and that decisions are mostly based on automatic mental systems otherwise termed as mindless choosing. In which case therefore health organisations or governments have to act as choice architects crafting successful nudges to overcome mindless choosing and make alternative good choices (Thaler & Sustein, 2008; French, 2011). Examples of nudges include actions such as increasing the prominence of healthy food in canteens, requiring people to opt out of rather than into organ donor schemes or providing small incentives for people to act more healthily without being coercive (Bonell et al., 2011).

Bonell et al. (2011) argue that the Nudge theory doesn’t offer anything new as existing public health isn't coercive (and where it is, like the smoking ban, this is usually to prevent harm to third parties) and goes beyond mere communicating of health messages to influencing how choices are presented (for example using techniques like social marketing). They further point out that many of the examples in Thaler and Sunstein's book don't fit with their own definition. Bonell et al. (2011) highlight one of the examples of a nudge programme in the USA which pays a dollar a day to teenage mothers, contingent on their having no further pregnancies. They consider this approach as coercive and a major pressure on young women in poverty thus contradicting the authors’ definition of nudges as not exerting such pressures (Bonell et al., 2011). French (2011) gives a more balanced view. He argues that rather than adopting a position that positive rewards and mindless choosing are the default intervention mode, robust and proactive citizen engagement (starting with *consumer/target population research and orientation*) should always provide the evidence base for deciding on the intervention approach to all initiatives.

Marketing failure

There has been scepticism as well on whether the basic principle guiding commercial marketing – “supply and demand” can flourish in a health promotion context. Foxall (1989) suggests that social marketing renders the concept of a “marketing place” redundant and that it has no place for consumers choice or for the functions of the market mechanism (supply and demand). Buchanan et al. (1994) further clarify this by explaining that in true functional markets, entrepreneurs produce products to satisfy unmet needs. But in social markets, producers are not responding to consumer demand (market failure) and that in fact social marketers largely try to persuade people to give up things such as cigarettes and alcohol that the commercial market has delivered too successfully. Marketing being essentially the process of buying and selling (exchanging values) in a competitive market where the seller has to be highly motivated and aggressive to succeed, the question has been whether the incentives for a health promoter can be equivalent or even comparable to those of a commercial sales executive with high performance related bonus payments. Hastings & Haywood (1991) suggest that the incentive for a health promoter is not profit or bonus payments but rather better quality of life and improved public health for the targeted population. Furthermore, they argue that in both commercial and social markets success results mainly from a thorough understanding of consumers followed by a well thought strategy to influence their behaviour. Social marketers generally argue that we should criticize commercial marketing when it does harm such as the tobacco industry but also learn from it when the opportunity exists to do good (Stead et al. 2007).

The ethics debate

Although the social marketing’s key aim is to contribute towards social good, the issue of ethics in social marketing practice has been debated for decades. In particular social marketing has been criticised as having a sinister motive of social control and being part of governments’ agendas of population behaviour re-modification (French et al., 2010). However, social marketers have argued that the need to collaborate with governments is fundamental and that governments have democratic mandates to modify and control behaviour through legislation to ensure smooth running of society. This may be necessary in public health especially where voluntary approaches have failed like in the case of smoking in public places. Social marketers further argue that in most cases voluntary

approaches work especially where a robust consumer/client research is carried out before design and implementation of programmes (Hastings, 2007; French et al., 2010).

Partnerships in health interventions between social marketers and some institutions have also been questioned. Whereas partnering with big business institutions often brings in the much needed finances that may enhance the quantity and probably the quality of programmes, the risk of being part of unethical practices has been of major concern (Hastings, 2007; Eagle, 2009). To this end social marketers argue that this is not a unique risk to social marketing per se and recommends that a thorough partnership analysis should always be carried out and an agreed ethical code signed before collaborative interventions are undertaken to avoid getting trapped into unethical practices (French et al., 2010).

Unintended consequences of social marketing interventions have also raised ethical questions. A widely cited example is the Road Crew social marketing intervention in Wisconsin, USA (National Social Marketing Centre, 2011) whose aim was to reduce alcohol related road traffic accidents by providing dedicated taxis to and from drinking places as an alternative to self driven cars. Whereas the programme succeeded in reducing accident rates significantly, it also had an unintended effect of increased alcohol use beyond recommended levels among the targeted population. French et al. (2010) emphasise the need for ethical considerations at planning stages that also include impact evaluations in all interventions and that this aspect should be as intrinsic and fundamental to social marketing as the other six specified components.

2.5 Effectiveness of social marketing

Due to the abundance of social marketing projects in the developing countries that have been implemented for decades, most of the evidence on the applicability and effectiveness of social marketing is based on studies carried out in these countries (Chapman & Astatke, 2003; Meekers & Rahaim, 2005; Kesterton & Cabral de Mello, 2010). In developed countries, the pioneering applications of social marketing were first seen in the 1980s mainly addressing cardiovascular disease morbidity and mortality (Ward, 1984). Later social marketing was adopted by other agencies working on public health issues such as the Center for Substance Abuse Prevention and the Office of Cancer Communications at the National Cancer Institute in the USA, the Victorian Health Promotion Foundation in

Australia, the Health Sponsorship Council in New Zealand and the National Social Marketing Centre in the UK. The few studies that have been carried out in the developed countries have indicated that social marketing may be an effective approach in health behaviour change interventions (National Social Marketing Centre, 2006a; National Social Marketing Centre, 2006b; Stead et al., 2007). Evidence on the application and effectiveness of social marketing in sexual health interventions is even more scarce with a few studies mainly emanating from the USA. A systematic search identified ten relevant studies (Appendix 2.1) which are summarised in Table 2 and discussed below under two broad themes i.e. contraception and unintended pregnancy and sexually transmitted infection screening.

Contraception & unintended pregnancy

Four studies (Bertrand et al., 1987; Tanfer et al., 2000; Tanner et al., 2009; Messer et al. 2011) evaluated social marketing interventions on contraception use and unintended pregnancy. Tanfer et al. (2000) carried out an analysis of data from three US National Women Surveys (1991, 1993 and 1995) in order to identify reasons why the uptake of LARC methods (implants and injectables) among women aged 20-39 was low. The findings from the *consumer research* were to inform the design and implementation of interventions and targeted social marketing to promote LARC use. They found three main reasons namely: lack of knowledge about the specified contraceptives, fear of side effects and satisfaction with the current non-LARC methods. They also observed that older women (over 30), those with college education or higher and single women with one or more children were less likely to cite side effects as reason for not using LARC methods as compared to younger women (less than 30), those with no college education and the married and childless. Most women had a negative attitude towards use of the two LARC methods highlighting the cost, side effects and partner disapproval as main reasons in all waves of interviews. The study successfully identified important factors associated with LARC use. However, the attrition rate was high especially among black and single women known to be at a higher risk of unintended pregnancy hence making it difficult to draw conclusions on the applicability of the findings to the general women population. Although the study identified factors associated with low LARC uptake, due to the limitations of the study design, it was not possible to identify the decision making processes (and the role of partners and health professionals) among those using LARC methods and also if non-use

of LARC methods and reasons given was based on experience or anecdotes. The study did not include teenage women who evidence shows are most affected by unintended pregnancy and therefore an important target group. The study was also limited to only two kinds of LARC methods i.e. IUD & IUS were not included.

Tanner et al. (2009) evaluated an abstinence education programme branded “*Worth the Wait.*” The programme was based on social marketing principles and was implemented in five counties in Texas, USA involving 2007 year 7 to 12 (Ages 11 to 16) students. The main intervention outcomes were reduction in intentions to engage in sexual activity and commitment to abstinence. The main measures were the likelihood of remaining abstinent, sexual activity or abstinence intentions, attitude towards abstinence and attitude towards teen sex. The intervention included a sexual health school curriculum, extra curriculum activities, and parent and community involvement, advertisements, professional and staff development (*marketing mix*) and was based on findings from baseline surveys carried out with the target group and other stakeholders (*consumer research*). Evaluations were carried out at varied periods of the intervention over a five year period. Results showed that years of participation were associated positively with knowledge, beliefs, attitudes and intentions. No relationship was found between intentions to engage in sexual activity and parental monitoring, talking to adults and media recall (measuring impact of advertisement). Although the study found that years of participation were a significant factor, it was not able to establish if this was as result of the social marketing intervention or the traditional school curriculum. Improved outcomes could also have been due to maturation effect among participants and not necessarily due to the intervention. The participation rate was low (48%) meaning more than half of the parents withheld consent. Measuring intentions is also controversial as it is not what people always do. Considering that the school policy was restrictive and only allowed abstinence education, the responses could have been biased towards what was socially acceptable in the participants’ settings. Although the study concluded that the social marketing programme was effective in reducing teen pregnancy, teen pregnancy rates before and after the intervention were not reported. No baseline survey findings for all outcomes were reported as well.

Messer et al. (2011) carried out a study to demonstrate the application of social marketing techniques in the development of an intervention aimed at correcting youth misperception about teenage pregnancy. The intervention was part of the project branded “*Taking*

Responsible Actions in Life” (TRAIL). Four schools in North Carolina USA were involved. The programme targeted grade 7 to 9 students (Ages 11 to 13). A thousand students were involved in the study. The schools were chosen because they were experiencing high teenage pregnancy incidences. The majority of the participants were from low socio-economic backgrounds. The study used self-administered questionnaires to collect information on the following themes: parent child communication, attitudes towards teen sex and marriage, sexual intentions, abstinence commitment and prior sexual activity. The findings from the baseline study (*consumer research*) were used to design and implement a social marketing campaign which included: adolescent pregnancy prevention education, youth development programming, parental involvement and a norms marketing campaign which utilised various media such as video shows, billboards, radio and newsletters (*marketing mix*). The study however did not report the post implementation results to demonstrate the effectiveness of the intervention and relied on informal feedback from participants in concluding that the intervention supported appropriate behaviour and corrected the normative misperceptions. The generalisability of study findings is also limited to low socioeconomic populations with high risk of teenage pregnancies.

Bertrand et al. (1987) carried out a *consumer research* to ascertain family planning needs before the establishment of a family planning service. The study involved 1,000 women aged between 15-35 years and resident in New Orleans, USA. The majority were of black ethnic background. The study was designed to provide data on the 4 Ps of *marketing mix* (*Product*: the extent of need for the service, *Place*: alternative current sources, satisfaction levels of current service, preferred service delivery methods, *Price*: amount believed reasonable for the service, *Promotion*: recognition of the service provider’s name and preferred channels of communication). The study successfully demonstrated how *consumer research* can be carried out and results used to design services that are accessible by a targeted population. However the study might have excluded some low income earners with no phones in their houses by using telephone interviews to collect data. Another limitation was the ethnicity of the target population which was mainly black, which implies that the study findings may not be generalised to other populations with a different ethnic mix. Also, the study did not include a multivariate analysis to determine the association between various socio-demographic characteristics and responses which would have been vital in a targeted *marketing mix* strategy.

Sexually Transmitted Infection Screening

Six studies (Futterman et al., 2001; Montoya et al., 2005; Plant et al., 2008; Guy et al., 2009; Martinez-Donate et al., 2010; National Social Marketing Centre, 2011) evaluated social marketing interventions aimed at increasing screening uptake for sexually transmitted infections. Montoya et al. (2005) and Plant et al. (2008) evaluated interventions designed to increase screening for Syphilis among men who have sex with men (MSM) in San Francisco and Los Angeles, USA respectively. The two studies had similar approaches. They carried out *consumer research* that included focus group discussions and interviews with target groups as well as an examination of findings from other similar interventions which informed the *marketing mix* strategies. The *marketing mix* included adverts in gay publications, posters on streets and areas frequented by the target group, television and billboards. A convenience sample of 244 men (Montoya et al., 2005) after a year of implementation and 297 men (Plant et al., 2008) after 2 years of implementation were recruited and interviewed to evaluate the impact of the interventions. Results showed that 80% after one year of implementation in San Francisco (Montoya et al., 2005) and 71% after 2 years of implementation in Los Angeles (Plant et al., 2008) were aware of the campaign and that awareness was significantly associated with having taken a test in the last 6 months in both studies. However the two studies' use of convenience samples and face to face interviews which are often prone to social desirability bias might have impacted on the validity of results. The two studies also did not report whether overall the uptake of tests increased after the interventions among the targeted populations or not. As the interventions focused on special subgroups (MSM), their findings may only be generalisable to similar groups.

Guy et al. (2009) evaluated a social marketing campaign in Victoria, Australia aimed at increasing uptake of HIV and STI tests among MSM. The study did not report if any *consumer research* was done. The campaign branded "*Check it Out*" involved mainly advertisements on radio, dedicated website, posters in strategic places. Analysis of test records during and after the campaign showed no increase. The overall number of tests actually dropped from 1803 to 1634. However it was not clear whether tests by MSM might have increased or not as sexual orientation was not recorded. Behavioural surveys based on self report showed no increase in test uptake either. Martinez-Donate et al. (2010) evaluated a social marketing campaign to increase condom use and HIV testing among

heterosexual Latino men including those who have sex with men in San Diego California USA. The campaign was branded “*Hombres Sanos*” meaning healthy men. The study included *consumer research* that involved target group members and other stakeholders in designing the intervention. The campaign included posters, radio advertisements, community outreach activities and promotional activities at local clubs. Although exposure rate was high (80%) and knowledge levels showed improvement, test uptake did not increase during and after the campaigns. Among men who have sex with men and women (MSMW) the rates actually dropped. The response rate at the end of the campaign was low at only 49% and no information on those refusing to participate was collected.

Futterman et al. (2001) evaluated a social marketing campaign implemented in five cities in the USA (Baltimore, Miami, Los Angeles, Philadelphia, Washington DC) aimed at increasing HIV testing among adolescents. The campaign targeted non-white adolescents who evidence had shown were disproportionately affected by HIV infection. The campaign was branded “*HIV. Live With It. Get Tested.*” The study included *consumer research* that involved focus group discussions, interviews with target group youths, communication specialists, health workers and a pilot study. The findings were utilised in designing the intervention. The campaign included advertising on radio, youth magazines and other popular newspapers, television adverts, local outreach activities, establishment of free counselling and testing centres, a free hotline for youth to request tests or information (*marketing mix*). Evaluation results showed that calls for information and test requests peaked during the campaign period but fell back to pre-campaign figures after the campaign period. Results also showed increased awareness about HIV both during and after the campaign. The intervention was implemented for only 3 months and did not achieve the long term behaviour change goal.

The National Social Marketing Centre in its Showcase site (National Social Marketing Centre, 2011) where interventions that have successfully used a social marketing approach in addressing various public health issues are posted, have a report on a Chlamydia screening programme implemented by the NHS North Lincolnshire and North East Lincolnshire Care Trust Plus, England. The intervention branded COAST (Chlamydia Outreach Advice Screening & Treatment) aimed at raising awareness about Chlamydia infection and encouraging young people to get tested. The intervention targeted young people aged 15-24. The intervention included *consumer research* which featured focus

group discussions, interviews with young people, health workers, youth centre representatives and other organisations dealing with young people. A secondary data analysis of previous screening records was also carried out to understand the screening uptake patterns. The intervention utilised findings from the *consumer research* to design a Chlamydia screening *marketing mix* which included setting up of free screening sites across the region, provision for ordering test kits on line or by text, posters, urinal stickers, leaflets, beer mats and radio adverts. As part of the *exchange* component, incentives such as free pants and entry into competitions to win items such as popular computer game gadgets were provided post test. Evaluation results showed that screening uptake increased in the two regions over the three year period (2007-2010). However, whereas the North East Lincolnshire's performance was above the national targets over the three year period, North Lincolnshire never met the set targets despite implementing a similar programme. This disparity is not explained by the report. A notable limitation is the lack of a multivariate analysis of participant characteristics and their association with screening uptake before and after the implementation of interventions which if carried out could have enhanced the understanding of uptake patterns.

2.6 Conclusion

Social Marketing as an approach to health behaviour change is currently widely practiced internationally. However most of the available evidence on its effectiveness and applicability is largely based on studies carried out in developing countries where the bulk of social marketing projects have been implemented for decades (Chapman & Astatke 2003; Meekers & Rahaim, 2005; Kesterton & Cabral de Mello, 2010). The applicability of this evidence to the developed countries' context has been limited due to the difference in how social marketing is defined and implemented. Whereas social marketing in developing countries focuses more on delivery of material products such as contraceptives (Kesterton & Cabral de Mello, 2010) mosquito bed nets (Agha et al., 2007) and condoms (Meekers & Rahaim, 2005), in developed countries its more about influencing behaviour change among target populations such as physical exercise, healthy eating, and screening uptake (National Social Marketing Centre, 2011). Evidence in developed countries on the effectiveness and application of social marketing in sexual health interventions in particular is minimal and fragmented. I found only 10 relevant studies after an extensive search. Findings from the review of these studies show mixed results. Whereas most of the studies adhered to the

social marketing principles as specified, they were not able demonstrate clearly whether social marketing interventions worked or not mainly due to study design limitations. These included high attrition rates (Tanfer et al., 2000; Tanner et al., 2009; Guy et al., 2009), short implementation duration (Futterman et al., 2001), limited generalisability to only specified subgroups (Tanfer et al., 2000; Futterman et al., 2001; Montoya et al., 2005; Plant et al., 2008; Tanner et al., 2009; Guy et al., 2009; Martinez-Donate et al., 2010; Messer et al., 2011), possible confounding factors (Montoya et al., 2005; Plant et al., 2008; Tanner et al., 2009; Guy et al., 2009; Martinez-Donate et al., 2010; Messer et al., 2011), inadequate data collection methods (Montoya et al., 2005; Plant et al., 2008) and data analysis deficiencies (Bertrand et al., 1987; National Social Marketing Centre, 2011).

Overall the evaluation designs adopted by the reviewed studies i.e. repeated cross sectional (Tanfer et al., 2000) and quasi-experimental without control (Futterman et al., 2001; Montoya et al., 2005; Plant et al., 2008; Tanner et al., 2009; Guy et al., 2009; Martinez-Donate et al., 2010; National Social Marketing Centre, 2011; Messer et al., 2011) meant that the differences observed in pre-test and post-test could not be causally related to specified social marketing interventions. There is therefore a need for more primary studies using randomised control trial design to firmly ascertain the effectiveness of a social marketing approach in sexual health interventions.

Table 2.2: Reviewed Social Marketing Studies

Authors	Study Title	Study/Intervention Description	Study Aim	Social Marketing Components
Tanfer et al. (2000) USA	Why are U.S. Women not using long acting contraceptives?	A secondary data analysis of the National Survey of Women (1993 & 1995)	To identify reasons why women have spurned LARC methods in order to inform the design and implementation of interventions and targeted social marketing to promote their use.	Consumer research Segmentation & targeting
Messer et al. (2011) USA	Reported adolescent sexual norms and the development of a social marketing campaign to correct youth misperceptions	A description of how data on local sexual norms were collected, analysed and how the results were used in a social marketing campaign	To correct youth misperceptions about teen pregnancy	Consumer research Segmentation & targeting Competition Marketing mix Behaviour Change
Bertrand et al. (1987) USA	Marketing Family Planning Services in New Orleans	Telephone survey involving women aged 15-35 to inform the design of family planning service	To demonstrate the role of social marketing in the development of family planning programme strategies	Consumer research Segmentation & targeting Competition Marketing mix
Tanner et al. (2009) USA	Evaluating a community saturation model of abstinence education: An application of social marketing strategies	An evaluation of a social marketing strategy promoting abstinence education and its effects on adolescents' sexual attitudes and behaviour	To determine the effectiveness of a social marketing strategy in abstinence education and reduction of teenage pregnancy	Consumer research Segmentation & targeting Competition Marketing mix Behaviour Change
Futterman et al. (2001). USA	The ACCESS (Adolescents Connected to Care, Evaluation, and Special Services) Project: Social Marketing to Promote HIV Testing to Adolescents, Methods and First Year Results From a Six City Campaign	A social marketing campaign promoting HIV testing among adolescents	To encourage HIV testing among high risk youths	Consumer research Segmentation & targeting Competition Marketing mix Behaviour Change

Montoya et al. (2005) USA	Social marketing campaign significantly associated with increase in Syphilis testing	A social marketing campaign to increase Syphilis testing among men who have sex with men and women (MSMW).	To increase Syphilis testing among men who have sex with men and women (MSMW).	Consumer research Segmentation & targeting Marketing mix & Branding Behaviour Change
Guy et al. (2009) Australia	No increase in HIV or sexually transmissible infection testing following a social marketing campaign among men who have sex with men	A social marketing intervention aimed at increasing HIV & STI testing among men who have sex with men (MWM)	To increase HIV & STI testing and promote sexual health among men who have sex with men (MWM)	Consumer research Segmentation & targeting Competition Marketing mix Behaviour Change
Martínez-Donate et al. (2010) USA.	Hombres Sanos : Evaluation of a Social Marketing Campaign for Heterosexually Identified Latino Men Who Have Sex With Men and Women	A social marketing campaign to increase condom use and HIV testing among heterosexually identified Latino men, especially among heterosexually identified Latino men who have sex with men and women (MSMW).	To increase condom use and HIV testing among heterosexually identified Latino men	Consumer research Segmentation & targeting Competition Marketing mix & Branding Behaviour Change
Plant et al. (2008) USA	Stop the Sores: The Making and Evaluation of a Successful Social Marketing Campaign	A social marketing campaign to increase Syphilis testing among men who have sex with men (MSM).	To increase Syphilis testing among men who have sex with men (MSM).	Consumer research Segmentation & targeting Marketing mix & Branding Behaviour Change
National Social Marketing Centre (NSMC), 2011 NHS North & North East Lincolnshire, England	COAST (Chlamydia Outreach Advice Screening & Treatment)	A social marketing programme aimed at raising awareness of Chlamydia and encouraging young people to get tested	To raise awareness about Chlamydia and increase test uptake.	Consumer research Segmentation & targeting Competition Marketing mix & Branding Behaviour Change

Chapter 3: The effectiveness of social marketing in reduction of teenage pregnancies: a review of studies in developed countries

In this chapter, I present the first study on the effectiveness of a social marketing approach in the reduction of unintended teenage pregnancies. In the introduction section I provide a rationale for the study and discuss evidence from evaluations of teenage pregnancy interventions. I also include a table showing the six components of social marketing and their application to unintended teenage pregnancy context. In the second section I describe the study methods and ethics approval process. In the results section, I include a flow chart showing the process of article selection and a summary description of the 12 selected articles. I further provide two tables showing a detailed description of the 12 studies and how I carried out quality assessment. In the discussion section I include a review of findings and their implications for public health policy/practice and social marketing and review limitations and strengths. Lastly, I draw conclusions and make recommendations and suggestions on further research. An article from this study has been published in a peer reviewed journal, *Social Marketing Quarterly*, a copy of which appears in appendix 3.3.

3.1 Introduction

Unintended teenage pregnancy is a significant health and social issue that affects both developing and developed countries. Worldwide, 16 million women aged 15-19 years give birth each year (The World Health Organization, 2011). Whereas not all these births result from unintended pregnancy, evidence shows that births to unmarried teenage mothers are more likely to be, often as a consequence of coercive sexual relationships with older males (The World Health Organization, 2011). The developing countries bear a larger burden of teenage pregnancies. However, the relatively lower teenage pregnancy rates in developed countries are mainly attributed to availability of effective contraception and abortion services rather than difference in adolescent behaviour (Treffers, 2003; Bearinger et al., 2007).

It is estimated that at least 1.25 million teenagers become pregnant each year in countries belonging to the Organisation for Economic Co-operation and Development (OECD) (Guilleband, 2007). Of those pregnancies, approximately half a million seek an abortion

and the remainder become teenage mothers. The latest statistics from the World Bank (The World Bank, 2011) show United States of America (USA) still has the highest teenage birth rate among OECD countries (33/1000) while the United Kingdom (UK) leads in Western Europe (22/1000) with a rate more than five times that of Netherlands (4/1000), more than three times that of France (6/1000) and Germany (7/1000) (Guilleband, 2007) (Figure 3.1). Although in most developed countries the average teenage pregnancy rate has been declining, rates within countries are highly varied with some regions and population groups exceeding those of developing countries (Harden et al., 1999; Swann et al., 2003; Malarcher et al., 2010). Furthermore, the decline has been slower than anticipated and therefore the issue remains a priority (UNICEF, 2001).

The concern with unintended teenage pregnancies arises because of the associated short and long term health, social and economic consequences. Teenage pregnancy is associated with medical complications such as pre-eclampsia, cephalo-pelvic disproportion, prolonged labour and post-natal depression (Seamark & Pereira Gray, 1997; Social Exclusion Unit, 1999). Babies born to teenage mothers are more at risk of sudden infant death syndrome, low birth weight, poor growth, hospital admissions for intestinal problems, and accidental and non-accidental injuries (Social Exclusion Unit, 1999). The social, educational, and economic outcomes for the children born to teenage mothers, and for the mothers themselves, tend to be worse, with the danger of a poverty-trap/poverty-cycle developing (Harden et al., 1999; Swann et al., 2003).

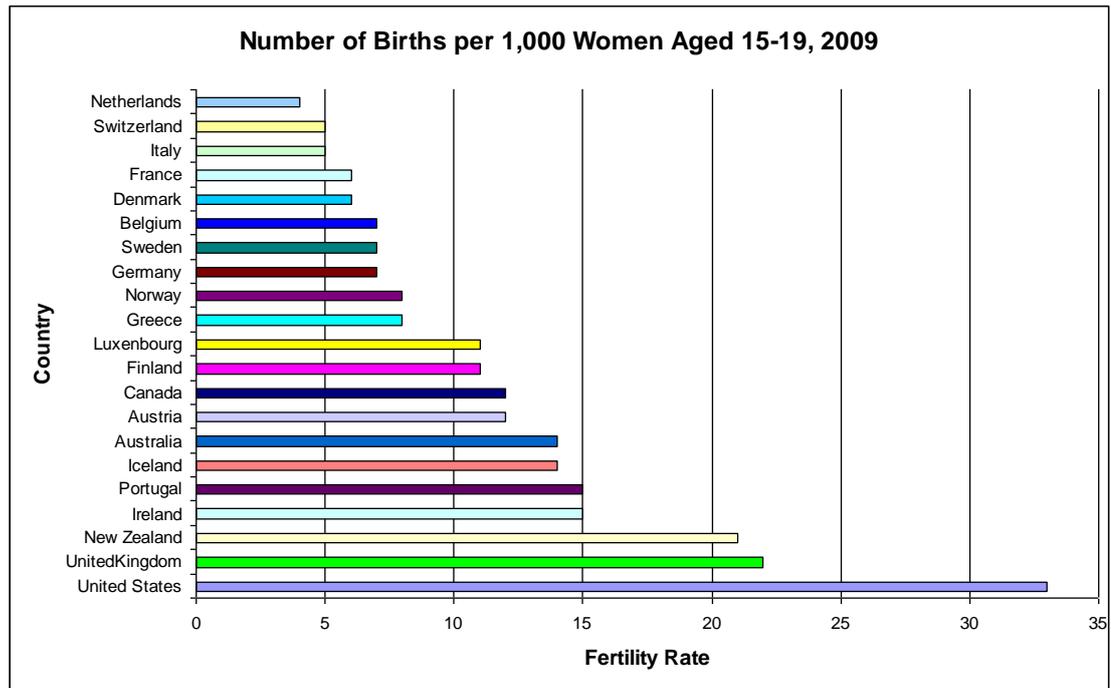
Risk factors associated with teenage pregnancy are complex and vary between countries. However, some commonalities have been identified, such as insufficient sex education (Cromer & McCarthy, 1999; Department of Health, 2001b; The Royal Institute of Public Health, 2008), peer pressure and pressure from older partners (Fullerton et al., 1997; Cromer & McCarthy, 1999; Kirby, 2007), delay in accessing contraceptive services, a poor relationship between teenagers and available sexual health services (Cromer & McCarthy, 1999; Healthcare Commission, 2007; The Royal Institute of Public Health, 2008), contraceptive failure and social deprivation (Fullerton et al., 1997; Wellings & Kane, 1999; Swann et al., 2003; Imamura et al., 2007; The Royal Institute of Public Health, 2008). Studies with teenagers have also typically found associations between alcohol, binge drinking, and sex (with multiple partners) (Seamark & Pereira Gray, 1997; DiCenso et al., 2002; Department for Education & Skills, 2006).

Interventions to reduce teenage pregnancies that have been evaluated include school based sex education programmes, community based education programmes, changes to contraceptive services, personal development programmes, and vocational and family outreach programmes (DiCenso et al., 2002; Swann et al., 2003). The results have been mixed, and there is no clear, single best approach. However, Kirby in his review of reviews highlights key characteristics of successful teenage pregnancy interventions (Kirby, 1999). The characteristics include: a behaviour change focus, appropriateness and sensitivity to participants, sufficient duration, variety in teaching methodology, attention to risk factors, and the provision of training in communication and assertiveness skills. Most of these characteristics share core elements with social marketing approaches that have been effectively applied to other health-behaviour change interventions such as increasing uptake of family planning services by adolescents (Cromer & McCarthy, 1999), healthy eating, increasing physical exercise, and tackling the misuse of substances like alcohol, tobacco, and illicit drugs (Gordon et al., 2006; National Social Marketing Centre, 2006a; National Social Marketing Centre, 2006b; Stead et al., 2007). This raises the interesting prospect of social marketing as an appropriate approach to reducing unintended teenage pregnancies.

Although individual teenage pregnancy related interventions, using social marketing approaches are often evaluated there has been no systematic review to date to explore the effectiveness of the approach. This is a crucial gap because it is important to understand the efficacy of the approach in and of itself as well as its effectiveness in comparison with other interventions. The aim of this study was to explore the gap identified above: the efficacy of a social marketing approach in the reduction of unintended teenage pregnancies in selected OECD countries. Previous studies have demonstrated that relying solely on the label “social marketing” is problematic as it excludes many interventions which may not be labelled as such but nonetheless incorporate social marketing principles (McDermott et al., 2005). Therefore, in this review I extended the search using Andreasen’s bench mark criteria for social marketing to select studies. The Andreasen’s benchmark criteria define six basic characteristics that must feature in a social marketing intervention. These are: *specific behaviour change goal, consumer research, segmentation and targeting, marketing mix, exchange and competition*. Using this approach also made it possible to exclude ‘poor’ examples of social marketing and some media campaigns which are often

erroneously referred to as social marketing interventions (Stead & Hastings, 1997; Gordon et al., 2006). Table 3.1 further provides details on the six components which I applied to unintended teenage pregnancy intervention context.

Figure 3.1: Adolescent Fertility Rate (Births per 1,000 Women Aged 15-19) for Selected Developed Countries, 2009.



Data Source: World Bank (2011): <http://data.worldbank.org/indicator/SP.ADO.TFRT>

Table 3.1: Andraesen’s benchmark criteria for social marketing interventions and its application to unintended teenage pregnancy interventions (Andraesen, 2002).

Benchmark	Explanation	Teenage Pregnancy Context
Specific Behaviour Change Goal	Intervention seeks to change behaviour and has specific measurable behavioural objectives.	The specified aim or objective(s) are measurable and are relevant to unintended teenage pregnancy reduction.
Consumer Research	Formative research is conducted to identify target consumer characteristics and needs. Intervention elements are pre-tested with the target group.	Before programme implementation at least one of the following was carried out; quantitative survey, qualitative interviews, focus group discussions, pre testing of materials, pilot projects.
Segmentation and Targeting	Different segmentation variables are considered when selecting the intervention target group. Intervention strategy is tailored for the selected segment/s.	The intervention considered ‘age’ and at least one of the following in its participant selection and implementation strategy; ethnicity, socio-economic status and educational level.
Marketing Mix	Intervention considers the best strategic application of the “marketing mix”. This consists of the four Ps of “product”, “price”, “place” and “promotion”. Other Ps might include “policy change” or “people” (e.g. training of intervention delivery agents).	<p>The intervention used the ‘Promotion’ P and any other P as specified below:</p> <p><i>Product-</i> Contraceptive provision or information on access, competency in avoiding unintended teenage pregnancy</p> <p><i>Price-</i> Considered the cost, time effort and inconvenience involved in accessing contraceptives and other intervention activities and had solutions to minimise these.</p> <p><i>Place</i> – Ensured that contraceptives and other intervention activities were easily accessible by teenagers.</p> <p><i>Promotion-</i> Integrated use of advertising, public relations, promotions, media advocacy and entertainment vehicles to promote use of contraceptives and other skills of avoiding unintended pregnancy.</p> <p><i>Partnerships</i> – Involved parents and other relevant organisations within the community.</p> <p><i>Policy</i> – Had a strategy in place to influence government or local policies on contraceptive use and other methods of unintended teenage pregnancy reduction.</p> <p><i>Personnel/People</i> – Ensured staff involved in the programme were well trained and experienced in adolescent</p>

		sexual health and in dealing with teenage pregnancy issues.
Exchange	Intervention considers what will motivate people to engage voluntarily with the intervention and offers them something beneficial in return. The offered benefit may be intangible (e.g. personal satisfaction) or tangible (e.g. rewards for participating in the programme and making behavioural changes)	Intervention had tangible (e.g. monetary rewards, gift vouchers, and entertainment opportunities) or intangible incentives (e.g. improved sexual health knowledge and skills, improved communication between parents and teenagers on sexual health matters).
Competition	Competing forces to the behaviour change are analysed. Intervention considers the appeal of competing behaviours (including current behaviour) and uses strategies that seek to remove or minimise this competition.	Intervention addressed at least one of the following: Peer/social influence, cultural/religious beliefs, substance misuse, idleness, low self esteem and poor academic performance.

3.2 Methods

Search strategy

I searched for studies on unintended teenage pregnancy reported between January 1990 and October 2008 in the following data bases: MEDLINE, PUBMED, SCIENCE DIRECT, COCHRANE Library, EMBASE, SCOPUS, CRD data base (Centre for Reviews and Dissemination, UK), CDC data base (Centre for Disease Prevention & Control, USA), TRIP data base and Teenage Pregnancy Unit (TPU) Research data base (UK).

Bibliographies of selected studies were also manually searched and relevant articles identified. Experts in teenage pregnancy and social marketing were contacted regarding the existence of other published or unpublished studies not captured in the electronic search.

Search terms included a combination of the following keywords: Teen, Adolescent, Pregnancy, Sexual health, Reproductive health, Abortion, Pregnancy termination, Contraceptive, Birth control, Condom, Social Marketing, Health marketing, Prevention, Intervention, Abstinence, School health.

Article selection

Articles on unintended teenage pregnancy intervention were considered for inclusion if they were written in English and reported effectiveness studies (controlled trials or before and after studies), involving 11-19 year olds carried out in the USA, Western Europe, Canada, New Zealand or Australia. Additionally, the studies needed to have reported on at least one of the following outcomes; change in number of unintended pregnancies, delay in sexual initiation/abstinence among participants, contraceptive use, knowledge of contraception and reproductive health, and self efficacy to refuse unwanted sexual intercourse. Abstracts from the initial search were independently screened by two reviewers (I and a DrPH colleague) and a further search of full articles carried out from those short listed. The short listed articles were assessed as to whether they met the social marketing benchmark criteria or not (See Table 3.1). We further discussed and agreed on the final full articles to be included. Disagreements were rare but whenever they occurred they were resolved by discussion and by consulting a social marketing specialist.

Quality assessment

The methodological quality of selected studies was assessed and rated as strong/high, moderate or weak using a tool adopted from the Effective Public Health Practice Project (<http://www.ehphp.ca/PDF/QATool.pdf>.) (See also appendices 3.1 & 3.2). In rating the studies, principal consideration was given to the study design, appropriateness of randomisation, participant selection and allocation, the control of confounders, blinding of participants and assessors, validity and reliability of data collection methods, withdrawals and drop outs, intervention integrity, appropriateness of analysis, and whether it was an ‘intention to treat’ analysis. Two researchers (I and a DrPH colleague) were involved in the quality assessment. Discrepancies were rare but whenever they occurred, they were resolved by joint review and consensus.

Data extraction and synthesis

We (I and a DrPH colleague) independently extracted data on the setting, sample size, participant characteristics, the theoretical framework guiding the intervention, intervention components, social marketing characteristics, length of follow up, proportion followed to study completion and study outcomes. This approach is in line with the tool developed by (DiCenso et al., 2002). Again, discrepancies were rare but whenever they occurred, they were resolved by joint review and consensus. Outcomes from the selected studies were summarised and presented in tables. The effects of various interventions were assessed by comparing outcomes in the intervention group and those in the control group. The odds ratio/relative risk, confidence intervals, and *P* values were reported where available. A meta-analysis could not be performed due to the heterogeneity of the selected studies.

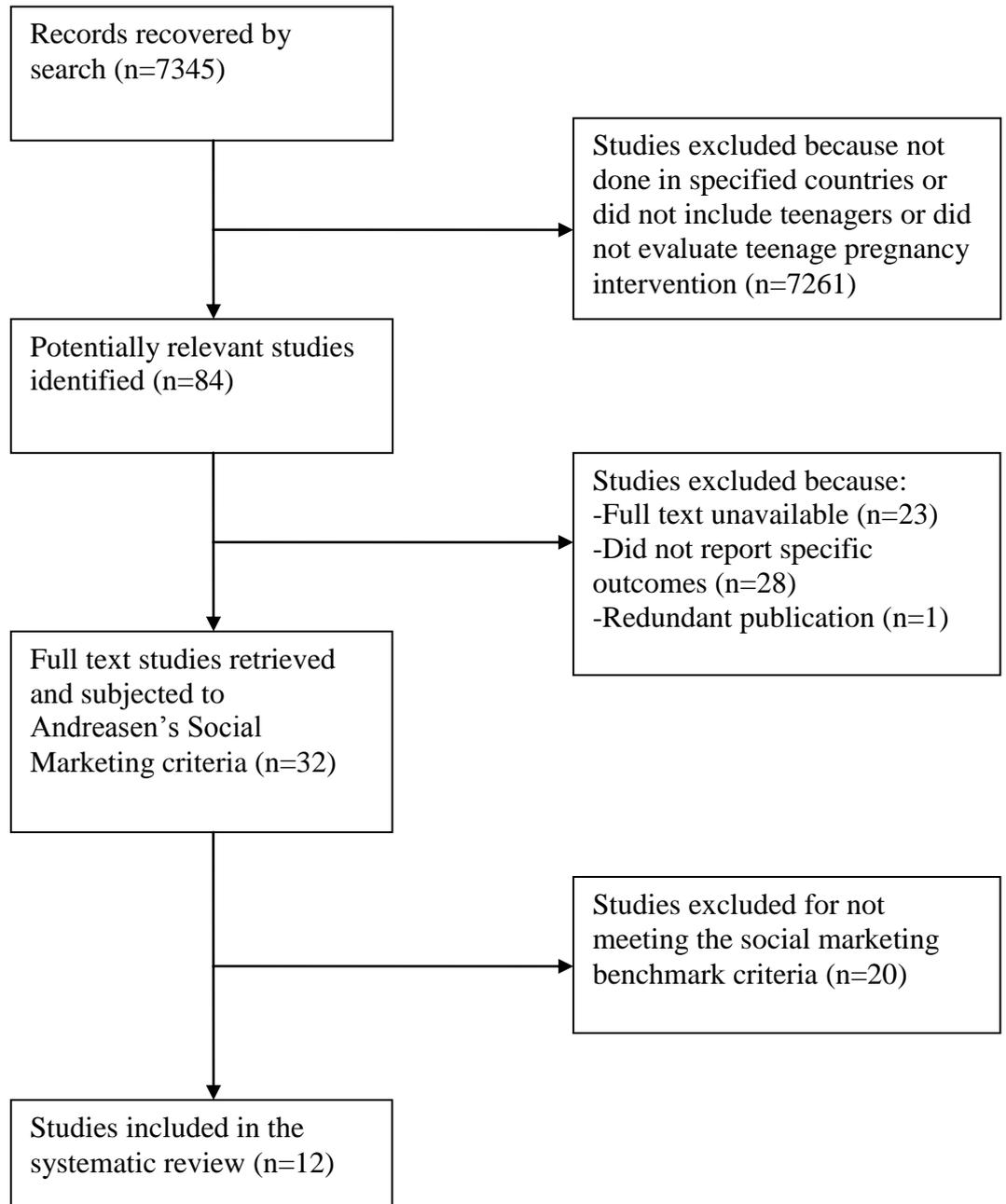
Ethical approval

This review dealt entirely with data from secondary sources and was therefore exempt from a regular human research ethics review process. Exemption was secured via the Brunel Graduate School ethics process.

3.3 Results

The process from the searching of the databases through to the final selection of studies for the systematic review is shown in Figure 3.2.

Figure 3.2: Flowchart of included studies



The search for relevant studies initially retrieved 7,345 records which included citations, abstracts and protocols. Eighty-four of the initially retrieved records were judged to be potentially relevant and selected for further scrutiny. A further 52 were excluded on the basis of not being unintended teenage pregnancy interventions, not measuring the outcomes of interest or inaccessible full text. Thirty two studies were retained and further evaluated using Andreasen's criteria for social marketing interventions (Andreasen, 2002). Twelve studies met the criteria and were included in the final systematic review.

General description of studies

Table 3.2 shows a summary description of the 12 studies that met the inclusion criteria. Nine were randomised control trials (RCTs) (Eisen et al, 1990; Aarons et al., 2000; McBride & Gienapp, 2000; Coyle et al., 2001; Wight et al., 2002; Philliber et al., 2002; Stephenson et al., 2003; Coyle et al., 2006; Lederman et al., 2008) and three were "before and after studies" (observational studies which measure specific participants' characteristics before and after intervention and compare the results) (Hughes et al., 1995; Tiezzi et al., 1997; Paine-Andrews et al., 1999). Studies that met the inclusion criteria were mainly from the USA (ten), with two from the UK (Wight et al., 2002; Stephenson et al., 2003). A total of 31,921 adolescents between age 11 and 19 were enrolled in the 12 studies. Seven studies were school based (Tiezzi et al., 1997; Aarons et al., 2000; Coyle et al., 2001; Wight et al., 2002; Stephenson et al., 2003; Coyle et al., 2006; Lederman et al., 2008). Three were both community and school based (Eisen et al.1990; Paine-Andrews et al., 1999; McBride & Gienapp, 2000). Only two were solely community based (Hughes et al., 1995; Philliber et al., 2002). Three studies (Eisen et al., 1990; Paine-Andrews et al., 1999; McBride & Gienapp, 2000; Coyle et al., 2006) were short term (less than 2 years follow up) and nine were long term (2-3 years follow up). Two studies (Aarons et al., 2000; Stephenson et al., 2003) were rated as being of low intensity (less than 10 hours or sessions), four (Eisen et al., 1990; Tiezzi et al., 1997; Coyle et al., 2001; Wight et al., 2002) as medium (10 hours/sessions to 20 hours/sessions) and three (McBride & Gienapp, 2000; Philliber et al., 2002; Coyle et al., 2006) as high intensity interventions (more than 20 hours/sessions).

Control programmes for the nine randomized control trials were mainly teacher or health professional led with less activities and contact time for participants as compared to

intervention programmes. They also had minimal involvement of participants in the learning process. The comparison groups for the “before and after studies” had no related intervention programs of any kind going on at the time of the studies.

Social marketing characteristics

The social marketing characteristics and outcomes for the 12 included studies are provided in table 3.2. The main *behaviour change goal* in all the 12 interventions was to delay involvement in sexual activity or use contraceptives effectively for those already active. All interventions carried out baseline surveys (*consumer research*) before commencement of the main programme. Five interventions (Eisen et al., 1990; Tiezzi et al., 1997; McBride & Gienapp, 2000; Stephenson et al., 2003; Coyle et al., 2006) had a more intense involvement of the target groups through needs assessments and pilot projects. *Targeting and segmentation* was mainly by age and academic level for all interventions. All interventions included sexual health lessons in their curricula. They also trained teenagers in skills of delaying sexual initiation and provided information on use and access to contraceptives for those already sexually active (*product and promotion*). Others (Eisen et al., 1990; Paine-Andrews et al., 1999; Coyle et al., 2001; Philliber et al., 2002; Lederman et al., 2008) actively involved parents, relevant community and peer groups in programme planning and implementation (*Partnerships*). Six interventions (Paine-Andrews et al., 1999; Aarons et al., 2000; McBride & Gienapp, 2000; Coyle et al., 2001; Philliber et al., 2002; Lederman et al., 2008) provided tangible incentives such as t-shirts, monetary rewards and recreation opportunities, to encourage long term participation in their programmes (*exchange*). All interventions addressed competing behaviours and other risk factors that would influence negatively the sexual behaviour of teenagers (*competition*). These included, social/peer pressure, communication barriers with parents or teachers, substance misuse, idleness, low self esteem and cultural/religious influences.

Table 3.2: A summary description of the 12 studies, intervention social marketing characteristics and study outcomes

Authors Study design & Setting	Participant characteristics Allocation Randomisation & Analysis	Intervention & Control components Follow up period and success rate	Intervention Social Marketing characteristics	Study Outcomes & Baseline difference
<p>1. (Aarons et al., 2000)</p> <p>Randomised Control Trial</p> <p>A School based program for 7th grade students from Six Washington, D.C., junior high schools, USA.</p>	<p>512 grade 7 (Age 12-13) students</p> <p>Gender 52% - females 48% - males</p> <p>Ethnicity 84% - African American 16% - others</p> <p>Allocation Intervention – 262 Control – 260</p> <p>Randomisation By school</p> <p>Analysis By individual</p> <p>Multivariate</p>	<p>Theory Socio-cognitive theory</p> <p>Exposure 8 Lessons of 45 minutes each and booster activities</p> <p>Components Led by professionals and partially by pupils. Reproductive and sexual health classes. Health risk screening.</p> <p>Control Regular teacher led educational program</p> <p>Follow up 2 years period</p> <p>Follow up rates: 1st follow up – 83%</p>	<p>Behaviour change goal: To enable students to postpone sexual involvement by improving their attitudes towards abstinence, self-efficacy to refuse unwanted sex and knowledge of reproductive health.</p> <p>Consumer research: Utilized findings from the National Youth risk behaviour survey and baseline survey</p> <p>Segmentation & targeting: Targeted 7th grade students</p> <p>Marketing mix: <i>Promotion</i> – curriculum based teaching and informal voluntary group discussions during lunch or midday free periods. <i>Product and Place</i> – Provided information on use and access of contraceptive services.</p>	<p>Delayed sexual initiation Intervention group females had higher virginity rates at all the three follow ups. At final follow up the Odds ratio was 1.88 (1.02, 3.47)</p> <p>Intervention group males had a significantly higher virginity rate only at first follow up: 1.46 (0.79, 2.71)</p> <p>Self efficacy to refuse unwanted sex Intervention females scored higher in all follow ups. At final follow up the Odds ratio was 1.30 (0.73, 2.30)</p> <p>Intervention males scored significantly higher only at first follow up: 1.71 (0.91, 3.19)</p>

2nd follow up – 68%
3rd follow up – 61%

Personnel - Facilitated by health professionals and partially by peers

Exchange:

Enhanced communication on sexual issues between parents and teenagers.
Enhanced knowledge about available contraceptive methods and services.
Participation in contests and winners awarded monetary prizes.
All participants were given t-shirt with theme: 'Be smart, Don't start.'

Competition:

Programme identified and addressed risk factors such as: substance misuse, physical abuse, involvement in sexual activity and emotional problems.

Contraceptive use at last intercourse

In all follow ups intervention females were more likely to have used birth control at last intercourse. At final follow up the Odds ratio was 3.39 (1.16, 9.95) and 1.53 (0.55, 4.26) for males.

knowledge of reproductive health and contraceptives

Intervention females had significantly higher knowledge scores than controls at final follow up - 19% (-0.02, 0.39)

On all three follow ups intervention group males had higher scores. At final follow up the mean score difference was 23% (0.03, 0.43)

Baseline difference

Not significant for all outcomes

knowledge of reproductive health and contraceptives

Minimal increase in knowledge was observed in intervention group at final follow up. (13%, p < .01)

Self efficacy to refuse unwanted sex

2. (Lederman et al., 2008)

192 parent-adolescent dyads

Randomised Control Trial

Gender
59% females
41% males

After school programme for 12 – 15 year old

Ethnicity
Hispanics - 36%

Theory
Social learning and cognitive behavioural models.

Exposure
7 sessions of 2.5 hours over 4 weeks and 3

Behaviour change goal:
Increased frequency of communication between parents and teenagers on sex issues and parental involvement in youth activities.
Changes in teenagers' cognitive emotional and behavioural self control.

<p>school youth in grades 6, 7 and 8 and their parents. From 5 middle schools in 2 different school districts in South East Texas, USA.</p>	<p>African American – 29% Caucasian – 24% others – 11%</p>	<p>booster sessions</p>	<p>Consumer research: Utilised findings from the national youth survey and baseline survey.</p>	<p>No significant difference between intervention and control group at final follow up.</p>
	<p>Allocation Intervention – 90 Control – 102</p>	<p>Components Led by professionals and partially by peers Involved parents and children Adolescent reproductive and sexual health, communication lessons</p>	<p>Segmentation & targeting: Targeted 12 – 15 year old school youth in grades 6, 7 and 8 and their parents</p>	<p>Baseline difference Not reported for both outcomes</p>
	<p>Randomisation Individual</p>	<p>Control As intervention but delivered in a traditional didactic format</p>	<p>Marketing mix: <i>Promotion & Product</i> - Role plays, practice resistance skills, parent child discussions & curriculum based teaching</p>	
	<p>Analysis By individual Multivariate</p>	<p>Follow up 2 years period</p> <p>Follow up rates not reported.</p>	<p><i>Personnel</i> - Sessions conducted by professionally trained counsellors and health educators.</p>	
			<p><i>Partnership</i> – Involved parents</p>	
			<p>Exchange: Gift certificates given as incentives for participation Enhanced parent child relationship</p>	
			<p>Competition: Programme addressed peer influence, barriers to communication, risky sexual behaviours, alcohol use and drug use.</p>	
<p>3. (Coyle et al., 2001)</p>	<p>3869 ninth grade students.</p>	<p>Theory Socio-cognitive</p>	<p>Behaviour change goal: To reduce the number of students</p>	<p>Contraceptive use at last intercourse</p>

Randomised Control Trial	Gender 48% - males 52% - females	theory, social influence theory and models of social change	beginning to have sex and increase condom use among those already sexually active.	At final follow up Intervention students were 1.68 (1.02, 2.76) times more likely to have used condoms ($p < 0.05$) and 1.76 (1.01, 3.07) times more likely to have used effective pregnancy prevention methods ($p < 0.05$) at last intercourse as compared to students in comparison schools.
A school based multi-component program for 9 th and 10 th grade (Age 14-16) students drawn from 10 schools in Northern California and 10 schools in South East Texas, USA.	Ethnicity 31% - white 27% - Hispanic 17% - African American 18% - Asian or Pacific islander 7% - Others	Exposure 20 sessions, duration not specified	Consumer research: Utilized findings from the evaluation of school based sexual health programs and baseline survey	Higher rate for intervention group at baseline (60.5% vs. 56.3%)
	Allocation Intervention – 1983 Control – 1886	Components Reproductive and sexual health lessons. A safer choices peer team or club at every school. Parents' education. School-community linkages.	Segmentation & targeting: Targeted ninth and tenth grade students and their school and home environments.	Delayed sexual initiation No statistically significant difference between intervention students and students in comparison schools at final follow up.
	Randomisation By school	Control A standard knowledge –based sexual health and HIV prevention curriculum	Marketing mix: <i>Promotion and Product</i> - Peer led resource area on campus with guidance of an adult coordinator & curriculum based teaching	Higher rate for intervention group at baseline (31.1% vs. 25.5%)
	Analysis By individual Multivariate	Follow up 31 months period	<i>Partnership</i> - Parents received newsletters three times a year on the program and served on health promotion council	knowledge of reproductive health and contraceptives Intervention students had higher scores than comparison students - adjusted mean difference of 10% ($p < 0.05$) at final follow up.
		Follow up rates: 7 months - 95% 19 months - 83% 31 months - 79%	<i>Product and Place</i> - Students, teachers and parents received resource guides on available services in the community.	Baseline difference not
			<i>Personnel</i> - Classroom curriculum implemented by trained teachers	
			Exchange: Better communication between	

			parents and children on sexual issues. Enhanced knowledge about available contraceptive methods and services. Newsletter for parents	reported
			Competition: Program addressed the school and home environment factors that influence adolescent sexual behaviour.	Self efficacy to refuse unwanted sex No significant differences observed between groups at all follow ups. Baseline difference not reported
4. (Stephenson et al., 2003)	8766 - 13 to 14 year old pupils (year 9).	Theory No theoretical model	Behaviour change goal: To improve the younger pupil's skills in sexual communication and condom use and their knowledge about pregnancy, Sexually transmitted infections, contraception and local sexual health services.	Delayed sexual initiation By age 16 fewer girls reported intercourse in the peer-led arm (34.7% as compared to 40.8% for teacher led arm - control.(OR 0.82, CI 0.68, 0.98)
Randomised Control Trial	Gender and ethnic proportions not reported	Exposure 3 sessions of about 1 hour each.	Consumer research: The programme was piloted across different types of schools and needs assessment carried out.	No significant difference was observed for boys (32.7% vs. 31.1%), p = 0.35) (OR 0.92, CI 0.65, 1.28)
School based intervention implemented over a four year (1997 – 2001) period involving 29 schools in Central and Southern England.	Allocation Intervention –4516 Control - 4250	Components: Pupil led reproductive and sex education. Communication. Use of condom skills. Sexual health services orientation.	Segmentation & targeting: Targeted year 9 pupils (13-14 years)	Unintended pregnancy A small difference was observed at age 16 between intervention and control arms among females (96.7% vs. 97.7%) Adjusted odds ratio was higher in favour of intervention 1.40 (0.97, 2.02)
	Randomisation By school	Control As above but teacher led.	Marketing mix: <i>Promotion</i> – Reproductive and sexual health sessions Participatory learning strategies and activities used e.g. role play, quizzes, games, condom use demonstration.	Self efficacy to refuse
	Analysis By individual Multivariate	Follow up 3 year period Final follow up rates: 94 % for intervention		

84% for control

Product and Place – Provided information on access to condoms and contraception.

Personnel - Program was designed by an external team of health promotion practitioners. Peer educators trained and given support in preparing and delivery of classroom sessions.

Exchange:
Better quality of relationship with current partner.
Enhanced quality of sexual experience.
Enhanced sexual health knowledge.
Confidence in using condoms and contraception.

Competition:
Programme addressed risk factors such as peer influence, access to local sexual health services, ethnicity and education attainment.

Behaviour change goal:
To delay sexual debut and increase contraceptive use among those already sexually active.

Consumer research:
Utilized findings from previous studies on job related interventions and baseline survey.

unwanted sex

At age 16 more intervention arm girls were able to say no to unwanted sex (83.7% vs. 79.7%) (OR 0.86 CI 0.74, 1.00). No significant difference was observed among boys (64.1% vs. 68.7%) (OR 1.31 CI 1.02, 1.68)

knowledge of reproductive health and contraceptives
Knowledge levels were higher for intervention group at final follow up for both boys and girls (82.3% vs. 77.8%) (OR 1.34 CI 0.97, 1.84) and (68.7% vs. 64.1%) (OR 1.31 CI 1.02, 1.68) respectively.

Baseline difference
Not reported for all outcomes

Knowledge of reproductive health and contraceptives
Intervention females' knowledge improved by 25% as compared to 14% (P<0.001) among controls. Knowledge levels were higher for males as well: 18% vs. 6% (P<0.001) at final follow up (3 years)

5.(Philliber et al., 2002)

484 disadvantaged children aged 12-16

Randomised Control Trial

Gender
268 - females
216 - males

The intervention was based in 6 youth centres in

Ethnicity
44% - African-

Theory
Based on the Carrera model (Named after founder – Dr. Carrera)

Exposure
16 - 22 hours per month over 3 years

New York City
run by Children's
Aid Society, USA.

American
26% - Hispanic
5% - White
25% - Asian and
others

Allocation

Intervention –242
Control – 242

Randomisation

By individual

Analysis

By individual
Multivariate

Components:

Work related
intervention – Job club
Academic support
Comprehensive family
life and Sexuality
education
Arts and sports.
Mental health, medical
and dental care.

Control

Regular program
mainly consisting of
recreational activities
arts and crafts and
help with homework.

Follow up

3 year period
Final follow up rates:
79% - intervention
36% -control

Segmentation & targeting:

Targeted 13-15 year old teenagers
and their parents.

Marketing mix:

Promotion and Product -
Comprehensive youth development
program and curriculum based sex
education.

Place and Product – Contraceptive
provision, Mental health care and
medical care.

Personnel- Program was delivered by
trained staff and supervised by
program director.

Exchange:

Stipends provision, help with bank
accounts and careers, homework
help, exam preparation, sexual
knowledge, talent and confidence
development, impulse control through
sports, counselling, free medical
examination and tests, access to
contraceptives.

Competition:

Program addressed risks such as
idleness, lack of motivation, low self
esteem, poor academic performance
and access to contraceptives.

Baseline difference not
reported.

**Self efficacy to refuse
unwanted sex**

75% of intervention female
participants chose not to have
sex under pressure as
compared to 36% among
controls (P<0.05) at final follow
up.
Baseline difference not
reported.

Delayed sexual initiation

Intervention female participants
were less likely to be sexually
active as compared to controls
(OR 0.5, p<0.05) at final follow
up

Higher rates were reported for
intervention males (5%) and
control females (5%) at
baseline.

Unintended pregnancy

Intervention female participants
were less likely to have
experienced pregnancy (10%
vs. 22%) (OR 0.3, p<0.01) at
final follow up.

Baseline difference not

6. (Eisen et al., 1990)
 Randomised Control Trial
 13-19 year old adolescent males and females in one independent school and 6 community based family planning agencies, Texas & California, USA.

1444 adolescents age range 13 – 19 years

Gender
 52% - females
 48% - males

Ethnicity
 15% - White
 24% - Black
 53% - Hispanic
 8% - Others

Allocation
 Intervention –722
 Control - 722

Randomisation
 By classroom and individual

Theory
 Health belief model and social learning theory

Exposure
 12 – 15 hours

Components:
 Professional led. Adolescent sexuality. Group discussions on values, feelings and emotions. Decision making skills. Training on responsible sexual behaviour.

Control
 Did not focus on

Behaviour change goals:
 To increase teenagers' awareness as regards sexual and reproductive health issues.
 To decrease the psychological and interpersonal and logistical barriers to abstinence and contraceptive use.

Consumer research:
 The curriculum was piloted and participant views incorporated

Segmentation & targeting:
 Targeted 13 – 19 year old adolescents

Marketing mix:
Promotion –
 Reproductive and sexual health sessions facilitated using a combination of lectures, simulations, leaders guided discussions, role

reported.

Contraceptive use at last intercourse

Intervention female participants were more likely to have used contraceptives at last intercourse (36% vs. 20%) (OR 2.4, p<0.05)

Baseline difference not reported.

Knowledge of reproductive health and contraceptives

At immediate follow up mean increase of about 8 points (20%) for intervention group (from 24.7 to 32.9, P<.001) and 6.8 points increase for control group (25.6 to 32.4, p<.001)

Delayed sexual initiation

Minimal difference between intervention and control at one year follow up (71% vs. 70 percent, p<0.001) for males but highly significant for females (77% vs. 61%, p<.001)

Contraceptive use at last intercourse

At one year follow up:
 55% of males in intervention as

<p>Analysis By individual Multivariate</p>	<p>perception by teenagers and had less active pupil involvement</p>	<p>Follow up 1 year period Follow up rates: Immediate – 92% After 1 year – 61%</p>	<p>playing and trigger films. <i>Product and Place</i> - Information on use of contraceptives and access provided. <i>Personnel</i> - Program facilitated by trained family planning agency educators and school staff.</p>	<p>compared to 65% in control had used effective contraceptive method at last intercourse (p<0.05). 35% of females in intervention as compared to 65% in control had used effective contraceptive method at last intercourse (p<.05).</p>
<p>7. (McBride & Gienapp, 2000)</p>	<p>232 adolescent females age 14 – 17 years.</p>	<p>Theory Client centred approach. No theoretical model.</p>	<p>Behaviour change goal: To empower young women, improve their self esteem and help them avoid early pregnancy</p>	<p>Delayed sexual initiation</p>
<p>Randomised Control Trial</p>	<p>Ethnic proportions not reported</p>	<p>Exposure 27 hours</p>	<p>Consumer research: Needs assessment and Process evaluation.</p>	<p>The percentage of adolescents who were sexually active was almost similar in intervention and control groups at final follow up (57% vs. 59%). The difference was not statistically significant.</p>
<p>A school and community based intervention for 14 – 17 year old female adolescents from high risk group in</p>	<p>Allocation Intervention –127 Control - 105 Randomisation By individual</p>	<p>Components: Professionals led weekly adolescent support groups. Reproductive and</p>	<p>Segmentation & targeting: 14 – 17 year old female adolescents from high risk group</p>	<p>Contraceptive use at last intercourse The percentage of adolescents who had used contraceptives</p>

Washington state, USA. (Study at Site G only)

Analysis
By individual
Multivariate

sexual health classes. Counselling and referrals to family planning and community services. Mentorship by older women from local colleges.

Control
Did not receive individualised services such as counselling and mentorship and had only 2 – 5 hours contact per year

Follow up
6 months period
Follow up rate: 68%

Marketing mix:
Promotion –
Reproductive and sexual health lessons
Support groups, use of videos, guest speakers, counselling and mentorship.

Product and Place-
Provision of free contraceptives and information on future access.

Personnel - Program delivered by trained health and sexuality educators and social workers.

Exchange:
Incentives for participation such as coupons for pizza or movies.
Knowledge on adolescent sexuality, abstinence and contraceptive access and use.
Free counselling services
Mentorship
Recreation opportunities

Competition:
Programme addressed risk factors such as drug and alcohol misuse, low self esteem, educational aspirations, communication with parents and peer pressure.

at last intercourse was higher in control than intervention group (100% vs. 80%)
The difference was not statistically significant.

Baseline difference
Not significant for all outcomes

8. (Coyle et al., 2006)

988 students aged 14 – 18 years

Theory
Social cognitive

Behaviour change goal:
To reduce the number of students

Contraceptive use at last intercourse

Randomised Control Trial	597 in intervention group:	theory, theory of reasoned action and theory of planned behaviour	who have unprotected sex	No statistically significant difference between intervention and control group at final follow up
14 – 19 year old teenagers in 24 alternative schools (community day schools) located in four large urban counties in Northern California, USA	African American – 29% Asian American – 16.9% Hispanic/Latino – 27.6% White – 12.2% Others – 14.2%	Exposure 26 hours/ 14 sessions	Consumer research: Program was piloted before implementation	Unintended pregnancy No statistically significant difference between intervention and control groups at final follow up.
	Males – 61.2% Females – 38.8%	Components Reproductive and sexual health lessons Negotiation skills Condom use skills	Segmentation & targeting: Targeted 14 -19 year teenagers with discipline, substance misuse and absenteeism problems.	Knowledge of reproductive health and contraceptives No statistically significant difference between intervention and control groups at final follow up.
	391 in control group:	Control Regular programme – teacher led curriculum based sex education	Marketing mix: <i>Promotion</i> – Reproductive and sexual health sessions involving students creating posters, watching videos, use of skits to demonstrate vulnerability, role playing, advice columns, group discussions and demonstrations.	Self efficacy to refuse unwanted sex No statistically significant difference between intervention and control groups at final follow up.
	African American – 25.8% Asian American – 12.8% Hispanic/Latino – 31.5% White – 12.3% others – 17.6%	Follow up 18 months period Follow up rate: 6 months – 73% 12 months – 62% 18 months – 56%	<i>Product and Place</i> - guided practice in use of condoms and information on contraceptive access	Delayed sexual initiation No statistically significant difference between intervention and control groups at final follow up.
	Males – 65% Females – 35%		<i>Partnerships</i> - Community service visits	
	Randomisation By school		<i>Personnel</i> - Program delivered by trained and experienced health educators	Baseline difference Higher rate of contraceptive use at last intercourse for control group (7%). Other
	Analysis By individual		Exchange: Knowledge on adolescent sexuality and contraceptive access and use.	

	Multivariate		Competition: Programme addressed attitudes towards having sex and use of condoms, substance misuse, poor school performance and reinforced pro-social attitudes through community activities.	outcomes not reported.
9. (Wight et al., 2002)	8430 pupils aged 13-15 years	Theory Psychosocial and sociological theoretical framework.	Behaviour change goal: To reduce unsafe sexual behaviours, unwanted pregnancies and improve the quality of sexual relationships.	Delayed sexual initiation No significant difference between intervention and control participants: Males - 23.6% vs. 23.9% (p=0.89) Females - 31.8% vs. 33% (p=0.59)
Randomised Control Trial	Intervention - 4197 Male – 49% Female – 51%	Exposure 20 sessions Duration not specified	Consumer research: The programme was piloted before implementation.	A Slightly higher rate for intervention group at baseline (4%)
13-15 year old teenagers in 25 non catholic schools located in Tayside & Lothian regions, UK.	Control - 4233 Male – 51% Female – 49%	Components: Delivered by trained teachers. Reproductive and sexual health lessons. Negotiation skills. Condom use skills.	Segmentation & targeting: 13 -15 year old teenagers in secondary schools	Contraceptive use at last intercourse No significant difference between intervention and control participants: Males - 18.7% vs. 21% (p=0.38) and Females - 30.4% vs. 28% (p=0.48)
	Ethnic proportions not reported	Control Provision of information and discussion sessions. Limited training of teachers.	Marketing mix: <i>Promotion-</i> Reproductive and sexual health lessons Role playing, group work, games, information leaflets on sexual health including contraceptives and interactive video. <i>Product and Place -</i> Demonstrations on use of condoms and information on contraceptive access	Baseline difference not significant
	Randomisation By school	Follow up 2 year period		Unintended pregnancy No statistically significant
	Analysis By individual Multivariate			

		Follow up rate: Intervention – 72% Control – 73%	<i>Personnel</i> – Delivered by trained teachers		difference between intervention and control participants (4% vs. 3.8%)
			Exchange: Full cost coverage for training teachers Enhanced quality of sexual relationships for participants Enhanced knowledge on adolescent sexuality, pregnancy and contraceptive access and use		Baseline difference not significant
			Competition: Programme addressed peer and social pressures on sexual behaviours		Knowledge of reproductive health and contraceptives The mean difference between intervention and control was minimal but significant – 0.7%, $p < .05$ for boys and 0.5%, $p < .05$.
					Baseline difference not reported
10. (Tiezzi et al., 1997)	3738 junior high school students		Theory Not based on any theoretical framework	Behaviour change goal: To reduce the risk of unintended pregnancy by providing information, counselling, support and referral for reproductive health care.	Unintended pregnancy Pregnancy rate overall in the four intervention schools dropped from 8.8 per 1000 in year 1 to 5.3 per 1000 in year 2 and 6.8 per 1000 in year 3.
Before & After Observational Study	Gender Female - 46% Male – 54%		Exposure 15 lessons, duration not reported	Consumer research: A health and risk factor survey was conducted and curriculum pre-tested.	Pregnancy rate in one school that dropped out of the programme due to funding was three times that of the schools in the programme (16.5 pregnancies per 1000 female students vs. 5.8 per 1000)
Grade 6, 7 & 8 teenagers of mean age 12.9 years attending school based clinics in four New York City junior schools, USA	Ethnicity Hispanic - 81% Black - 10% Other - 9%		Components: Reproductive and sexual health lessons. Individual education and counselling. Interdisciplinary support i.e. social workers, medical	Segmentation & targeting: Targeted grade 6, 7 & 8 students.	
	Analysis Univariate Cross tabulations			Marketing mix: <i>Promotion</i> – Reproductive and sexual health	

providers and psychiatrists.
Decision making skills

Follow up
3 years period

Follow up rates not reported.

sessions.
Role plays, group games, brainstorming exercises, audiovisual presentations and exploratory learning to discover own vulnerability

Product and Place - Information on contraceptives, referrals and assistance from health educators to obtain contraceptives

Personnel – Programme was facilitated by an experienced multidisciplinary team

Exchange:
Enhanced knowledge on adolescent sexuality, pregnancy and contraceptives.
Free counselling service
Referral and assistance in obtaining contraceptives.

Competition:
Programme addressed peer and social pressures on sexual behaviours and other risk factors such as alcohol and substance misuse.

11. (Paine-Andrews et al., 1999)

Before & After

Grade 9-12 students

Geary – 1004 students

Franklin – 710

Theory
Theory of change.

Exposure
Duration not reported

Behaviour change goal:
To reduce teenage pregnancies, to delay the age of first intercourse and to increase contraceptive use among sexually active teenagers.

Delayed sexual initiation
In Geary county adolescents reporting ever having had sex reduced from 51% in 1st year of program to 38% among

<p>Observational Study (with comparison groups)</p> <p>14 – 17 year old teenagers in three schools and community based programs in Kansas, USA.</p>	<p>students Wichita – not reported</p> <p>Gender and ethnicity details of participants not reported</p> <p>Analysis Multivariate</p>	<p>Components: Delivered by trained project staff. Sexual education for teachers and parents. Age appropriate sex education. Increased access to health services. Use of mass media. Community Involvement. Peer support and education. Alternative activities for young people. Involvement of the faith community.</p>	<p>Consumer research: Programme was piloted before implementation.</p> <p>Segmentation & targeting: 14 -17 year old females</p> <p>Marketing mix: <i>Promotion-</i> Reproductive and sexual health classes for teachers, students and parents. Use of mass media</p> <p><i>Product and Place-</i> Enhanced access to health services and contraceptives</p> <p><i>Partnerships-</i> Involvement of parents, faith community, schools and health department officials, media and local businesses.</p>	<p>females and 63% to 43% among males in third year (P<0.05).</p> <p>In Franklin county adolescents reporting ever having had sex increased from 33% in 1st year of program to 40% among females and 54% to 68% among males in third year (P<0.05).</p> <p>Contraceptive use at last intercourse There was no statistically significant change in Geary county.</p> <p>In Franklin county more males reported using condoms in third year (55%) as compared to 39% in first year (P<0.05).</p>
		<p>Follow up 3 years period</p> <p>Follow up rates: Geary – 68% Franklin – 79% Wichita – not reported</p>	<p>Exchange: Enhanced knowledge on adolescent sexuality, pregnancy and contraceptives. Enhanced access to health and contraceptive services After school and holiday activities Peer support groups Mentorship opportunities</p>	<p>Unintended pregnancy The pregnancy rate decreased in Geary County - from 63/1000 pre-intervention to about 56/1000 post-intervention. Whereas the comparison area increased from 60/1000 to 69/1000 (P<0.05)</p>
			<p>Competition: Programme addressed social</p>	<p>In Franklin county pregnancy rates reduced from 41/1000 to</p>

12.(Hughes et al., 1995)

Before & After Observational Study (With comparison group)

14 -18 year old teenagers attending family planning clinics in Philadelphia area, USA.

14 – 18 year old adolescents from family planning clinic catchment areas and entire city.

Catchment areas – 907

Black - 46%
Other ethnic proportions not reported

Females - 82%
Males – 18%

Entire city – 117

Black - 41%
Other ethnic proportions not reported

Female - 81%
Males – 19%

Analysis

Multivariate

Theory

Theoretical framework not specified

Exposure

Not reported

Program components:

Delivered by health professionals.
After school or evening clinic services.
Teenage walk in hours.
Reduced waiting time for teenagers' appointments.
Increase of hours reserved for teenagers only.
Educational sessions at community institutions for teenagers and parents.
Community health fairs.

pressures on sexual behaviour, idleness during holidays and after school.
Involved faith community and local businesses

Behaviour change goal:

To increase awareness of teenage pregnancy and encourage responsible sexual decision making.

Consumer research:

A baseline survey was carried before programme implementation.

Segmentation & targeting:

14 to 18 year old teenagers

Marketing mix:

Promotion-
Reproductive sexual health sessions for teenagers and parents.
Use of posters, public transit cards with program slogan – 'Pregnancy: It's not for me.' Community fairs, radio programmes, newspaper articles

Product and Place- After school or evening clinic services, teenage walk in hours, reduced waiting time for teenagers' appointments and increase of hours reserved for teenagers only.

Personnel – Facilitated by health professionals

37/1000 whereas the comparison area had a minimal decrease from 39/1000 to 37/1000 (P<0.05)

Delayed sexual intercourse

There was no significant change in the percentage of teenagers who reported ever having sex pre and post intervention (51% vs. 52%)

Contraceptive use at last intercourse

Use of contraceptive in the last intercourse increased slightly from 67% to 73% but was not statistically significant

Unintended pregnancy

Pregnancy rate rose slightly from 6% to 8% but was not statistically significant

Comparison area

There was no significant difference between intervention and comparison groups for the three outcomes.

Peer education.

Comparison group:
No intervention

Follow up
3 years period

Only 20% of participants interviewed at baseline were re-interviewed at final evaluation as planned.

Exchange:

Enhanced knowledge on adolescent sexuality, pregnancy and contraceptives.

Enhanced access to sexual health and contraceptive services

Competition:

Programme addressed negative attitudes towards use of contraceptives, logistic barriers to accessing contraceptive services and peer pressures on sexual behaviour

Table 3.3: Quality assessment of the 12 studies that evaluated interventions aimed at reducing unintended teenage pregnancy

Study	Unbiased selection	Study design	Control of confounders	Blinding	Data collection methods	Withdrawals and drop outs	Intervention integrity	Appropriate analyses	Global rating
(Aarons et al., 2000)	Moderate	Strong	Strong	Moderate	Strong	Moderate	Moderate	Moderate	Moderate
(Lederman et al., 2008)	Weak	Strong	moderate	Moderate	Strong	Weak	Weak	Moderate	Weak
(Coyle et al., 2001)	Strong	Strong	Strong	Moderate	Strong	Moderate	Weak	Moderate	Moderate
(Stephenson et al., 2003)	Strong	Strong	Strong	Moderate	Moderate	Strong	Strong	Strong	Strong
(Philliber et al., 2002)	Moderate	Strong	Strong	Moderate	Moderate	Moderate	Moderate	Strong	Moderate
(Eisen et al., 1990)	Moderate	Strong	Moderate	Weak	Strong	Moderate	Moderate	Strong	Moderate
(McBride & Gienapp, 2000)	Weak	Moderate	Moderate	Moderate	strong	Moderate	Moderate	Moderate	Moderate
(Coyle et al., 2006)	Strong	Strong	Strong	Moderate	Moderate	Weak	Moderate	Moderate	Moderate
(Wight et al., 2002)	Moderate	Strong	Moderate	Strong	Moderate	Moderate	Moderate	Moderate	Moderate

(Tiezzi et al., 1997)	Weak	Moderate	Weak	Not Applicable	Weak	Weak	Weak	Moderate	Weak
(Paine-Andrews et al., 1999)	Weak	Moderate	Moderate	Not applicable	Moderate	Moderate	Moderate	Moderate	Moderate
(Hughes et al., 1995)	Strong	Moderate	Strong	Not Applicable	Moderate	Moderate	Moderate	Moderate	Moderate

Rating

- 1 Strong (Four strong with no weak ratings)
- 2 Moderate (Less than four strong ratings and one weak rating)
- 3 Weak (Two or more weak ratings)

Study quality

A summary of the quality assessment for the twelve studies is shown in table 3.3. Overall one study (Stephenson et al., 2003) was rated as strong while the majority (Eisen et al., 1990; Hughes et al., 1995; Aarons et al., 2000; McBride & Gienapp, 2000; Coyle et al., 2001; Wight et al., 2002; Philliber et al., 2002; Coyle et al., 2006; Paine-Andrews et al., 1999) were rated as moderate and two as weak (Lederman et al., 2008; Tiezzi et al., 1997). (For details on rating see appendices 3.1 & 3.2 and also on line at:

<http://www.ehphp.ca/PDF/QATool.pdf> & <http://www.ehphp.ca/PDF/QADictionary.pdf>.

Outcomes

The five outcomes reported in the 12 studies were examined in turn. These were; change in rate of unintended teenage pregnancies, delayed sexual initiation, contraceptive use at last intercourse, knowledge of contraception and reproductive health, and self efficacy to refuse unwanted sexual intercourse.

Unintended pregnancy

Seven studies assessed participants' self reported incidence of unintended pregnancy. Male participants reported the incidence of causing a pregnancy. Two RCTs (Philliber et al., 2002; Stephenson et al., 2003) and two "before and after studies" (Tiezzi et al., 1997; Paine-Andrews et al., 1999) reported significant intervention effects. The four interventions were all long term (two or more years). The intervention with the largest effect (Philliber et al., 2002) was relatively more intense than the rest (up to 22 hours monthly over a three year period). In this study, female participants were up to 70% (Odds Ratio (OR) 0.3, $P < 0.01$) less likely to report having experienced unintended pregnancy at final follow up as compared to control group female participants. No study reported a significant effect among male participants. The follow up rate was relatively low in two out of the three studies that reported no effect. (Coyle et al., 2006) had an attrition rate of 44% while (Hughes et al., 1995) only interviewed 20% of the participants at final follow up.

Delayed sexual initiation

Ten studies assessed participants' self reported incidence of sexual initiation. Four RCTs (Eisen et al., 1990; Aarons et al., 2000; Philliber et al., 2002; Stephenson et al., 2003) and one "before and after study" (Paine-Andrews et al., 1999) reported significant intervention effects. Two studies with the lowest follow up rates reported no significant impact (Hughes et al., 1995; Coyle et al., 2006). The largest intervention effect was among females reported by (Aarons et al., 2000) (OR 1.88 95% Confidence Interval (CI) 1.02, 3.47). Only two studies (Eisen et al., 1990; Paine-Andrews et al., 1999) reported significant effects among male participants of 16% ($P<.001$) and 17% ($P<.05$) reduction in sexual activity since baseline respectively.

Contraceptive use at last sexual intercourse

Nine studies assessed participants' self reported use of contraceptive at last sexual intercourse. Three RCTs (Aarons et al., 2000; Coyle et al., 2001; Philliber et al., 2002) and one "before and after study" (Paine-Andrews et al., 1999) reported significant intervention effects. The four interventions that reported significant effects were long term whereas in one short term study (Eisen et al., 1990), control participants had better outcomes. Again the two studies with the lowest follow up rates (Hughes et al., 1995; Coyle et al., 2006) reported no impact. Aarons et al. (2000) reported the largest intervention effect. In this study, intervention females were three times more likely to have used contraceptives at last sexual intercourse than control females (OR 3.39 95% CI 1.16, 9.95). Only one study (Paine-Andrews et al., 1999) reported a significant intervention effect among particularly male participants of 16% ($P<0.05$) increase in contraceptive use since baseline.

Knowledge of reproductive health and contraceptives

Eight randomized control trials assessed participants' self reported knowledge of reproductive health and contraceptive use. Only one study (Coyle et al., 2006) did not report a significant impact. The largest intervention effect was among male participants in the study by Aarons et al. (2000) where intervention males had a mean score improvement of up to 23% ($P<0.05$) higher than those in the control group at final follow up. The same study had the largest effect among female participants as well (19%, $P<0.05$).

Self efficacy to refuse unwanted sex

Five randomized control trials assessed participants' "self efficacy to refuse unwanted sex." Only one study (Philliber et al., 2002) reported a significant effect (39%, $P < 0.05$) among female participants, indicating that 39% more female participants in the intervention group had chosen not to have sex when pressured as compared with the control group. None of the studies reported any significant effect among males. Philliber's intervention (Philliber et al., 2002) was community based, long term and was implemented for the longest duration (22 hrs monthly over a three year period).

3.4 Discussion

This review assessed 12 studies conducted in USA and UK, to determine the effectiveness of a social marketing approach in reducing unintended teenage pregnancy and influencing related behaviour change. Although all studies reported interventions that fully met the specified social marketing criteria, the actual implementation of programmes varied in content, follow up periods, intensity, settings and programme content. Results showed variation in intervention effects across specified outcomes with nine studies out of 12 reporting significant effects on at least one of the specified outcomes. Overall no particular social marketing component or activity was independently associated with effective interventions except for one behavioural outcome (self efficacy to refuse unwanted sex) where the only intervention that reported a significant effect (Philliber et al., 2002) appeared to have a relatively more intense *marketing mix* and provided more participant incentives (*exchange*). Long term interventions also appeared to be more effective as compared to short term ones for most outcomes. The impact on male participants' sexual behaviour was minimal in most studies.

The significance of employing multifaceted/multi-component approaches (*marketing mix*) in teenage pregnancy interventions has been highlighted by other similar studies (Cheesebrough et al., 1999; Card, 1999; DiCenso et al., 2002). These studies observed that interventions which combined school and community strategies, media and health service provision reported a greater impact on teenagers' sexual behaviour and reduction in unintended pregnancies. The idea of using incentives (*exchange*) to encourage behaviour change has recently been gaining favour in public health practice (Thaler & Sustein, 2008; Jochelson, 2007). However, evidence on the sustainability of the behaviour change on the long term is limited. Some evidence suggests that financial/monetary incentives are more effective in changing "one off" behaviours such as keeping appointments and participating in programmes whereas non financial incentives that enhance individuals' motivation, confidence and skills are more effective on the long term (Jochelson, 2007). Overall the use of incentives is recommended in motivating behaviour change especially among hard to reach groups (Kirby, 2001; Teenage Pregnancy Unit, 2006; Arai, 2003; Kirby, 2007).

This study observed an association between programme duration and impact, a finding which is consistent with those of other studies (Cheesebrough et al., 1999; Card, 1999;

Robin et al., 2004) which have also highlighted the futility of implementing well designed interventions over short periods (less than two years). Rotheram-Borus et al. (1998) in their study on intervention programme duration also found that short session interventions implemented over long periods were more effective than long sessions implemented over short periods. Although these findings underscore the importance of long term interventions, in practice this might be a major challenge for institutions such as schools which often have limited time and resources to implement programs within an academic year, and have important implications for the cost-effectiveness of the approach. Although time limitation may not be a major challenge for community based programs, the need for extra resources to implement multiple sessions may be a notable barrier (Stanton et al., 1996; Peersman & Levy, 1998; Kirby, 2007).

The minimal impact on male participants' sexual behaviour observed in this study raises important questions. Firstly is the appropriateness of evaluation tools used in studies included in this review and whether they were cognitively tested with male participants before actual use. Perhaps males do not know about their partners' pregnancies and possibly refusal of unwanted sex is more female-related than male? What if a large proportion of females are using other forms of contraception which makes it unnecessary for males to use condoms for the purpose of pregnancy prevention? Currently evidence on male participation in teenage pregnancy interventions is limited. However some qualitative studies have indicated that most of the current approaches are mainly designed for females and may be inappropriate for males (Trivedi et al., 2009). These findings and related questions seek further investigation to establish why males appear to be highly receptive to sexual health messages but are unable or unwilling to put them into practice. There is need for more studies to help understand the male sexual behaviour and for the development of better intervention and evaluation strategies.

The 12 included studies had several methodological limitations worth considering while interpreting the results of this review. Only four studies reported analysing final data either with "intention to treat" (Wight et al., 2002; Stephenson et al., 2003) or used multilevel logistic models to investigate the participant loss to follow up effect (Coyle et al., 2001; Coyle et al., 2006) whereas attrition rates were more than 20% in most RCTs. In a number of RCTs (Aarons et al., 2000; Coyle et al., 2001; Wight et al., 2002; Philliber et al., 2002; Coyle et al., 2006) the baseline differences between intervention and control groups were

significant. This might have led to a discrepancy in measuring rates of change in outcomes between groups. Most of the RCTs also did not report the follow up success rates for control groups making it difficult to compare the effect of attrition on outcomes for the two arms of study. The heterogeneity in outcome measures where some studies used percentage and others odds ratios made it difficult to accurately compare levels of impact as well.

The intervention program contents varied across studies despite all meeting the social marketing criteria. This meant it was not possible to comprehensively assess program intensity. This was made more difficult with some studies not specifying duration of intervention exposure or simply stating number of sessions. Another limitation to be considered here is that, in the reported RCTs, the control groups received a conventional intervention rather than no intervention. This means that the test applied was not whether social marketing interventions were effective, but whether they were more effective than the conventional interventions. However, this situation is not peculiar to the studies reviewed here, and is a problem common to many RCTs. As is also common with other controlled studies, the possibility of contamination across groups was high especially where randomization was done at individual level which might have contributed to some studies reporting low or null effects.

This review included studies only reported in the English language and may, therefore, have missed studies done within Western Europe reported in other languages. Indeed, the studies that met the inclusion criteria were all conducted in the USA and UK. This could reflect language limitations or the fact that teenage pregnancy has been viewed as a priority problem in the USA and UK for over a decade and therefore attracted more research (Imamura et al., 2007). The majority of the interventions evaluated involved participants from ethnic minority groups, mainly Hispanics and African American groups and the wider relevance of these findings beyond those groups need further consideration. However, in support of the wider generalisability of the results, three of the studies (Paine-Andrews et al., 1999; McBride & Gienapp, 2000; Coyle et al., 2001) which had a majority of white participants, reported comparable outcomes. Lastly, the quality of two studies (Tiezzi et al., 1997; Lederman et al., 2008) was rated as weak, which brings into question the true intervention effects. However, the low rating could have been due to under-reporting of vital methodological details by the authors due to word limitations. All studies

relied mostly on participant self reported data for analysis which is a known inevitable source of bias for studies evaluating sexual behaviours, as there is the tendency for respondents to agree with statements associated with healthier behaviours or attitudes (McFarlane & St Lawrence, 1999; Sieving et al., 2005). However, this potential setback was ameliorated by participant privacy and confidentiality in most studies.

Implications for Social Marketing

The results of this study indicate that the mere application of social marketing principles in unintended teenage pregnancy interventions may not be adequate to consistently produce favourable outcomes. Other factors such as programme duration and intensity play a major role. In this study, long term interventions were more effective as compared to short term ones for most outcomes. Furthermore, the only program that reported significant effects across all five outcomes was long term and had the highest exposure period of up to 22 hours a month over a period of three years (Philliber et al., 2002). This implies that the social marketing potential is more likely to be fully exploited when a long term approach is employed. However, considering the vast resources required to run such long-term programs, further research to inform the design of medium term and cost effective interventions is recommended. Philliber's intervention was also the most intensive, featured a better marketing mix and used incentives extensively to encourage participation in its programmes. These findings underline the need for well designed social marketing programmes which address adequately the identified needs of a well defined target group while ensuring there is regular participation in intervention activities for significant effects to be realised.

3.5 Conclusion

This is the first systematic review to assess the effectiveness of a social marketing approach in teenage pregnancy interventions in the developed countries. Results indicate that Social Marketing may be an effective approach in reducing teenage pregnancies and influencing related behaviour change but evidence is limited to particular outcomes/context and therefore inconclusive. The fact that all the included studies were not necessarily designed as typical social marketing interventions meant the implementation of the specific programme activities varied widely despite all meeting the minimum specified inclusion criteria, a factor which might have contributed to the inconsistent impact. There is therefore need for more teenage pregnancy interventions and studies that are specifically designed around social marketing principles which would permit a more robust evaluation of social marketing than the incidentally social marketing interventions currently do. The minimal impact of the interventions on male participants' sexual behaviour also warrants further investigation.

Chapter 4: Factors Associated with the Use of Long Acting Reversible Contraceptives among Young Women in the United Kingdom

In this chapter I present the second study on factors associated with use of Long Acting Reversible Contraceptives (LARC) among young women aged 16-24 in the UK. This study is an application of the *consumer research* component of social marketing. In the introduction section I describe the rationale for the study, policy context and include a discussion on evidence from other related studies. In the methods section I list the study's aim and objectives and describe the data management and analysis process. In the results section I present the socio-demographic details of participants in the five surveys and include a summary table. Also included are findings from the trend analysis on use of LARC methods with graphs for various age groups and a section on factors associated with use of LARC methods. I report findings for two distinct periods i.e. the period before LARC guidelines were published by the National Institute of Health and Clinical Excellence (NICE) (2002-2005) and after (2006-2007). The results section also includes findings from the analyses of reasons why women changed from LARC methods to non-LARC and vice versa. These findings are summarised in three tables. The main findings from the study are also discussed and implications for public health policy and practice and social marketing highlighted. I also discuss study limitations and lastly draw conclusions and make suggestions on further research.

4.1 Introduction

The rate of unintended pregnancy among young women aged below 25 years in the UK has remained high over the years despite the annual increases in the prevalence of contraception use. Of concern has also been the associated rate of abortion which is relatively higher than that of older women. In 2009 for example, the abortion rate was highest among women of age range 20-24 (30/1000) followed by those in age range 15-19 (23/1000) (Department of Health, 2009b). Furthermore teenage births which evidence shows largely result from unintended pregnancies (Department of Children, Schools and Families, 2010) and abortion rates in the UK are the highest in Western Europe (Family Planning Association, 2010). Unintended pregnancy among young women has been associated with disruption in formal education processes, increased vulnerability and long

term negative social, health and economic outcomes where there is no adequate support (Department of Children, Schools and Families, 2010). Unintended pregnancies not only affect individual women and families, they are also a major burden to the national economy. In the UK, it is estimated that each unintended pregnancy costs the National Health Service (NHS) about £1,235 which equates to approximately £500 million annually (National Institute for Health and Clinical excellence, 2005; Bayer Health Care & Bayer Schering Pharma, 2008).

The UK government considers unintended pregnancy a priority public health issue as highlighted in its policy documents namely, the National Sexual Health Strategy (Department of Health, 2001a), The National Teenage Pregnancy Strategy (Social Exclusion Unit, 1999) and the Choosing Health: Making Healthy Choices Easier, White Paper (Department of Health, 2004) all of which emphasise the provision of good quality contraceptive services as key to reducing unintended pregnancy rates among women of reproductive age. This approach is based on evidence which shows that significant reduction in unintended pregnancy rates can mainly be achieved through facilitating use of effective contraception (National Institute for Health and Clinical Excellence, 2005; Flemming, 2009). While the majority of young women in the UK use some form of contraception, the contraceptive failure rates are relatively high. This disparity has been associated with the choice of contraception where the tendency has been towards reliance on temporary methods such as condoms and pills which have higher rates of failure (Fu et al., 1999; Ranjit et al., 2001). It is estimated that about 90% of unintended pregnancies in the UK are as result of contraception not being used or being used incorrectly (Flemming, 2009; Bury et al., 2009). This is despite the seemingly easy access to contraception in the UK where contraceptives have been freely available via the National Health Service since 1974.

Among young women aged 16-24 hormonal pills and male condoms have remained the most popular methods of contraception (The NHS Information Centre for Health & Social Care, 2010) even with the available evidence showing that the majority of unintended pregnancies that end up in abortion in the UK are among women who report using condoms or pills (Schunmann & Glasier, 2006; Rowlands, 2007). The use of long acting reversible contraceptives (LARC) among young women in the UK remains low in spite of the overwhelming evidence of their cost-effectiveness in preventing unintended

pregnancies (The National Institute for Health and Clinical excellence, 2005; Trussell, 2007). Long acting reversible contraceptives are defined as: contraceptives that require administering less than one cycle per month (National Institute for Health and Clinical Excellence, 2005). These include: Intra-Uterine Device (IUD), Intra-Uterine System (IUS), Depo-Provera injection and Implants (See Appendix 4.1 for details). Unlike the commonly used methods, the effectiveness of LARC is less dependent on compliance/correct use of method.

In recognition of the importance of promoting the uptake of LARC in order to address the high rates of unintended pregnancies and abortions, the UK government commissioned the National Institute of Clinical Excellence to develop guidelines for health practitioners in order to encourage more prescription of LARC methods. The guidelines were published in 2005, initially designed for England and Wales but were also adopted by Scotland. Since 2009, General Practitioners (GPs) have also been given incentives (more funding) through the Quality Outcomes Framework (QOF) to provide advice on sexual health and contraception and in particular LARC methods (Teenage Pregnancy Independent Advisory Group, 2009). However, LARC uptake among young women still remains low hence the need for a *consumer research* to explore further possible explanatory factors to be considered in future strategy reviews. The dependence on medical practitioners to administer LARC has been cited as a major contributing factor to the low uptake by some studies (Glasier et al., 2008). Others have observed that most health professionals lack the necessary skills and motivation to administer LARCs and therefore end up prescribing user dependent methods (Wellings et al., 2007; Bury et al., 2009). The acceptability of LARC methods among women has also been found to be low. This has been attributed to limited knowledge and reliance on negative anecdotes from peers and some media about related risks and side effects (Glasier et al., 2008; Ruddick, 2009).

Notwithstanding the interest in promoting the use of LARC in the UK and the interest in contraceptive choice, little research has looked at factors associated with the uptake of LARC methods. In the UK most of the evidence on contraceptive use and choice has been dependent on annual opinion surveys carried out by the Office for National Statistics (ONS) and the National Health Service (NHS) Contraceptive Services annual reports based on returns from Community Contraception Clinics. The published reports have been useful in the understanding of contraceptive uptake patterns in the UK but in case of the latter, the

limitation has been not including services provided by genitourinary medicine (GUM) consultants in outpatient clinics and general practitioners. The ONS Opinion Survey reports on the other hand prior to 2005/06 did not include multivariate modelling which is vital in understanding the independent association between various socio-demographic/behavioural factors and contraceptive use/choice. Furthermore, after 2005 the multivariate analyses reported by ONS have been limited to the association between participant characteristics and use of condoms or pills. So far, no study has specifically investigated factors associated with the use of LARC methods among young women (below age 25) in the UK.

In order to increase the use of LARC methods among young women in the UK, it is important that a *consumer research* is undertaken to understand the relationship between socio-demographic and sexual characteristics of those who choose these methods and those who don't. It is also important to understand the reasons why young women choose LARC or non-LARC methods. This will enable health care providers to design better strategies that will enhance LARC uptake among young women and reduce the rate of unintended pregnancies. To address these areas about which little is known, the latest publicly available nationally representative survey data on contraceptive use in the UK collected by the Office for National Statistics between 2002 and 2007 are analysed.

4.2 Methods

Aim

To examine factors associated with use of LARC methods among young women aged 16-24 in the UK.

Objectives

- To identify LARC and Non-LARC uptake trends among women who participated in the five surveys.
- To examine the impact of NICE LARC guidelines on LARC uptake among participants.
- To describe the association between individual socio-demographic characteristics, sexual behaviour and use of LARC methods.
- To identify the main factors that influence change of contraception from non-LARC to LARC and vice versa.

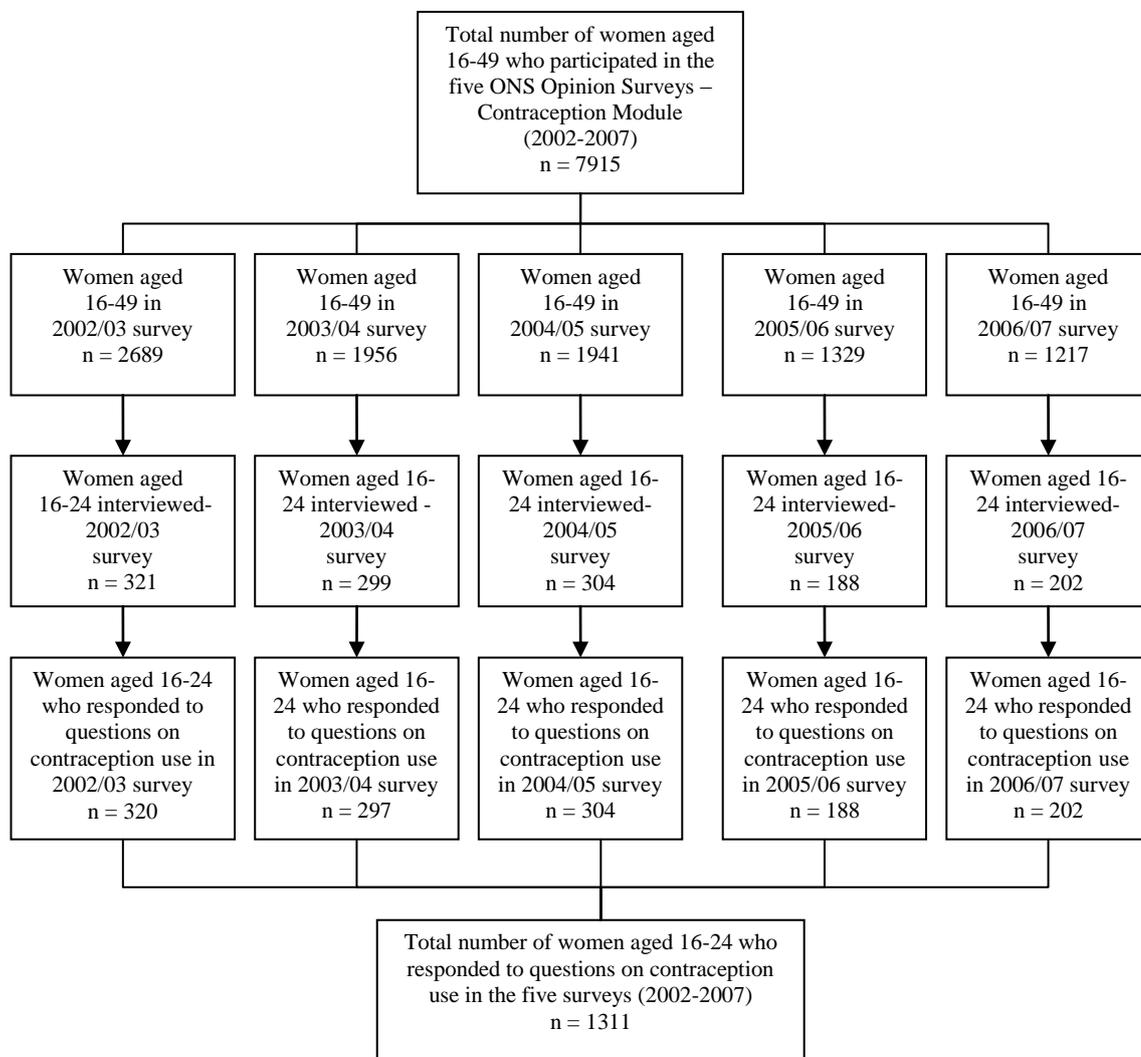
Datasets description

The 2002/03, 2003/04, 2004/05, 2005/06 and 2006/07 ONS Opinion Survey (Previously known as the Omnibus Survey) data sets were obtained from the UK Data Archive, Economic and Social Data Service (ESDS), University of Essex, Colchester, UK. The datasets were of the contraceptive modules carried out during the months of June, September, December and March for the specified years. Each month, over 1,000 adults (aged 16 and over) living in private households in the UK were selected using postcode address file as a sampling frame and interviewed. A new sample of postal sectors was selected each month and stratified by: region; the proportion of households renting from local authorities; and the proportion in which the household reference person was in a socio-economic group 1-3 (i.e. a professional, employer or manager). The postal sectors were selected with a probability proportionate to size and within each sector 30 addresses (delivery points) were randomly selected. If an address contained more than one household, the interviewer randomly selected one of the households. Within households with more than one adult member, just one person aged 16 or above was selected using

random number tables. Proxy interviews were not taken. Weighting factors were applied to collected data to correct for unequal probability of selection caused by interviewing only one adult per household, or restricting the eligibility of the module to certain types of respondents.

The publication of NICE guidelines for health workers in the UK by the Department of Health in October 2005 which aimed at increasing the use of LARC methods among women of reproductive age was considered a potentially significant factor that might have impacted on LARC uptake trends. For that reason, the five survey datasets were divided into two subgroups to represent the periods before (Pre-NICE) and after (Post-NICE) NICE guidelines were issued. The Pre-NICE period included datasets for surveys done between June 2002 and March 2005 (2002/03-2004/05) whereas the Post-NICE period included datasets for surveys done between December 2005 and March 2007 (2005/06-2006/07). The methodology for data collection and recording was sufficiently similar and no difficulties were experienced while combining the datasets. The five surveys collected information on socio-demographic details, contraceptive use, sexual relationships and knowledge of sexually transmitted diseases from women aged 16-49 and men aged 16-69 (See Appendix 4.8 for sample questionnaire). This study analysed responses from women aged 16-24 on socio-demographic characteristics, contraceptive use and sexual relationships. The numbers of women who participated in the five surveys and those who responded to the questions on contraceptive use are shown in figure 4.1

Figure 4.1: Flow chart showing the number of women who participated in the five ONS Opinion Surveys – Contraception Modules for the period 2002-2007 and the number of responses analysed in the current study.



Measures

Explanatory variables

Explanatory variables based on the participants' socio-demographic characteristics and sexual behaviour were:

- Age band (16-19, 20-24)
- Ethnicity
- Socio-economic class
- Educational level
- Area deprivation²
- Marital status
- Sexual behaviour
 - Number of partners in the last one year
 - Number of current partners

Reasons for change of contraception method

To determine reasons for change of type of contraception (LARC to Non-LARC and vice versa) the following response options derived from question C170.21 (Appendix 4.8) were used as explanatory variables:

- Different partner
- More reliable in preventing pregnancy
- More convenient to use
- Better for long term health
- Better for protecting against infection

The influence on change of methods by General Practitioners (GPs) and other Family Planning Practitioners (FPPs) was further analysed using the 'Yes'/'No' binary responses to the question that asked respondents whether they were at all influenced to make the change by advice from a GP or Family Planning Practitioner (M170_22 – Appendix 8).

² Area deprivation was based on the percentage of Lower Super Output Areas (LSOAs) (the smallest government administrative areas) in the five England regions (The North, Midlands & East England, London, South East and South West) which fall in the most deprived 20% of LSOAs in England according to the Index of Multiple Deprivations (IMD) 2007. The North and London regions were categorised as most deprived, Midlands & East England and South West as average and South East as least deprived (See Appendix 2 for details).

Outcome variables

Based on the questions that asked participants what methods of contraception they were using at the time of the interview (M170_6M – Appendix 4.8), the proportions of women using various types of contraception or no method were determined. In consideration of the small numbers of women using certain types of contraception a category named as ‘Others’ was created. The final types of contraception used in the analyses were therefore reduced from the initial 13 to seven as shown below:

- Pill
- Intrauterine device – IUD
- Injection
- Implant
- Hormonal intrauterine system – IUS
- Male Condom
- Others - Emergency contraception, safe period, spermicides, female condom, cap/diaphragm and contraception patch.

The seven categories were further reduced to two (LARC and Non-LARC) as shown below to allow for comparison of the uptake rates for the two methods by year of survey and further analyses:

- LARC - Intrauterine device (IUD), Injection, Implant & Intrauterine system (IUS)
- Non-LARC – Pill, Male Condom & Others

In order to determine previous methods of contraception for women who had changed methods in the preceding five years, the responses to the question M170_14M (Appendix 4.8) were used. The types of contraception were reduced to two categories (LARC and Non-LARC) to allow for further analyses.

Data analysis

Data analysis was carried out using STATA Version 10 statistical software. The maximum number of observations available for analysis was 1,311. However, the sample size in any specific analysis varied due to non-response.

Trend analyses

Trend analyses on the uptake of the main contraception methods (Male Condom, Pill, Injection, IUD, IUS and Implants) across the five year period were carried out and results presented in tables and graphs. Three age subgroups (16-17, 18-19 and 20-24) were initially analysed separately. The first two age groups were created in order to examine a possible impact by the Teenage Pregnancy Strategy which was initiated in 1998 with the aim of reducing unintended pregnancies among women aged below 18 by increasing contraception use among other approaches. Due to small numbers of women involved further analyses were therefore based on the broader categories of contraception (LARC and Non-LARC). Because of the potential impact of the 2005 NICE LARC guidelines, uptake trends for the two broad methods before and after the guidelines were analysed and compared. Uptake rates are presented as percentages with confidence intervals and Pearson's Chi² test for trend included.

Analysis of factors associated with use of LARC methods

Bivariate analyses were carried out utilizing cross tabulations and Chi² tests to determine the significance of the association between LARC methods uptake and participants' socio-demographic characteristics/sexual behaviour for the two survey periods (Pre-NICE - 2002/03-2004/05 and Post-NICE - 2005/06-2006/07). Variables that were significantly associated with LARC uptake (Age and Educational level) were then fitted in a logistic regression model and further analyses carried out to determine their relative and independent effects on LARC uptake. Logistic regression was preferred as it is a technique frequently used in analysing binary response data due to its ability to link the occurrence or non-occurrence of an event or outcome (use or non-use of LARC methods in current study) to explanatory variables (Age and Educational level) hence determining which explanatory variable(s) have the most significant impact on the outcome. Results are presented as percentages with 95% confidence intervals for bivariate analyses and adjusted and unadjusted odds ratios (OR) with 95% confidence intervals for logistic regression.

Analysis of reasons for change to, or away from LARC methods

By use of cross tabulations, women's current and previous methods of contraception and reasons for change of methods were identified. The proportions of women changing from Non-LARC to LARC, No Method to LARC, No Method to Non-LARC and LARC to Non-LARC, were calculated and are reported as percentages with 95% confidence

intervals. Using Chi² significance tests, the statistical differences in reasons reported for change of contraception methods were determined and *P* values reported.

Ethical Consideration

The study was entirely based on a secondary data analysis, the data are freely available for academic research, and no attempt was made to use the data for any purpose other than that for which they were intended. There was, therefore, no requirement for approval by an Institutional Ethics Committee – and this was confirmed.

4.3 Results

Participants' socio-demographic characteristics

A total of 1392 sexually active British women aged 16-24 (mean age 20) participated in five annual surveys carried out between the years 2002 and 2007. Table 4.1 shows the socio-demographic details for a maximum of 1311 whose responses were analysed in this study. The majority of the participants were women aged 20-24, of white ethnic background and with educational level below a degree qualification. More than half of the respondents lived either in the North, Midlands or Eastern regions of England. Three quarters were single while over 70% reported having only one partner in the last one year (i.e., in the year prior to the interview). Almost all participants reported having only one sexual partner at the time of the interview. Overall there were no significant differences in the composition of samples among the five surveys.

Table 4.1: The socio-demographic characteristics of British women aged 16-24 who participated in the five contraception use surveys carried out over the period 2002/03- 2006/07.

Characteristic	Total number of participants (%) (2002-2007) [#]	Number of participants (%) & year of survey					P value
		2002/03	2003/04	2004/05	2005/06	2006/07	
Age							0.585
16-19	497 (38)	120(38)	122(41)	114 (38)	58(31)	83(41)	
20-24	814 (62)	200(62)	175(59)	190 (62)	130(69)	119(59)	
<i>Total</i>	<i>1311</i>	<i>320</i>	<i>297</i>	<i>304</i>	<i>188</i>	<i>202</i>	
Ethnicity							0.765
White	1166 (89)	275(86)	270(91)	271(89)	166(88)	184(91)	
Non-White	143 (11)	45(14)	25(9)	33(11)	22(12)	18(9)	
<i>Total</i>	<i>1309</i>	<i>320</i>	<i>295</i>	<i>304</i>	<i>188</i>	<i>202</i>	
Socio-economic class							0.977
Non-Manual	415 (32)	114(36)	86(29)	93(31)	60(32)	62(31)	
Manual	383 (29)	83(26)	90(30)	96(32)	51(27)	63(31)	
Unclassified	513 (39)	123(38)	121(41)	115(38)	77(41)	77(38)	
<i>Total</i>	<i>1311</i>	<i>320</i>	<i>297</i>	<i>304</i>	<i>188</i>	<i>202</i>	
Educational level							0.809
Degree or higher	157 (12)	43(13)	32(11)	38 (13)	27(14)	17(9)	
Below degree	1006 (77)	237(74)	240(81)	223 (74)	140(75)	166(82)	
No qualification	146 (11)	40(13)	25(8)	42 (14)	21(11)	18(9)	

<i>Total</i>	1309	320	297	303	188	201	
Area of residence (region)							0.984
The North	351 (27)	92(29)	82(28)	81 (27)	49(26)	47(23)	
Midlands & E England	321 (24)	71(22)	65(22)	78 (26)	41(22)	66(33)	
London	148 (11)	39(12)	25(8)	38 (13)	24(13)	22(11)	
South East	184 (14)	50(16)	44(15)	37 (12)	28(15)	25(12)	
South West	115 (9)	21(7)	29(10)	29 (10)	20(11)	16(8)	
Wales	71 (5)	13(4)	20(7)	18 (6)	9(5)	11(6)	
Scotland	121 (9)	34(11)	32(11)	23 (8)	17(9)	15(7)	
<i>Total</i>	1311	320	297	304	188	202	
Marital Status							0.725
Married/Cohabiting	312 (24)	79(25)	51(17)	75 (25)	52(28)	55(27)	
Single	997 (76)	241(75)	246(83)	227 (75)	136(72)	147(73)	
<i>Total</i>	1309	320	297	302	188	202	
Number of sexual partners in last 1 year							0.796
One	788 (73)	193(73)	179(75)	180(70)	117(77)	119(71)	
Two or more	289 (27)	70(27)	58(25)	78(30)	35(23)	48(29)	
<i>Total</i>	1077	263	237	258	152	167	
Number of current Sexual Partners							0.861
One	938 (98)	231(98)	216(99)	215(97)	131(98)	145(97)	
Two or More	22 (2)	5(2)	3(1)	7(3)	3(2)	4(3)	
<i>Total</i>	960	236	219	22	134	149	

Totals differ due to varying number of responses

Trend analysis

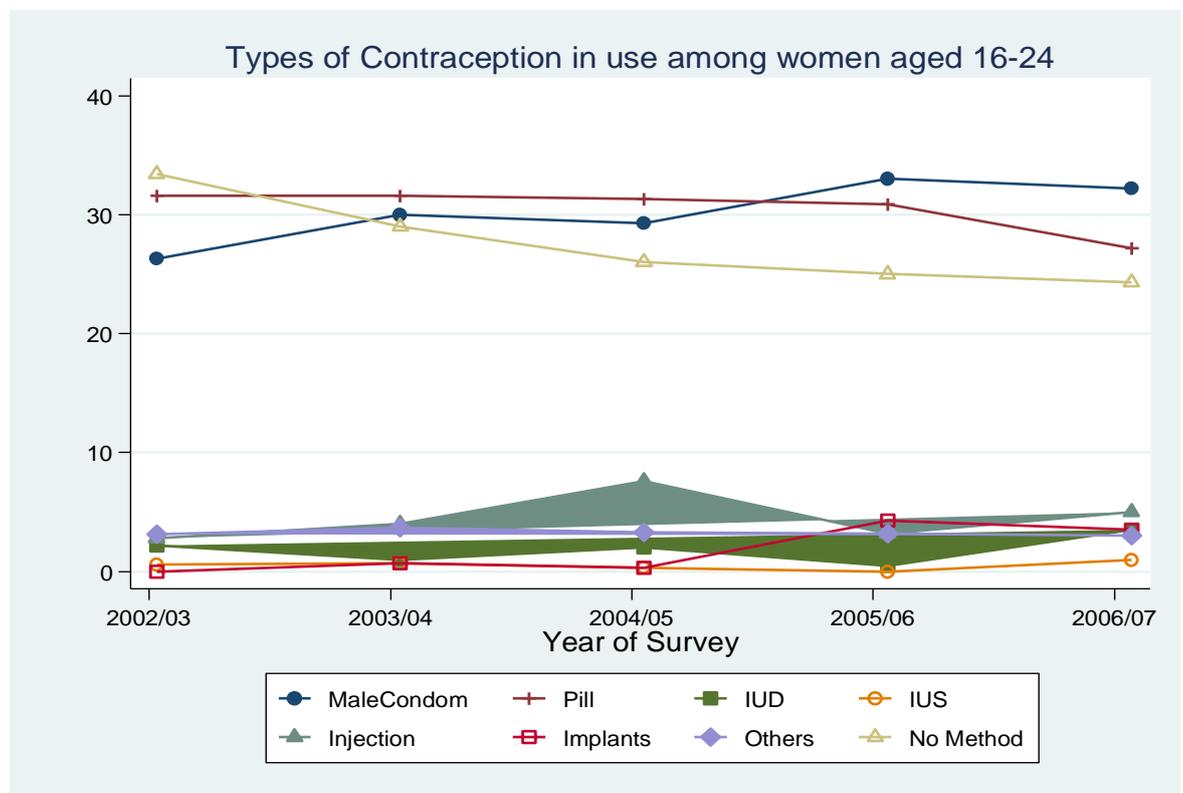
Specific contraception methods

The use of LARC methods was consistently lower than non-LARC methods in all the five surveys among women aged 16-24. Injection was the most commonly used LARC method up to 2004/05 when Implants and IUDs uptake showed notable improvement. However in the fifth survey (2006/07), Injection was still the most popular method with an uptake rate of 5% whereas the IUS remained the least popular LARC method across the five surveys. The uptake of contraception in general increased over the five year period (Figure 4.2 & Appendix 4.3). In the fifth survey (2006/07) only 24% of women interviewed were not at the moment using any method as compared to 33% in 2002/03 survey. The pill was the most popular contraceptive up to 2004/05. Afterwards Male Condom was the most commonly used method.

LARC & Non-LARC Methods

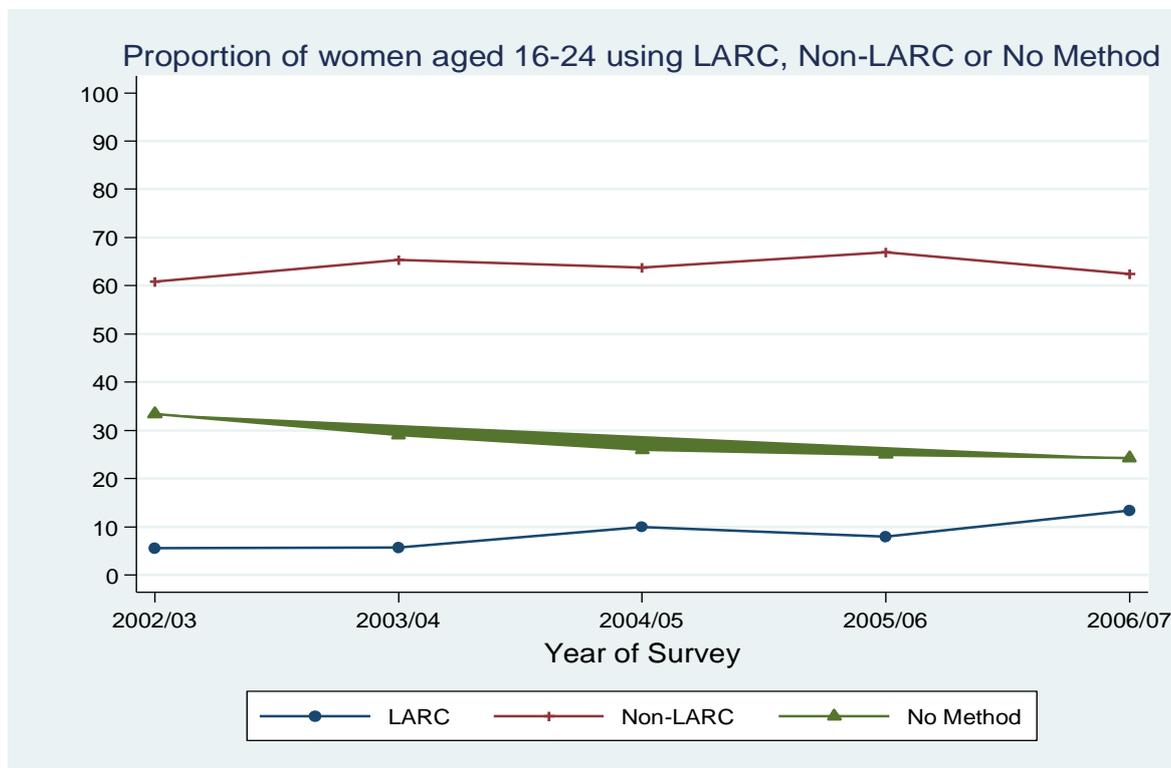
Although the overall uptake of LARC methods was significantly lower than that of non-LARC methods across the five surveys (Figure 4.3 & Appendix 4.7), use of LARC methods increased significantly over the five year period from 6% in 2002/03 to 13% in 2006/07 ($P = 0.009$). The use of Non-LARC methods also showed an upward trend up to 2005/06. Afterwards the uptake rate dropped by about 5%, coinciding with a substantial rise in use of LARC methods.

Figure 4.2: Current contraception use among 16-24 year old women by year of survey: 2002/03 - 2006/07



Chi2 test for trend (All methods): $P = 0.004$

Figure 4.3: Current use of LARC, Non-LARC & No Method among 16-24 year old women by year of survey: 2002/03 - 2006/07

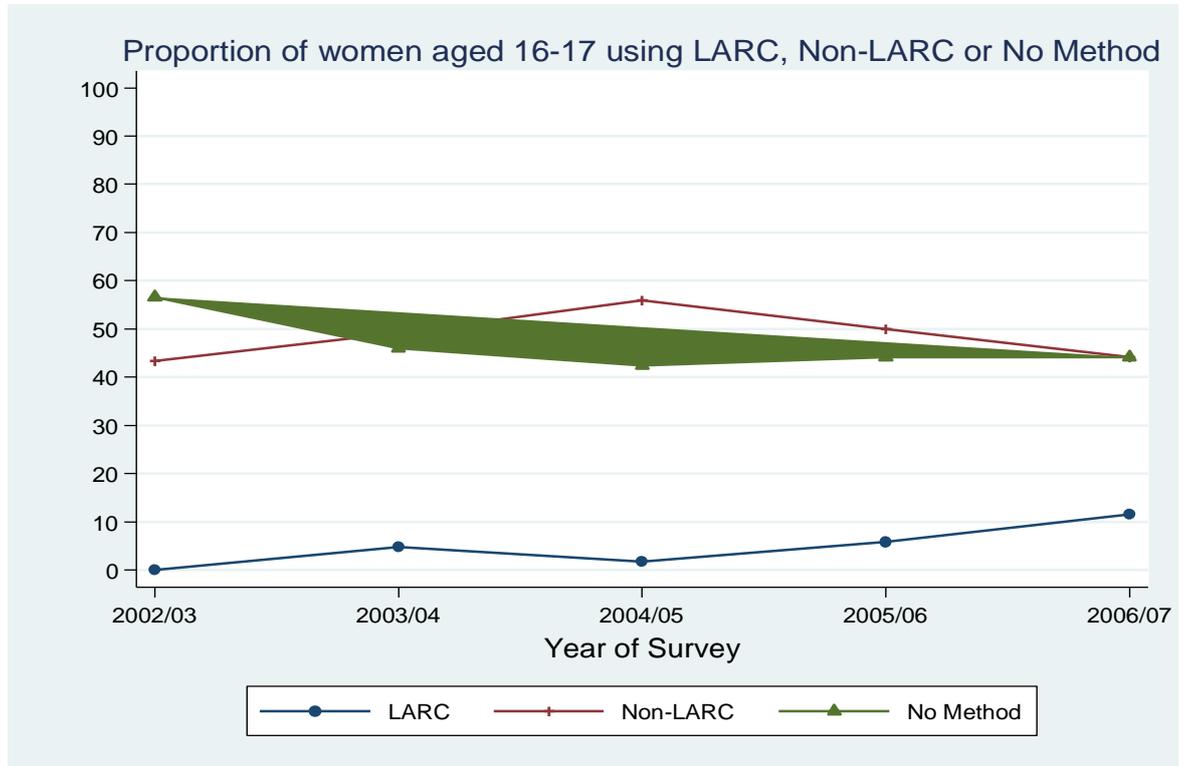


Chi2 test for trend (LARC): $P = 0.009$

Trends by age group

The use of LARC methods among women aged 16-17 increased during the five year survey period. The largest rise was observed after 2004/05 (after the publication of NICE LARC guidelines) when the uptake of LARC methods rose from 1.7% to 11.6% in 2006/07. The uptake of Non-LARC methods dropped at the same time of LARC upsurge (2004/05) from 55.9% to 44.2% in 2006/07 (Figure 4.4). Appendix 4.4 shows the uptake rates for specific LARC and Non-LARC methods. The IUD was the most popular LARC method among this age group with its uptake rising from below 2% before 2005/06 to 5% in 2006/07. The uptake of Injection and Implant also rose from 0% to over 2% in 2006/07. None of the women aged 16-17 in the five surveys was using IUS. Male Condom and Pill were the most popular Non-LARC methods in all surveys.

Figure 4.4: Current use of LARC, Non-LARC & No Method among 16-17 year old women by year of survey: 2002/03 - 2006/07

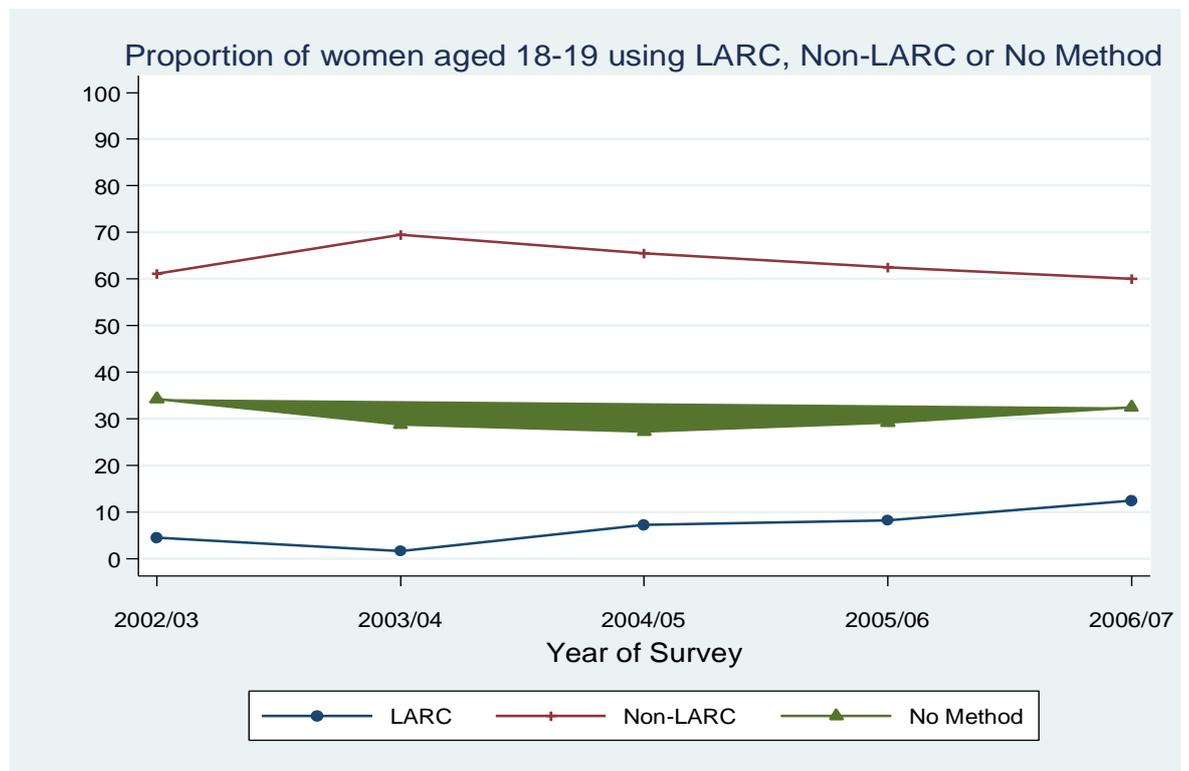


Chi2 test for trend (All Methods): $P = 0.187$

Chi2 test for trend (LARC): $P = 0.053$

Among women aged 18-19 the use of LARC methods increased threefold between 2002/03 (4.4%) and 2006/07 (12.5%) but the majority were using Non-LARC methods. The Non-LARC uptake declined after 2003/04 (Figure 4.5). Appendix 5 shows the uptake rates for specific LARC and Non-LARC methods. Injection was the most popular contraception among LARC methods up to 2005/06 when the uptake rate of IUDs rose to the same level (5%). None of the women aged 18-19 in the five surveys was using IUS. The Male Condom and Pill were the most popular Non-LARC methods in all surveys. The differences in contraception uptake across the five years were however not statistically significant (Figure 4.5).

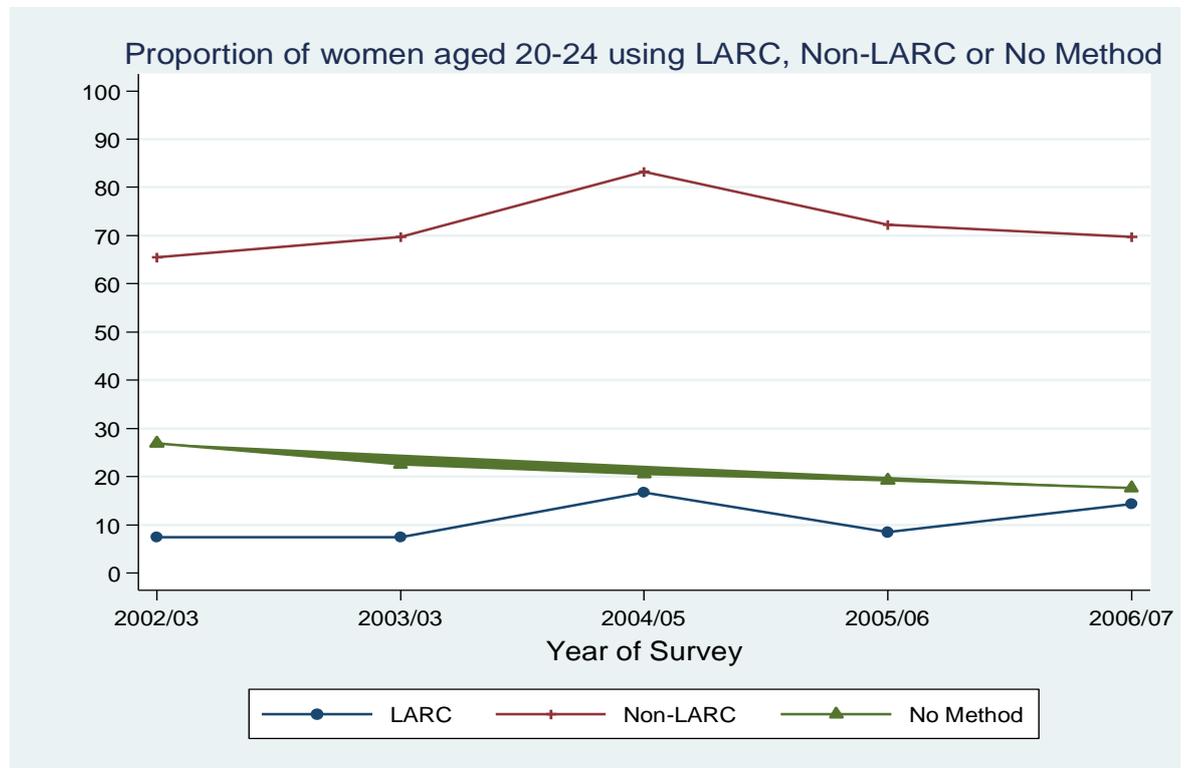
Figure 4.5: Current use of LARC, Non-LARC & No Method among 18-19 year old women by year of survey: 2002/03 - 2006/07



Chi2 test for trend (All Methods): $P = 0.086$
 Chi2 test for trend (LARC): $P = 0.224$

The use of LARC methods among women aged 20-24 increased from 7.5% in 2002/03 to 14.3% in 2006/07 but the majority were using Non-LARC methods (Figure 4.6). Appendix 6 shows the uptake rates for specific LARC and Non-LARC methods. The Injection and IUD were the most popular LARC methods up to 2004/05 after which the use of Implants rose to a comparable level of 4% in 2006/07. Pill and Male Condom were the most popular Non-LARC methods in all surveys. The differences in contraception uptake across the five years were however not statistically significant (Figure 4.6).

Figure 4.6: Current use of LARC, Non-LARC & No Method among 20-24 year old women by year of survey: 2002/03 - 2006/07

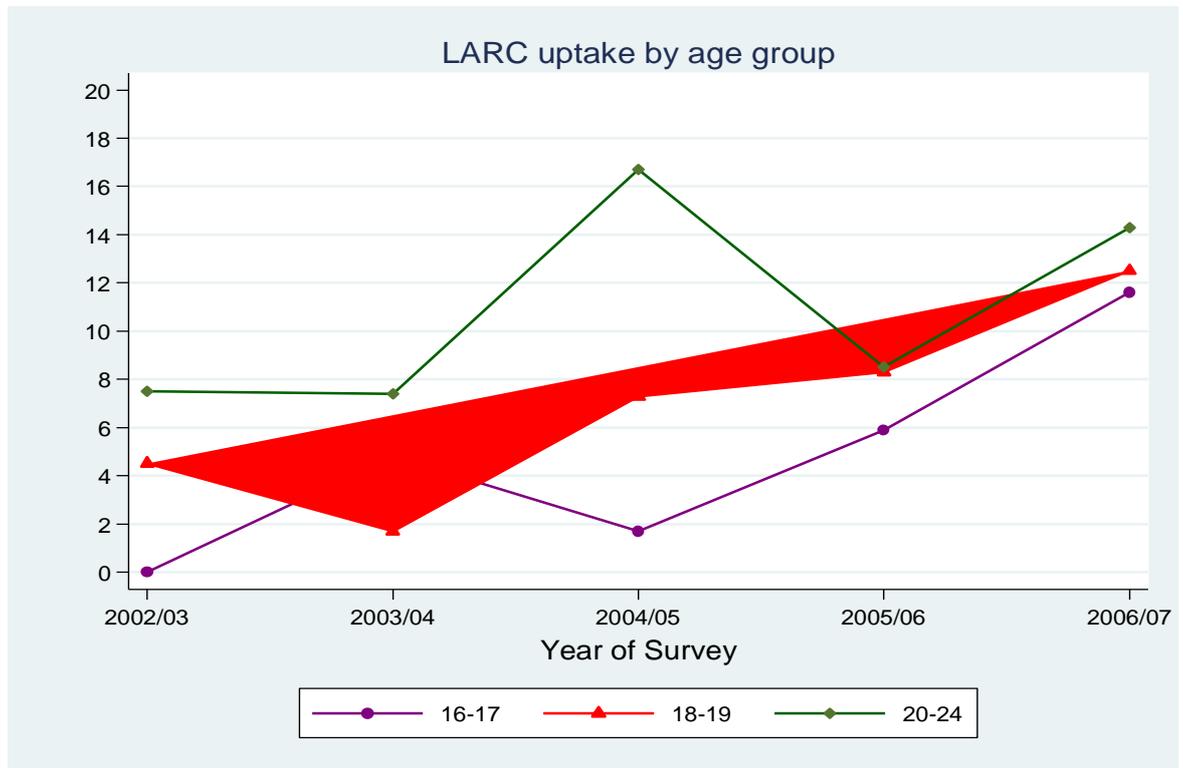


Chi2 test for trend (All Methods): $P = 0.127$

Chi2 test for trend (LARC): $P = 0.105$

Figure 4.7 shows LARC uptake trends over the five survey years for the three age groups. Overall the use of LARC methods among 16-17 & 18-19 year olds increased after 2004/05 whereas among 20-24 year olds there was a drop in LARC uptake for a year but afterwards started to rise again. However the difference in LARC uptake between the three age groups in the five surveys was not statistically significant ($P = 0.402$) hence further analyses were based on two broad age groups as a priori i.e. 16-19 & 20-24.

Figure 4.7: Current use of LARC methods among women aged 16-17, 18-19 & 20-24 by year of survey: 2002/03 - 2006/07



Chi2 test for difference in trends: $P = 0.402$

Factors associated with use of LARC methods

Pre-NICE LARC guidelines (2002/03 - 2004/05) & Post-NICE LARC guidelines (2005/06 - 2006/07) Periods

During the Pre-LARC NICE guidelines period, the LARC uptake rate among 20-24 year old women (11%) was more than twice that of those aged 16-19 (5%). Women with a degree or higher qualifications had the lowest uptake rate (6%) as compared to those with below degree (8%) or no qualification (23%) (Table 4.2). However, there was no significant difference in LARC uptake rates by ethnicity, socio-economic status, area deprivation, marital status and number of sexual partners at the time of interview or in the previous one year (Table 4.2). For the Post-NICE LARC guidelines period, there was no significant difference in LARC uptake for all specified variables (Table 4.2). Overall the LARC uptake rate was higher during the Post-LARC NICE guidelines period (13%) than the Pre-NICE LARC guidelines period (9%) but the difference was not statistically significant ($P = 0.063$). Logistic regression results (adjusted model) showed that women aged 20-24 were three times more likely to use LARC methods as compared to those aged 16-19 while women with no qualifications were up to seven times more likely to use LARC methods as compared to those with a degree or higher qualifications during the Pre-LARC NICE guidelines period. Age and educational level were not significantly associated with LARC uptake for the Post-NICE LARC guidelines period (Table 4.3).

Table 4.2: Factors associated with LARC uptake among British women aged 16-24 for the periods 2002/03 -2004/05 & 2005/06 - 2006/07: a bivariate analysis.

Variable	2002/03 - 2004/05			2005/06 & 2006/07		
	Number of sexually active women	Percentage (95%CI [§]) using LARC methods	<i>P</i> value [§]	Number of sexually active women	Percentage (95%CI [§]) using LARC methods	<i>P</i> value [§]
Total	701	9.3 (7.3, 11.6)		312	13.1 (9.8, 17.3)	
Age			0.008			0.775
16-19	232	5.2 (3, 8.8)		93	14 (8.4, 22.5)	
20-24	469	11.3 (8.7, 14.5)		219	12.8 (9, 17.9)	
Ethnicity			0.701			0.239
White	633	9.2 (7.2, 11.7)		291	13.8 (10.3, 18.2)	
Non-White	66	10.6 (5.2, 20.3)		21	4.8 (0.8, 22.7)	
Socio-economic class			0.355			0.238
Non-Manual	248	7.3 (4.6, 11.2)		106	9.4 (5.2, 16.5)	
Manual	227	11 (7.6, 15.8)		104	17.3 (11.2, 25.7)	
Unclassified	226	9.7 (6.5, 14.3)		102	12.8 (7.6, 20.6)	
Educational level			<0.001			0.155
Degree or higher	83	6 (2.6, 13.3)		39	5.1 (1.4, 16.9)	
Below degree	539	7.8 (5.8, 10.4)		249	13.7 (9.9, 18.5)	
No qualification	78	23.1(15.1, 33.6)		23	21.7 (9.7, 41.9)	
Area Deprivation[†]			0.508			0.900
Most deprived	268	7.5 (4.9, 11.2)		109	12.8 (7.8, 20.4)	

Average	160	10.6 (6.7, 16.4)		86	15.1 (9.1, 24.2)	
Least Deprived	157	9.6 (5.9, 15.2)		71	14.1 (7.8, 24)	
Marital Status			0.347			0.983
Married/Cohabiting	202	10.9 (7.3, 15.9)		107	13.1 (8, 20.8)	
Single	499	8.6 (6.5, 11.4)		205	13.2 (9.2, 18.5)	
Number of sexual partners in last 1 year			0.471			0.901
One	509	9.6 (7.4, 12.5)		225	12.4 (8.8, 17.4)	
Two or more	179	7.8 (4.7, 12.7)		77	13 (7.2, 22.3)	
Number of current Sexual Partners			0.747			0.923
One	661	9.1 (7.1, 11.5)		276	13 (9.6, 17.5)	
Two or More	15	6.7 (1.2, 29.8)		7	14.3 (2.6, 51.3)	

\$ 95% Confidence Interval

§ Chi2 significance test for difference in LARC uptake between groups.

† Does not include Wales & Scotland

Table 4.3: Odds ratios and 95% confidence Intervals of reporting current use of LARC methods by age & educational level among British women aged 16-24 for the periods: 2002/03 – 2004/05 & 2005/06 – 2006/07

Variable	2002/03 - 2004/05				2005/06 - 2006/07			
	Unadjusted		Adjusted		Unadjusted		Adjusted	
	Odds Ratio (95%CI)	<i>P</i> value						
Age								
16-19	1.00	0.010	1.00	0.002	1.00	0.775	1.00	0.892
20-24	2.34 (1.22, 4.46)		2.82 (1.45, 5.49)		0.90 (0.44, 1.83)		1.05 (0.51, 2.17)	
Educational level								
Degree or higher	1.00	<0.001	1.00	<0.001	1.00	0.180		0.182
Below degree	1.32 (0.51, 3.43)		1.74 (0.66, 4.57)		2.93 (0.67, 12.7)		2.97 (0.67, 13.1)	
No qualification	4.68 (1.64, 13.3)		6.70 (2.30, 19.5)		5.14 (0.91, 29.1)		5.25 (0.90, 30.6)	

Reasons for change of contraception method

Table 4.4 shows the types of contraception in use by women at the time of interview and their previous methods in the preceding five year period (Appendix 4.8 – M170_14M). More than two thirds of women who were using LARC methods at the time of interview had previously used Non-LARC methods (69% for the Pre-NICE LARC guidelines period and 64% for the Post-NICE LARC guidelines period). A third of those who were using Non-LARC methods had previously used no method (34% and 33% for the two periods respectively). A very small percentage had changed from using LARC to Non-LARC methods for both periods (4% and 3% respectively).

Table 4.5 shows the main reasons why women changed from LARC or No method to Non-LARC methods. In both survey periods most women who previously used LARC methods cited better long term health as the main reason for change (24% & 29% respectively). For the Pre-NICE LARC guidelines period, most women who previously used no method reported reliability as the main reason for choosing Non-LARC methods. However, the number of responses from women who previously used no method for both periods was small and the differences between the two periods were not statistically significant.

Table 4.6 shows the main reasons why women changed from Non-LARC methods or No method to LARC methods. For both periods most women who previously used non-LARC methods cited reliability (40% & 41% respectively) and convenience (38% & 41% respectively) as the main reasons for changing to LARC methods. Among women who previously used no method, reliability, better long term health and surprisingly ‘better for protection from sexually transmitted infections’ were cited as the main reasons for change. However, the number of responses in both periods was small and the differences between the two periods were not statistically significant.

The proportion of women who reported having been influenced by General Practitioners or other family planning practitioners to change from non-LARC to LARC was slightly higher among women interviewed during the Pre-NICE LARC guidelines period (42%) than those interviewed during the Post-NICE LARC guidelines period (37%). The influence on women who previously used no method was minimal (16% and 14% respectively) (Table 4.5). The proportion of women who reported having been influenced

by General Practitioners or other family planning practitioners to change from LARC to Non-LARC methods was higher in the Pre-NICE LARC guidelines period (43%) as compared to the Post-NICE LARC guidelines period (29%). Among those who previously used no method the level of influence was small (4% and 1% respectively) (Table 4.6). However, the differences between the two periods in all cases were not statistically significant.

Table 4.4: Current and previous use of LARC, Non-LARC & No Method by British women aged 16-24 for the periods 2002/03 - 2004/05 & 2005/06 - 2006/07

2002/03 – 2004/05				2005/06 – 2006/07				P Value*
Current method (total number of women)	Previous method [§]			Current method (total number of women)	Previous method [§]			
	Number (%) No Method	Number (%) Non-LARC	Number (%) LARC		Number (%) No Method	Number (%) Non-LARC	Number (%) LARC	
LARC (65)	12 (19)	45 (69)	8 (22) ^β	LARC (42)	7 (17)	27(64)	8 (19) ^β	0.924
Non-LARC (583)	198 (34)	364 (62) ^β	21 (4)	Non-LARC (252)	82 (33)	163 (64) ^β	7(3)	0.747

[§] Percentages based on the total number of women currently using LARC or Non-LARC methods.

* Chi2 Significance test for difference in previous contraception method used for the two periods.

^β Women who did not change methods

Table 4.5: Main reasons reported by British women aged 16-24 for changing to Non-LARC methods after previously using LARC methods or no method for the periods 2002/03 - 2004/05 & 2005/06 - 2006/07

Reason for change to a non-LARC method [‡]	2002/03 – 2004/05		2005/06 – 2006/07	
	Percentage (95% CI) of women who previously used LARC methods (n=21) [§]	Percentage (95% CI) of women who previously used no method (n=198) [§]	Percentage (95% CI) of women who previously used LARC methods (n=21) [†]	Percentage (95% CI) of women who previously used no method (n=198) [*]
Change of partner	5 (0.8, 23)	1 (0.3, 3.6)	14 (2.6, 51)	0
More reliable	10 (2.7, 29)	4 (1.2, 6.8)	14 (2.6, 51)	1 (0.2, 6.6)
More convenient	10 (2.7, 29)	1 (0.3, 3.6)	0	1 (0.2, 6.6)

Better for long term health	24 (4.1, 44)	0	29 (8.2, 64)	0
Better for protection from STI	0	1 (0.3, 3.6)	0	0
Influence by GP/FPP	43 (25, 64)	4 (2.1, 7.8)	29 (8.2, 64)	1 (0.2, 6.6)
Non responders	38 (21, 60)	92 (88, 95)	43 (16, 75)	98 (92, 99)

¥ Some women chose more than one reason and some options were not chosen hence column percentages do not add up to 100.

§ Chi2 significance test for difference in reasons reported for change from LARC to Non-LARC methods: $P < 0.001$

\$ Chi2 significance test for difference in reasons reported for change from No Method to Non-LARC methods: $P = 0.311$

† Chi2 significance test for difference in reasons reported for change from LARC to Non-LARC methods: $P = 0.034$

* Chi2 significance test for difference in reasons reported for change from No Method to Non-LARC methods: $P > 0.999$

Table 4.6: Main reasons reported by British women aged 16-24 for changing to LARC methods after previously using Non-LARC methods or No Method for the periods 2002/03 - 2004/05 & 2005/06 - 2006/07

Reason for change to a LARC method [¥]	2002/03 – 2004/05		2005/06 – 2006/07	
	Percentage (95% CI) of women who previously used Non-LARC methods (n=45) [§]	Percentage (95% CI) of women who previously used no method (n=12) [§]	Percentage (95% CI) of women who previously used Non-LARC methods (n=27) [†]	Percentage (95% CI) of women who previously used no method (n=7) [*]
Change of partner	0	0	4 (0.7, 18)	0
More reliable	40 (27, 55)	8 (1.5, 35)	41 (25, 59)	43 (16, 75)
More convenient	38 (25, 52)	0	41 (25, 59)	0
Better for long term health	4 (1.2, 15)	8 (1.5, 35)	7 (2.1, 23)	0
Better for protection from STI	0	8 (1.5, 35)	0	0
Influence by GP/FPP	42 (29, 57)	17 (4.7, 45)	37 (22, 56)	14 (2.6, 51)
Non responders	31 (20, 46)	83 (55, 95)	41 (25, 59)	57 (25, 84)

¥ Some women chose more than one reason and some options were not chosen hence column percentages do not add up to 100.

§ Chi2 significance test for difference in reasons reported for change from Non-LARC to LARC methods: P < 0.001

\$ Chi2 significance test for difference in reasons reported for change from No Method to LARC methods: P = 0.239

† Chi2 significance test for difference in reasons reported for change from Non-LARC to LARC methods: P < 0.001

* Chi2 significance test for difference in reasons reported for change from No Method to LARC methods: P < 0.001

4.4 Discussion

The use of LARC methods among young women interviewed doubled over the five year period, rising from 6% in 2002/03 to 13% in 2006/07. However, Non-LARC methods remained the most popular contraception among participants and in particular, Male Condom for 16-17 and 18-19 year olds and Pill for 20-24 year olds. On average there was an increment (4%) in use of LARC methods following the publication of the NICE LARC guidelines though not statistically significant ($P = 0.063$). Age and educational level were the only participant characteristics that were significantly associated with LARC uptake among women interviewed before the publication of NICE guidelines. Women aged 20-24 were up to three times more likely to use LARC methods as compared to those aged 16-19 while women with no qualifications were seven times more likely to use LARC methods as compared to those with a degree or higher qualifications. None of the factors including age and educational level were significantly associated with LARC uptake for the Post-NICE LARC guidelines period. For both survey periods, the majority of women using LARC methods at the time of the interview had previously used Non-LARC methods. The change from LARC to Non-LARC methods was minimal. The main reasons for changing from Non-LARC to LARC methods were given as reliability and convenience. The influence by GP and other family planning practitioners on women changing contraception methods was substantial but the difference between the two periods was not statistically significant.

Trend analysis by age group showed that among 16-17 year olds, the largest rise in use of LARC methods occurred after 2004/05 coinciding with the publication of the NICE LARC guidelines for health workers aimed at increasing prescription and subsequently the uptake of LARC methods. Among this group, LARC uptake rose from 2% in 2004/05 to 12% in 2006/07. Although among 18-19 and 20-24 year olds there was a notable increase in LARC uptake over the same period, the differences were not statistically significant. Although a strong inference about the degree of influence by the NICE guidelines on the LARC uptake trends can not be drawn owing to other possible contributory effects from other interventions that were ongoing with similar goals such as the teenage pregnancy programme, the timing of the change and steady rise afterwards especially among 16-17 and 18-19 year old women suggests a possible relationship.

The finding that age and educational level were the only participant characteristics associated with LARC uptake but only for the Pre-NICE period (2002/03-2004/05) is intriguing. Because of the timing, this change may be associated with the implementation of NICE guidelines whose main goal was to address identified barriers to access of LARC methods by all women of reproductive age. In support of this proposition an audit carried out in 2004 (Department of Health, 2007) on LARC prescription by GPs in England revealed that one in five Primary Care Trusts (PCT) had policies in place that restricted general prescription of LARC methods and in particular for young women who were single and nulliparous. They also had capped budgets in relation to LARC prescription due to the assumption that they were more expensive as compared to non-LARC methods. The publication of NICE guidelines in 2005 which provided the evidence on the cost effectiveness of LARC methods as compared to Non-LARC, as well as their safety in use among young women might have impacted positively on PCT policies and contraception prescribers. This is evidenced by the increase of LARC use after the year 2005 among young women and in particular those aged 16-19. This study could not determine why women with no qualifications were more likely to use LARC methods as compared to those with some qualifications. However, it is likely that women without qualifications might have had better access to LARC methods as they were more likely to meet the requirements of being in a partnership/marriage or multiparous unlike women with some qualifications, the majority of whom were still pursuing education and single.

The majority of women who were using LARC methods at the time of interview for both periods had changed from Non-LARC methods in the preceding five years. The number of women changing from no method directly to LARC methods was minimal. This implies that LARC methods are rarely first choice in preventing pregnancy among young women, a phenomenon worth further investigation to understand. But it is also important to note that the change from LARC to Non-LARC was minimal probably indicating user satisfaction among LARC users. Although only a few women changed from LARC to Non-LARC methods in the two survey periods, the main concern was their long term health, an issue which other studies have found to be a major barrier in LARC uptake among women of reproductive age (Glasier et al., 2008; The National Health Service (NHS) Scotland, 2009) and therefore should continually be addressed in LARC interventions. Among those who changed from Non-LARC to LARC methods, reliability and convenience were the main motivating factors. This finding highlights the main

positive attributes of LARC methods which should feature strongly in communication strategies that aim at increasing LARC uptake among young women. Overall, the differences in the proportions of women changing methods due to general practitioners' or other health workers' influence for the two periods of survey were not statistically significant. This implies that the increase in LARC uptake among young women after the publication of NICE guidelines was probably due to more awareness and availability of LARC methods rather than the active promotion of the LARC option by health workers.

Other studies

The current study is the first of its kind to investigate factors associated with the use of LARC methods among women aged 16-24 in the UK. The only other similar study was carried out in the USA by Whitaker et al. (2010). Their main findings were however a contrast to those of the current study. For example, they found that having been married or cohabited were associated with a higher uptake of LARC methods whereas in this study they were not. They also did not find any association between age and LARC uptake, a factor which was significant during the Pre-NICE LARC guidelines period in this study. Apart from the UK and US context being different which might partly explain the contrast, Whitaker et al. (2010) also included only two types of LARC methods (Injection and IUD) which might have excluded a significant proportion of young women using other LARC methods. The current study included four types of LARC methods (Injections, IUS, IUD & Implants) which provides a better assessment of LARC use patterns among young women. Whitaker et al. (2010) also did not assess the educational level of participants a factor which was significantly related to LARC uptake during the Pre-NICE LARC guidelines period in the current study.

Studies that have investigated women's perceptions (those using no method or Non-LARC methods) about LARC use have found that they associate use of LARC methods with negative health outcomes (Glasier et al., 2008; The National Health Service (NHS) Scotland, 2009; The Royal College of Obstetricians & Gynaecologists., 2010). Glasier et al. (2008) for example in their study found that most women were fearful of possible long term negative effects on their fertility as well as their physical wellbeing. They expressed preference for pills which they described as safe, effective, familiar and easy to ask for from health professionals. This is consistent with the findings of the current study and

therefore highlights the need for more awareness campaigns on the effectiveness and safety of LARC methods among young women.

The minimal influence of general practitioners and other health workers in getting women to choose LARC methods was also a key finding of a study carried out by Wellings et al. (2007). The study which involved a large sample of GPs and nurse practitioners in the UK found that despite most of them acknowledging LARC's superior qualities in effectively preventing unintended pregnancies as compared to other methods of contraception, they were ambivalent towards prescribing LARC methods and also admitted that they would not prescribe LARC to adolescent women seeking contraception or as a first choice for women of all age groups.

Implications for policy and practice

This study observed a small but steady rise in LARC use among 16-24 year olds over the five year period of surveys (2002/03-2006/07). However, LARC methods remained a secondary option and women starting contraception tended to choose non-LARC methods first before trying LARC later on, with very few starting with LARC as a first option. The observed increase in LARC use was mainly among women who previously were using non-LARC methods rather than no method. Among women using no method, LARC uptake remained nearly constant over the five year period. These findings indicate a need to market LARC among women using no method as a safe and effective first time option. Based on available evidence (Wellings et al., 2007), there is need for training of family planning practitioners in order to enhance their motivation and confidence towards prescribing LARC methods for young women and in particular as a first choice.

Some young women still consider LARC methods as not good for their long term health and fertility based on anecdotes rather than fact. There is need for a communication strategy that would provide correct information on LARC methods as regards their safety and effectiveness in preventing unintended pregnancy. Research has shown that most women tend to choose methods that their peers are using (The National Health Service (NHS) Scotland, 2009). Women using LARC methods should therefore be involved in communication campaigns where they can share their experiences with other women to dispel common myths and misconceptions about LARC use and related side effects and

promote LARC as a safe, effective and familiar type of contraception. As recommended by Glasier et al. (2008), practitioners should emphasize on long lasting protection and reversibility of LARC methods rather than highlighting their long acting aspect which has been identified as a discouraging factor.

The publication of NICE guidelines in 2005 appears to have had a significant impact on LARC use as it addressed barriers earlier on raised by other studies as hindering LARC uptake among women of reproductive age such as the cost effectiveness of the methods and side effects. However, a study carried out by Wellings et al. (2007) in 2007 showed that most general practitioners still lacked the skills to safely administer LARC methods, were unsure and not motivated to administer LARC methods. Whereas the issue of motivation has been addressed through the Quality Outcomes Framework (QOF) incentive scheme where GPs now receive more funding if they provide information on LARC to women of reproductive age or/and prescribe LARC, the issue of training seems not to have been addressed adequately (The British Pregnancy Advisory Service, 2011). There is therefore need for more training opportunities for general practitioners and other health workers to enable them administer LARC methods safely. Furthermore there is evidence to show that Primary Care Trusts are still blocking the greater use of LARC methods contrary to the NICE recommendations (Department of Health, 2007; National Institute for Health & Clinical Excellence, 2007; Teenage Pregnancy Independent Advisory Group, 2009; The British Pregnancy Advisory Service, 2011). To ensure that women who choose to use LARC methods are not denied that opportunity, PCTs should be audited regularly to ensure they have policies in place that support LARC use through adequate funding and training of practitioners.

Although LARC methods have the best record of preventing pregnancy under typical use conditions, they provide no protection against sexually transmitted infections. The promotion of LARC as the most effective methods of contraception should therefore not be at the expense of sexually transmitted infections (STI) prevention. An increase in STI prevalence and associated conditions such as pelvic inflammatory disease, infertility and ectopic pregnancy would overshadow the LARC associated financial and health cost benefits (French & Cowan, 2009). Traditionally the practice has been that programmes which address STI/HIV prevention pay little attention to prevention of unplanned pregnancy and contraception use while those promoting contraception use pay little

attention to STI/HIV prevention. Evidence on the effectiveness of few programmes that address both pregnancy prevention and STI/HIV prevention in the UK and elsewhere is limited. However some studies have observed that younger women and those with multiple partners are more likely to comply with dual protection methods i.e. use of Condoms alongside Pills or LARC methods (Harvey et al., 2004). Use of Condoms and LARC methods in particular has been found to be easier to comply with as compared to daily oral contraception (Berer, 2006). National Institute for Health and Clinical Excellence and the World Health Organization (National Institute for Health and Clinical excellence, 2005; International Planned Parenthood Federation, 2010) recommend dual protection (use of condoms alongside LARC methods) for women at risk of STI such as those with multiple partners. The IUD however is contraindicated for women with multiple sexual partners due to the high risk of infection. Family planning practitioners should therefore assist women in assessing their likelihood of exposure to infection and where the risk is high recommend use of condoms alongside LARC methods as appropriate.

Implications for social marketing

This study has identified existing segments among young women in the UK and the variation in use of LARC methods thus providing valuable intelligence for the purpose of effective targeting to enhance uptake (*segmentation and targeting*). The study also identified that young women still consider LARC as not good for their long-term health despite the available evidence suggesting otherwise, a factor which needs to be addressed as a major barrier to LARC uptake (*competition*) while reinforcing the positive attitudes of reliability and convenience as part of a *marketing mix (promotion)*. The study also identified GPs and Family planning practitioners, Public health policy makers (NICE guidelines) as key players in the promotion and provision of LARC methods (*marketing mix Ps – partnerships, policy, and place*). However a notable limitation of this study was the inability to identify what would motivate more young women to use LARC methods (*exchange*) which highlights the significance of a qualitative component in *consumer research* applications (French et al. 2010).

Study limitations

This study has some limitations worth noting. Firstly the study is based on a series of cross sectional studies thus making it impossible to draw causal inferences between participants' characteristics and LARC use. Secondly, the sample size of LARC users was small despite combining data sets, a factor which might have led to the association between LARC use and some factors not being statistically significant. The response rate to questions about the main reasons why women chose LARC or non-LARC methods was also low. Regardless of the stated limitations, this study presents the first multivariate analyses of LARC use among young British women aged 16-24 in the context of current government policy and provides an important insight into the characteristics of those who use LARC or Non-LARC methods. The study also highlights main reasons why women choose LARC or Non-LARC methods and the influence of family planning practitioners. These are major determinants of effective strategies aimed at increasing the acceptability and use of LARC methods among young women.

4.5 Conclusion

This study examined factors associated with use of LARC methods among young women aged 16-24 in the UK. Five ONS Contraception module datasets of surveys carried out between 2002/03 and 2006/07 involving a maximum of 1311 respondents were analysed. Results show that use of LARC methods among women aged 16-24 doubled over the five year period. However Non-LARC still remained the most popular methods.

The publication of NICE LARC guidelines appears to have had a small but statistically significant impact on the overall uptake of LARC methods among women aged 16-24. The guidelines seem to have addressed the disparity previously observed where older women (20-24) and those with no qualifications were more likely to use LARC methods as compared to younger women and those with qualifications. NICE guidelines specifically targeted barriers to access of LARC methods experienced by younger women such as the limited prescription of LARC methods to single and nulliparous women by family planning practitioners who not only lacked sufficient knowledge and skills to administer LARC methods safely but were also constrained by restrictive Primary Care Trusts' policies on LARC use. The NICE guidelines also provided vital evidence on the safety of LARC methods and their cost effectiveness in preventing unintended pregnancies and therefore encouraged PCTs to review their policies and family planning practitioners to offer the LARC option to all women of reproductive age.

The role of family planning practitioners in the improved uptake of LARC methods appears to have been minimal as the proportion of women who reported having been influenced by them to change to LARC methods remained the same before and after the publication of the guidelines. The rise in LARC use therefore is likely to have been due to the increased availability of LARC methods, previously inaccessible to the majority of women in this age group (young, single and nulliparous) as evidenced by the increase in use especially among those aged 16-19 and a corresponding fall in use of Non-LARC methods.

The minimal influence by family planning practitioners on choice of LARC among young women is consistent with the current policy as reflected in the NICE guidelines.

Practitioners are expected to provide information on all available methods including LARC

but not necessarily promote LARC use. LARC methods being unfamiliar to most young women and often associated with negative health outcomes are unlikely to be chosen. Furthermore available evidence shows that most practitioners themselves are lacking in knowledge and skills to effectively counsel young people interested in LARC and administer the methods. There is need for more training of practitioners to enable them to competently provide information on LARC use and to administer the methods when required. Regular audit of PCT policies on LARC prescription is necessary as there is evidence to show that some are still restricting access to these methods.

The use of LARC methods among young women in the UK appears to be on the rise. However, the proportion of women choosing LARC remains minimal as compared to those choosing non-LARC methods. Indeed the rise of LARC use over the five year period was mainly as a result of women switching from non-LARC methods to LARC rather than those using no method choosing LARC as a first option. LARC methods therefore remain unfamiliar and unpopular among this group of young women. There is need for a communication and marketing strategy (*Marketing mix*) that would provide correct information on LARC methods as regards their safety and effectiveness in preventing unintended pregnancy as well as dispel the negative messages and myths in relation to LARC use (*Competition*).

Further analysis on ONS Contraception module surveys carried out after 2006/07 when datasets become available is recommended to fully understand the long-term impact of NICE LARC guidelines on LARC methods uptake among women aged 16-24. A large survey that includes a qualitative component and specifically focuses on women aged 16-24 would be more suited in enhancing the understanding of current factors associated with LARC uptake as most surveys in the past (ONS and National Survey of Sexual Attitudes & Lifestyles) have included women of reproductive age in general with a small representation of this age group, yet they are the most affected by unintended pregnancies.

Chapter 5: Factors Associated with Chlamydia Screening and Prevalence among Young People in the London Borough of Havering.

In this chapter, I present the third study on factors associated with Chlamydia prevalence and screening uptake among young people living in the London borough of Havering. This study is an application of the *consumer research* component of social marketing. In the introduction section I include the rationale for the study, policy context and a brief description of the Chlamydia screening programme at NHS Havering. In the methods section I list the study's aim and objectives and describe the research design, data management and analyses as well as ethical considerations. I also include a figure showing participant structure for the 28 young people who were involved in the qualitative study. The results section has two parts. In the first part I present results from the analyses of screening records. In the second part I present findings from interviews and focus group discussions. I also discuss main findings from the study under three main subheadings: screening uptake, Chlamydia prevalence and barriers and motivating factors. I lastly highlight the implications for public health policy and practice, social marketing and discuss study limitations and strengths followed by conclusions and a suggestion on further research.

5.1 Introduction

Chlamydia trachomatis is considered the most common bacterial sexually transmitted infection in the western world (The World Health Organization, 2009). Chlamydia remains a significant public health concern as the majority of infected individuals usually remain asymptomatic for long periods while unknowingly spreading the infection to the rest of the population (Mills et al., 2006a). Untreated infection can have serious and long-term consequences such as pelvic inflammatory disease, ectopic pregnancies and tubal factor infertility in women (Peipert, 2003; Pavlin et al., 2006; National Chlamydia Screening Programme, 2009). In men Chlamydia infection can cause non-specific urethritis, epididymitis and proctitis (Stamm et al., 1984), however, up to 88% of infections in men remain asymptomatic (McKay et al., 2003). Individuals with Chlamydia infection are highly susceptible to other infections such as HIV (Cohen et al., 2000; Farley et al., 2003; McClure et al., 2006). In England, *Chlamydia trachomatis* is the most commonly

diagnosed sexually transmitted infection among young people of ages 15 to 25 (Mills et al., 2006b; National Chlamydia Screening Programme, 2009). The management of Chlamydia complications such as ectopic pregnancies and infertility in women is estimated to be costing the National Health Service at least £100 million per year (National Chlamydia Screening Programme, 2009).

Due to the asymptomatic nature of Chlamydia infection, the World Health Organization recommends voluntary screening of vulnerable groups (The World Health Organization, 2001). Most developed countries including the UK have Chlamydia screening programmes in place (Addiss et al., 1993; Herrmann & Egger, 1995; LaMontagne et al., 2004). The National Chlamydia screening programme in England was established in 2003. Through local partners, it offers free, opportunistic screening, treatment, partner management and prevention services to sexually active men and women under the age of 25 (National Chlamydia Screening Programme, 2009). The programme aims are to:

- Prevent and control Chlamydia spread through early detection and treatment of infected persons
- Reduce onward transmission to sexual partners
- Prevent the consequences of untreated infection
- Identify and reduce prevalence.

In 2008/2009 financial year, the England National target for Chlamydia screening was to have at least 17% of men and women aged 15 – 24 tested in health care and non health care settings excluding Genito-Urinary Medical (GUM) clinics. The long-term plan is to achieve at least 35-50% coverage of the targeted population (National Chlamydia Screening Programme, 2009). The Chlamydia screening programme at NHS Havering where the study was undertaken began in September 2008 under the brand name 'C2it'. By end of 2008/2009 financial year (March 2009), the coverage was 15.4% (4418/28688) of the 15 – 24 total population, which was below the national target. The NHS Havering programme was expected to increase its screening uptake coverage to at least 35% by end of March 2011 in line with the national target.

The NHS Havering Chlamydia screening strategy mainly consisted of communication with young people about the importance of screening for Chlamydia, how to get a screening kit,

where to send it after giving a urine sample and what to do when they receive test results. Modes of communication mainly included schools and college visits and tutorials by staff, local magazines, a dedicated website and posters in strategic public places such as toilets. The main partners were local youth centres, pharmacies, schools, colleges and General Practice surgeries.

The NHS Havering programme had not carried out any study to establish Chlamydia screening uptake patterns, prevalence and local factors that influence the decision to screen for Chlamydia among young people. However, there is some evidence showing that population based screening programmes that involve inviting healthy individuals not attending health services to be screened for a condition may cause increased anxiety and reduced self-perceived health status (Mills et al., 2006a), which may in turn discourage target groups from taking up tests. The stigma associated with unexpected and unsolicited diagnosis of a sexually transmitted infection is also considered a major limiting factor (Low et al., 2007). Other studies have highlighted barriers to screening uptake as being poor general knowledge about Chlamydia and other consequences of untreated infection (Macmillan et al., 1999; Devonshire et al., 1999). Concerns about confidentiality regarding screening and results (Blake et al., 2003), fear of test results and friends finding out that they have been tested and fear of informing sexual partners (Fortenberry, 1997; Rietmeijer et al., 1998; Serlin et al., 2002; Mills et al., 2006a) have also featured as de-motivating factors among target groups.

Gender studies have shown that women are more concerned about the stigma associated with being diagnosed with a sexually transmitted disease such as Chlamydia where as men are more concerned with the convenience of the screening exercise (Mills et al., 2006a; Lorimer et al., 2009). A barrier for both sexes has been identified as the underestimation of being at risk of Chlamydia infection (Lorimer et al., 2009). Most men also consider Chlamydia a women's disease (Chaudhary et al., 2008). On the other hand accurate knowledge about Chlamydia infection and consequences and realistic evaluation of personal risk appear to be the main motivating factors for taking up screening (Pavlin et al., 2006a). Studies on Chlamydia uptake and social economic factors in the UK are scarce. However, one study has shown that the uptake is lower among non-white populations and in disadvantaged areas (Macleod et al., 2005). The factors highlighted above are worth considering when implementing Chlamydia screening programmes. However, every

population is unique and perceptions may vary. In line with the *consumer research/orientation* principle of social marketing, it is vital that specific issues for a particular target group are understood well as a prerequisite for developing an effective strategy that would encourage uptake of screening services.

There is a general paucity of qualitative studies on Chlamydia screening that have involved participants in non-clinical settings such as schools, colleges and working places. Limited studies that have been published have significant limitations in their reporting such as, not differentiating between the opinions of those who have been tested for Chlamydia and those who have not (Chaudhary et al., 2008), recruiting, screening and interviewing of participants afterwards (Lorimer et al., 2009) thus limiting the application of their findings to conventional settings where individuals decide freely where to go for screening for a variety of reasons. Most published studies have largely focused on clinical populations seeking medical attention (Shahmanesh et al., 2000; Mills et al., 2006a; Heritage & Jones, 2008). Although their findings have provided important insights and enhanced the understanding of Chlamydia screening uptake dynamics, their application in non-clinical settings has been limited considering that participants' opinions in clinical settings may be biased by the outcomes of the interventions related to their main medical problems that prompted them in the first place to visit a particular institution. To address the above gaps, the current study includes participants who have been tested for Chlamydia and those who have not and differentiates their opinions when reporting findings. Secondly, the study includes participants who have tested for Chlamydia via a variety of settings (clinical and non-clinical) hence providing a more comprehensive and realistic evaluation of barriers and motivating factors in accessing Chlamydia screening services among young people.

This study also combines quantitative and qualitative methods, an approach not found in any of the studies searched as the tendency has been either of the two. The quantitative aspect of this study focuses on the socio-demographic characteristics of individuals who get tested for Chlamydia and the association with test results (positive or negative). The qualitative aspect focuses on young people's perception of barriers and motivating factors associated with Chlamydia screening. The two approaches were combined in order to yield a more robust understanding of factors associated with Chlamydia screening and prevalence among young people of ages 16 to 24 living within the London borough of Havering.

5.2 Methods

Aim

To determine the main factors associated with Chlamydia screening and prevalence among young people of ages 16 to 24 living within the London borough of Havering.

Objectives

- To describe the socio-demographic characteristics of young people who get tested for Chlamydia.
- To identify any association between participants' socio-demographic characteristics and screening outcomes
- To explore in depth the Chlamydia and screening knowledge among a sample of young people resident in Havering.
- To describe what young people perceive as the benefits and barriers to getting tested for Chlamydia.
- To describe the experience of young people who had have been tested for Chlamydia and how it has affected their decision to test again in future.
- To describe young people's preferences as regards access to information on Chlamydia and screening services.

Research design

This study employed a mixed methods approach combining quantitative and qualitative designs.

Quantitative

Data Management

The data set that was used in this study was provided by the NHS Havering Chlamydia Screening Programme. It contained 3,764 records of young people aged between 16 and 24 who were tested once for Chlamydia between September 2008 and August 2009. Of this, 13 were duplicates hence a total of 3,751 records were utilized in the final analysis. No repeat tests were identified although it was explained by the programme coordinator that some young people might have taken repeat tests but deliberately provided different personal details so as to disguise their identity. The programme encourages young people

taking up Chlamydia tests to provide correct personal details but it is not a mandatory requirement.

Data analysis

Data analysis was carried out using STATA.10 Statistical package (StataCorp, 2007) and maps showing variation in Chlamydia screening uptake and prevalence were drawn using MapInfo 10.5 Geographical Information System (GIS). Using the Chlamydia screening data and GLA[‡] population estimates for Havering, screening uptake rates for 16-24 year olds living in Havering were calculated and reported according to gender, age group, area of residence (ward and IMD[§] quintile) and ethnicity. Cross tabulations and Chi Square tests were done to assess the association between participant socio-demographic characteristics, source of screening kit, sexual behaviour and test results. Multiple 2x2 contingency tables were then constructed for the specified variables and results used in a Logistic regression model using STATA.10 statistical software to assess the effects of specified socio-demographic characteristics of young people as a whole in Havering (predictor variables) and screening uptake (test or no test). Also assessed were the effects of specified socio-demographic characteristics of young people who were tested for Chlamydia (predictor variables) with the test results/outcome variable (positive or negative). Unadjusted and adjusted odds ratios (OR) with 95% confidence intervals are reported. The socio-demographic characteristics /predictor variables used in the analysis were:

- Gender
- Age
- Age band (16-19 & 20-24)
- Area of residence according to Ward (administrative divisions within the borough of Havering)
- Area of residence according to IMD Quintile
- Ethnicity
- Source of Chlamydia test kits
- Sexual behaviour

[‡] Greater London Authority (GLA) Population Estimates, 2008.

[§] The Index of Multiple Deprivation 2007 combines a number of indicators, chosen to cover a range of economic, social and housing issues, into a single deprivation score for each small area in England. This allows each area to be ranked relative to one another according to their level of deprivation.

- New partner in the last three months.
- Two or more partners in the last 12 months.

Qualitative

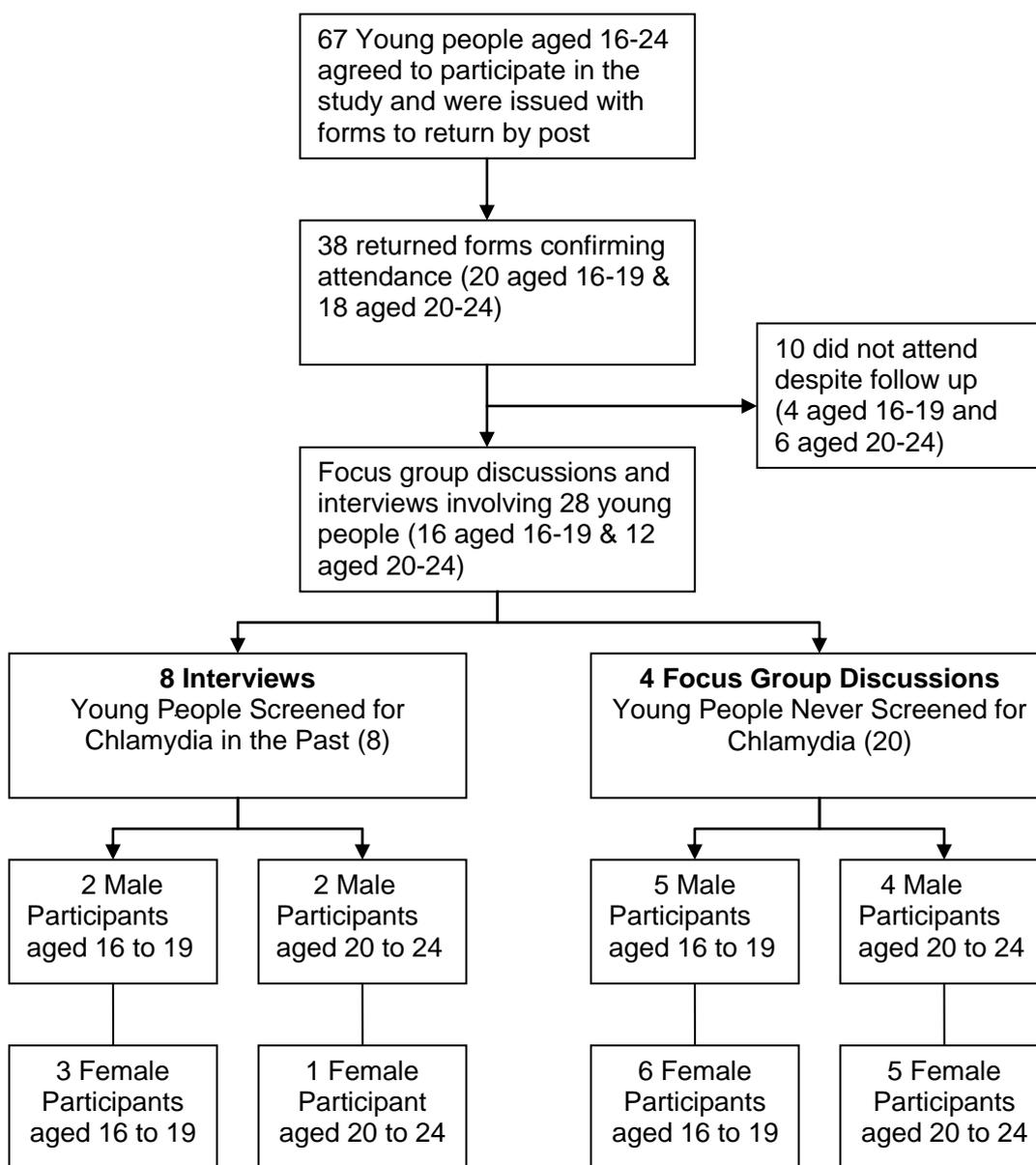
I used depth interviews and focus group discussions to collect data from 28 young people aged 16-24 living in the London borough of Havering. Eight interviews and four focus group discussions were carried out between August and December 2010. Figure 5.1 shows the overall participation structure. Depth interviews were preferred for young people who had tested for Chlamydia as they provided a private environment for discussion and disclosure without the risk of participants being identified or judged by others, hence maximising on their contribution. Available evidence shows young people are afraid of being known to have tested for Chlamydia or any other sexually transmitted infection due to the prevalent societal stigma (Blake et al., 2003; Mills et al., 2006). Focus group discussions were thought appropriate for those who had not tested as they were not expected to discuss any personal experiences but rather their general knowledge and perceptions. Focus group discussions also facilitated interactions between participants thus allowing me to observe their different perspectives and how opinions, attitudes and accounts as regards Chlamydia screening are shaped in a real social context.

Participant recruitment

Participants were recruited from Youth Zone Information Centre at Romford, Havering College at Hornchurch and Eden College at Romford. These institutions have a working relationship with NHS Havering and are represented on the local Chlamydia Screening Steering Committee. I approached the managers of the named institutions who agreed to make provision for interviews and focus group discussions to take place within their institutions at appropriate times. This was confirmed in writing. The study was advertised at these institutions for at least three weeks before the actual recruitment of participants (See advert in Appendix 5.8). Accompanied by two staff from the NHS Havering Chlamydia screening programme I visited the institutions after advertisement and was actively involved in the recruitment of interested young people. We mainly explained the purpose of the study, clarified any matters of concern and issued participant information sheets (Appendix 5.1) and response forms (Appendix 5.7) to those who expressed interest in participating in the study. Additionally those aged 16 and 17 were issued with

parent/carer forms (Appendix 5.4). A total of 67 young people agreed to participate in the study and were issued with the necessary documents and prepaid envelopes for sending them back to the researcher after filling. Only 38 returned forms confirming their participation. They were all contacted and provided with details on venue, date and time of interviews and focus group discussions. Twenty eight successfully participated in the study. They each received a £10 high street music voucher at the end of sessions to thank them for their participation.

Figure 5.1: Focus group discussions and interviews participant structure



Focus group discussions

Four focus group discussions were carried out with young people who had never tested for Chlamydia in the past. A topic guide was used to facilitate the process (Appendix 5.5). Focus group discussions were held at the participating institutions' sites for the convenience of participants. They took place during lunch breaks so as not to interrupt participants' attendance of classes. Participants and the institutions' management were involved in choosing the most suitable time. Each group discussions involved 4-6

participants (Figure 5.1) and two researchers. Every young person filled in a participant description form (Appendix 5.4) and signed a consent form (Appendix 5.3) before commencement of group discussions. Discussions were held in English language and lasted between 60 to 75 minutes. All sessions were recorded on a digital recorder with the participants' permission. I moderated the discussions while an assistant researcher observed and took notes. At the end of the discussions participants were issued with a contact list for sexual health support services in case they needed help in future (Appendix 5.9).

Interviews

Eight depth interviews were carried with young people who had tested for Chlamydia in the past (Figure 5.1). A topic guide was used to facilitate the process (Appendix 5.6). Interviews were held at the participating institutions' premises during lunch breaks. Each young person filled in a participant description form (Appendix 5.4) and signed a consent form before commencement of interviews (Appendix 5.3). Interviews were conducted in English language and lasted about 30 minutes. All sessions were recorded on a digital recorder with participants' permission. At the end of interviews participants were issued with a contact list for sexual health support services in case they needed help in future (Appendix 5.9).

Data management and analysis

Recorded materials from focus group discussions and interviews were transcribed verbatim and all person identifiable material anonymised. Data from transcripts were stored and managed in *FrameWork* Software (National Centre for Social Research, 2010). Analysis was guided by the framework approach (Ritchie & Spencer, 1996). This approach was preferred as it has a well defined process that is flexible and allows for reconsidering and reworking of ideas precisely, as the analytical steps are well documented, accessible and replicable (Ritchie & Spencer, 1996). It consists of five phases namely:

- Familiarization,
- Identification of a thematic framework,
- Indexing
- Charting

- Mapping and interpretation

Familiarisation

Familiarisation involved listening to the digital recordings, and re-reading the transcripts and making notes during focus group discussions and interviews. I ensured that all transcripts were well coded and labelled to differentiate data collected from various participants. I then imported the 12 transcripts (4 focus group discussions and 8 interviews) into the Framework software for analysis.

Thematic Framework

To develop a thematic framework, I used inductive and deductive coding approaches where data was categorized into 6 main themes derived from the interview and focus group discussion guides as well as from issues raised by participants during interviews and discussions. These were: Chlamydia knowledge, motivating factors for taking a Chlamydia test, barriers to testing for Chlamydia, Chlamydia test experience, preferred sources of Chlamydia information and test kits and recommendations for health workers.

Indexing

Indexing involved systematic application of the thematic framework to all transcripts using the dynamic indexing function of the Framework software. I read through all the data and annotated all transcripts according to the thematic framework and created numerical and textual codes to identify specific pieces of data within transcripts which correspond to differing themes and sub themes.

Charting

Indexing was followed by the charting phase where I created a summary chart within the Framework software displaying each participant's details, associated verbatim text and relevant thematic category thus allowing for quick retrieval of the original data in the transcripts as well as facilitating a convenient and accurate data interrogation and analysis process.

Mapping and interpretation

In the mapping and interpretative phase, I examined and reviewed the summary chart by comparing and contrasting perceptions, accounts and experiences of various participants. I

also looked for patterns, associations, concepts and explanations as they relate to various themes and sub themes. The process was aided by visual displays and plots.

Rationale for use of Framework approach

Prior to adopting the Framework approach, I considered other popular approaches which included Thematic Content Analysis (Green & Thorogood, 2009) and Grounded Theory (Strauss, 1987). Thematic Content Analysis is mainly inductive (relies on recurrent themes emerging from data) a factor which made it unsuitable for my study as I had *a priori* issues to consider in my analysis. Although it is considered good for exploratory research its other limitation of concern was the inadequacy to facilitate the examination of participants' social context and link to theory (Green & Thorogood, 2009). The Grounded Theory approach is as well inductive and emphasises collection of data up to a point of saturation (Seale, 2004; Dixon-Woods, 2011). Grounded theory was as well not suitable for my study as it is mainly inductive and my research period and resources were not flexible enough to carry out data collection and analysis to a saturation level. The Framework approach which I opted for is explicitly geared towards generating policy and practice oriented findings (Ritchie & Spencer, 1996). Unlike Grounded Theory and Thematic Content Analysis, it allows issues identified *a priori* as was the case in my study to be systematically considered in the analysis (deductive) while permitting those that emerge from data to be included (inductive) (Dixon-Woods, 2011). The other advantage was the availability of a bespoke software package, *FrameWork* (National Centre for Social Research, 2010). The software enabled me to upload transcripts, summarise data and create hyperlinks to the verbatim text so that it was possible to move back and forth from the abstracted summary to the original data. Cases and themes were all displayed in a dynamic chart hence allowing cases to be ordered, compared and contrasted with complete flexibility and ease.

Ethical Considerations

This study was approved by the Brunel University School of Health Sciences and Social Care and National Health Service (NHS) North West London Research Ethics Committees (See appendices 5.13 & 5.14).

Informed consent

During recruitment, I explained the nature and purpose of the study to potential participants. Those who showed interest in participating in the study were given information sheets with details about the study, their expected roles and how the information they would provide was to be managed. They were encouraged to participate but also informed of their right to decline at that stage. They were issued with response forms and prepaid envelopes to return to the researcher once they decided to participate. Young people aged 16 and 17 were issued with parent/carer consent forms to be sent back together with the response form. However, all who returned response forms declined the involvement of their parents/carers. As they could not be persuaded otherwise, they were assessed and found competent enough to participate without parental/carer consent. All young people who returned response forms were contacted and further details on venue, date and time of interview/discussion were provided. On the study day I explained the purpose of the study, why the participants were selected and their roles. All questions and concerns were addressed and participants were informed of their right to decline answering any question or to withdraw briefly or completely at any stage of discussion/interview if they felt distressed, embarrassed or anxious (See appendices 5.1 & 5.2). All participants signed consent forms before commencement of interviews/discussions.

Confidentiality

Participants were reassured about the confidentiality of the information they were to give at the beginning of each focus group discussion/interview and that care would be taken to ensure they are not identifiable in the final report, which involved omission of names and places. But they were also informed that any disclosures which would raise any concerns about their safety or that of others had to be passed on to appropriate authorities because of duty of care or in the public interest (See appendix 5.1). Participants were asked not to divulge information from group discussions.

5.3 Results

Participant socio-demographic characteristics

A total of 3751 young people aged 16-24 took a Chlamydia test between September 2008 and August 2009 (Table 1). Forty five percent were of the age range 16 to 19 years and 55% of age range 20 to 24 years. The overall mean age was 20 and the majority were females (64%). Among wards Gooshays had the highest number of young people screened for Chlamydia (9%) and Cranham the least (4%). The majority were from the most deprived quintile (24%) and from the White ethnic group (84%). More than a third (40%) reported having a new partner in the last three months and 43% two or more partners in the last 12 months. Most young people (67%) acquired Chlamydia test kits from the NHS Havering screening office at St. George's Hospital, Hornchurch (Table 5.3).

Chlamydia Screening Uptake Rate

The average Chlamydia screening uptake rate among all young people aged 16 to 24 in Havering was 14.4%. Females had a higher uptake rate (18.7%) as compared to males (10.3%). The difference between the two age groups (16-19 & 20-24) was not statistically significant. Among wards, St. Andrew's, Romford Town, Gooshays and Hacton had the highest uptake rates whereas Harold Wood, Pettits, Brooklands, Emerson Park and Cranham had the lowest (Table 5.1 & Figure 5.2). Young people from the Non-White ethnic groups had a higher uptake rate (16.9%) as compared to those from the White group (13.3%) (Table 5.1).

Factors associated with Chlamydia Screening Uptake

Young people's gender, place of residence (ward and deprivation quintile) and ethnicity were significantly associated with screening uptake. Females aged 16-24 were three times more likely to take a Chlamydia test than males of the same age range. There was no significant difference between young people aged 16-19 and those aged 20-24. Place of residence was significantly associated with screening uptake. Young people living in St. Andrew's were about two times more likely to take a test as compared to those living in Harold Wood. Those living in the least deprived quintile were up to 38% less likely to take

a test as compared to those in the most deprived quintile. Young people of Non-White ethnic background were 1.3 times more likely to take a test as compared to those from the White background (Table 5.2).

Figure 5.2: Chlamydia screening uptake rate (per 1,000 Population) by ward among 16-24 year olds living in the London borough of Havering, 2008-2009.

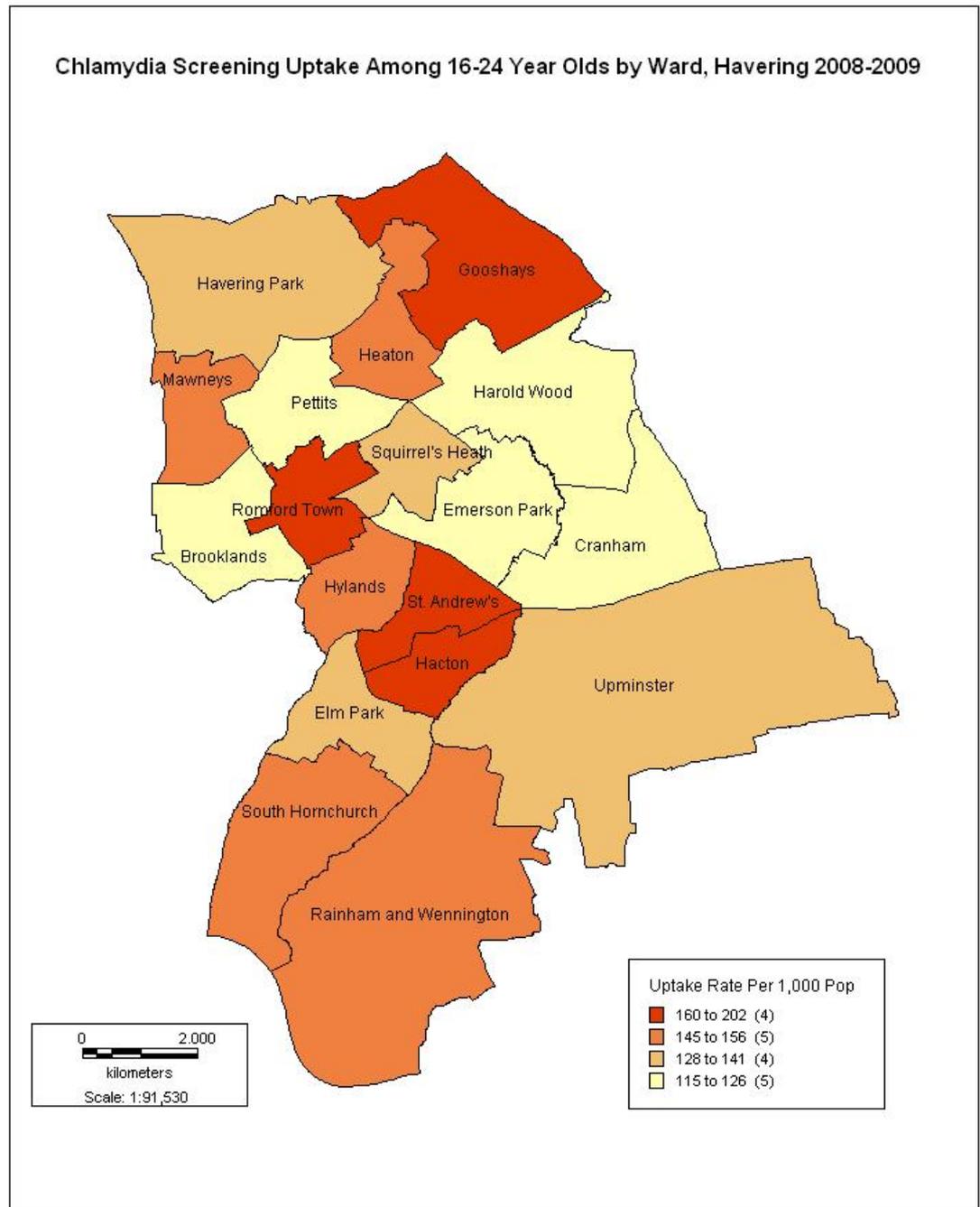


Table 5.1: The socio-demographic characteristics of young people screened for Chlamydia and uptake rates, Havering, 2008/09.

Variables	16-24 year olds population	Number & percentage tested for Chlamydia	Screening uptake rate % (95% CI)	P value [†]
Total	25,992	3,751	14.4 (14.0, 14.9)	
1. Gender				<0.001
Female	12,814	2,400 (64%)	18.7 (18.0, 19.5)	
Male	13,178	1,351 (36%)	10.3 (9.7, 10.8)	
2. Age Band				0.750
16-19	11,859	1,701 (45%)	14.3 (13.7, 15.0)	
20-24	14,133	2,050 (55%)	14.5 (13.9, 15.1)	
3. Ward				<0.001
Brooklands	1,625	205 (5.5%)	12.6 (10.9, 14.5)	
Cranham	1,259	153 (4.1%)	12.2 (10.3, 14.2)	
Elm Park	1,336	187 (5.0%)	14.0 (12.1, 16.2)	
Emerson Park	1,394	170 (4.5%)	12.2 (10.4, 14.2)	
Gooshays	1,930	339 (9.0%)	17.6 (15.7, 19.5)	
Hacton	1,415	244 (6.5%)	17.2 (15.1, 19.5)	
Harold Wood	1,482	170 (4.5%)	11.5 (9.8, 13.3)	
Havering Park	1,527	216 (5.8%)	14.1 (12.3, 16.2)	
Heaton	1,249	195 (5.2%)	15.6 (13.5, 18.0)	
Hylands	1,331	193 (5.2%)	14.5 (12.5, 16.7)	
Mawneys	1,241	182 (4.9%)	14.7 (12.6, 17.0)	
Pettits	1,601	194 (5.2%)	12.1 (10.5, 13.9)	
Rainham & Wennington	1,529	222 (5.9%)	14.5 (12.7, 16.6)	
Romford Town	1,567	250 (6.7%)	16.0 (14.0, 18.1)	

South Hornchurch	1,455	211 (5.6%)	14.5 (12.6, 16.6)	
Squirrel's Heath	1,572	201 (5.4%)	12.8 (11.1, 14.7)	
St. Andrew's	1,304	263 (7.0%)	20.2 (17.8, 22.8)	
Uppminster	1,175	156 (4.2%)	13.3 (11.3, 15.5)	
4. Area of Residence – IMD Quintile				<0.001
Q1- Most deprived	6,278	927 (24%)	14.8 (13.8, 15.7)	
Q2- Above average	4,528	745 (20%)	16.5 (15.3, 17.7)	
Q3- Average	5,706	688 (18%)	12.1 (11.2, 13.0)	
Q4- Below average	4,051	682 (17%)	16.8 (15.6, 18.1)	
Q5- Least Deprived	5,429	709 (19%)	13.1 (12.1, 14.1)	
5. Ethnicity				<0.001
White	23,809	3,155 (84%)	13.3 (12.8, 13.7)	
Black		170 (4.5%)		
Mixed	All non-white	135 (3.6%)	16.9 (15.2, 18.7)	
Asian	2,183	57 (1.5%)		
Others		6 (0.2%)		
Unknown		228 (6.1%)		

† Chi2 significance test for difference in Chlamydia screening uptake between groups within a specified variable

Table 5.2: The association between Gender, Age, Area of residence, Deprivation, Ethnicity and decision to test for Chlamydia among young people living in Havering, 2008/09

Predictor Variable	Crude Odds Ratio (95% CI)	P Value	Adjusted Odds Ratio (95% CI)	P Value
Gender		<0.001		<0.001
Male	1.00		1.00	
Female	2.02 (1.88, 2.17)		3.27 (3.05, 3.50)	
Age Band		0.712		
16-19	1.00		Not in model	
20-24	1.04 (0.95, 1.09)			
Ward		<0.001		
Harold Wood	1.00			
Pettits	1.06(0.85, 1.32)			
Cranham	1.07(0.85, 1.35)			
EmersonPark	1.07(0.85, 1.34)			
Brooklands	1.11(0.90, 1.38)			
Squirrels Heath	1.13(0.91, 1.41)			
Upminster	1.18(0.93, 1.49)			
Elm Park	1.26(1.00, 1.57)			
Havering Park	1.27(1.03, 1.58)		Not in model [§]	
Hylands	1.30(1.05, 1.63)			
Rainham&Wennington	1.31(1.06, 1.62)			
South Hornchurch	1.31(1.05, 1.63)			
Mawneys	1.32(1.06, 1.66)			
Heaton	1.42(1.14, 1.78)			
Romford Town	1.46(1.19, 1.81)			
Hacton	1.61(1.30, 1.99)			
Gooshays	1.64(1.35, 2.00)			
St. Andrews	1.95(1.58, 2.40)			
Deprivation		<0.001		<0.001
Q1- Most deprived	1.00		1.00	
Q2- Above average	1.14(1.02, 1.26)		1.11 (1.00, 1.22)	
Q3- Average	0.79(0.71, 0.88)		0.80 (0.73, 0.88)	
Q4- Below average	1.17(1.05, 1.30)		1.27 (1.15, 1.40)	
Q5- Least Deprived	0.87(0.78, 0.96)		0.62 (0.56, 0.68)	
Ethnicity		<0.001		
White	1.00		Not in model [¥]	
Non-White	1.32(1.18, 1.49)			

§ Not included because of collinearity with Deprivation variable.

¥ Not included because of lack of ethnic population data at ward/deprivation quintile level

Factors associated with positive Chlamydia tests

The mean rate of testing positive for Chlamydia for all young people (3751) who were screened was 5.3%. The age, gender, deprivation and ethnicity differences in prevalence rates were not statistically significant (Table 5.3).

Area of residence (Ward)

Overall, young people living in Rainham & Wennington, South Hornchurch and Pettits had the highest Chlamydia prevalence rates whereas those in Hylands had the lowest (2.1%) (Table 5.2 & Figure 5.3). The association between area of residence (Ward) and Chlamydia prevalence was significant. Young people living in Rainham & Wennington were 5 times more likely to test positive for Chlamydia as compared to those in Hylands (Table 5.3).

Source of test kit

Young people who acquired test kits from Pharmacy had the highest prevalence rate (12%) whereas those from Colleges had the lowest rate (1.9%). The association between source of test kit and Chlamydia prevalence was significant. Young people who acquired test kits from pharmacy were nine times more likely to test positive for Chlamydia as compared to those who got theirs from colleges (Table 5.3).

Sexual Behaviour

Young people who reported having a new partner in the last three months or two or more partners in the last 12 months had higher Chlamydia prevalence rates as compared to those who did not (7.8% and 7.3% respectively). The association between the above sexual behaviours and Chlamydia prevalence was significant. Young people who reported having a new partner in the last three months or two or more partners in the last 12 months were about two times more likely to test positive for Chlamydia as compared to those who did not (Table 5.3).

Figure 5.3: Chlamydia prevalence rate (per 1,000 Population) by ward among 16-24 year olds living in the London borough of Havering, 2008-2009.

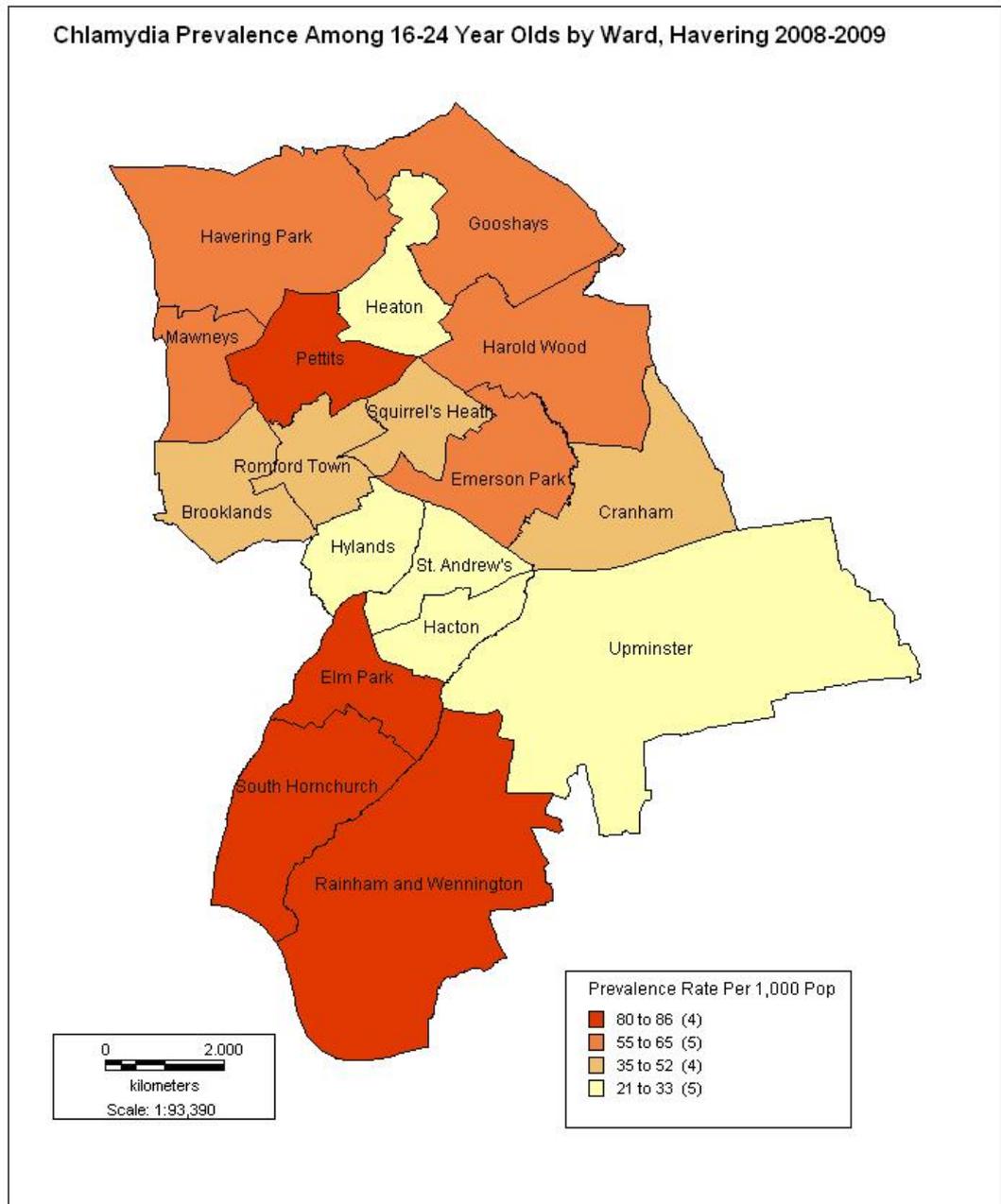


Table 5.3: Chlamydia prevalence and its association with young people's socio-demographic characteristics, source of test kit and sexual behaviour, Havering, 2008/09

Variables	Number Screened	Prevalence (%)	Crude Odds Ratio (95%CI)	P Value	Adjusted Odds Ratio (95%CI)	P Value
Total	3751	5.25				
Gender				0.547		
Female	2,400	5.42	1.00			
Male	1,351	4.96	0.91 (0.67,1.23)		Not in Model	
Age Band				0.695		
16-19	1,701	5.41	1.00			
20-24	2,050	5.12	0.94 (0.71,1.26)			
Ward				0.020		0.002
Hylands	193	2.07	1.00		1.00	
Heaton	195	2.56	1.24 (0.33, 4.70)		1.25 (0.33, 4.79)	
St. Andrew's	263	3.04	1.48 (0.44, 5.00)		1.64 (0.48, 5.58)	
Upminster	156	3.21	1.56 (0.41, 5.92)		1.36 (0.33, 5.58)	
Hacton	244	3.28	1.60 (0.47, 5.40)		1.66 (0.49, 5.65)	
Squirrel's Heath	201	3.48	1.70 (0.49, 5.92)		1.87 (0.53, 6.54)	
Brooklands	205	3.90	1.91 (0.57, 6.48)		1.96 (0.58, 6.68)	
Romford Town	250	4.00	1.97 (0.61, 6.38)		1.64 (0.49, 5.46)	
Cranham	153	5.23	2.61 (0.77, 8.83)		2.63 (0.77, 9.01)	
Mawneys	182	5.49	2.75 (0.85, 8.92)		2.28 (0.67, 7.79)	
Harold Wood	170	5.88	2.95 (0.91, 9.60)		3.49 (1.07, 11.4)	
Havering Park	216	6.02	3.03 (0.97, 9.44)		3.07 (0.97, 9.67)	
Emerson Park	170	6.47	3.27 (1.02, 10.5)		3.17 (0.98, 10.3)	
Gooshays	339	6.49	3.28 (1.11, 9.66)		3.66 (1.23, 10.9)	
Elm Park	187	8.02	4.12 (1.34, 12.7)		4.74 (1.53, 14.7)	
Pettits	194	8.25	4.25 (1.39, 12.9)		4.40 (1.43, 13.5)	
South Hornchurch	211	8.53	4.41 (1.46, 13.3)		5.28 (1.74, 16.1)	
Rainham & Wennington	222	8.56	4.42 (1.48, 13.2)		5.35 (1.77, 16.2)	

Deprivation				0.491		
Q1- Most deprived	927	6.15	1.00			
Q2- Below average	745	5.10	0.82 (0.54, 1.25)			
Q3- Average	688	4.65	0.74 (0.48, 1.16)			Not in Model
Q4- Above average	682	5.72	0.93 (0.61, 1.42)			
Q5- Least Deprived	709	4.37	0.70 (0.44, 1.09)			
Ethnicity				0.292		
White	3,155	5.45	1.00			
Non-white	368	4.89	0.89 (0.54, 1.47)			
Unknown	228	3.07	0.55 (0.25, 1.18)			
Source of test kit				0.002		0.001
College	493	1.93	1.00		1.00	
Sexual Health Clinic	43	2.33	1.21 (0.15, 10.1)		1.39 (0.16, 11.8)	
Local Hospital/Social Services	21	4.76	2.54 (0.30, 21.6)		3.19 (0.35, 28.7)	
GP Surgery	362	4.93	2.63 (0.98, 7.01)		3.19 (1.14, 8.96)	
NHS Screening Office	2515	5.17	2.76 (1.28, 5.96)		3.07 (1.39, 6.78)	
Youth/Child Centres	493	6.90	3.76 (1.65, 8.59)		3.64 (1.57, 8.41)	
Pharmacy	114	12.3	7.10 (2.79, 18.1)		9.11 (3.45, 24.0)	
Sexual Behaviour						
<i>(a) Had a new partner in the last 3 months</i>				<0.001		0.002
No	1,876	3.14	1.00		1.00	
Yes	1,503	7.78	2.60 (1.89, 3.58)		1.99 (1.36, 2.90)	
Unwilling to disclose	355	5.35	1.74 (1.03, 2.96)		1.35 (0.48, 3.80)	
<i>(b) Had 2 or more partners in the last 12 months</i>				<0.001	1.00	0.020
No	1,730	3.18	1.00		1.72 (1.17, 2.52)	
Yes	1,616	7.30	2.40 (1.73, 3.33)		1.83 (0.67, 4.98)	
Unwilling to disclose	385	5.45	1.76 (1.05, 2.94)			

Interview & Focus Group Discussion participants

Twenty eight young people participated in the qualitative phase of this study. Eight reported having taken a test for Chlamydia in the past whereas 20 had not. Those who had taken a test were interviewed in one to one sessions whereas the 20 who had not were involved in focus group discussions. Fifteen were female and 13 were male. Most of the participants were White (13). The rest were either Black (9) or Asian/Mixed (6). The majority were college and A' level students (26). No major difference in responses from young people aged 16-19 and those aged 20-24 was observed hence results are reported for the whole group (16-24). Results are summarized in six main sections: Chlamydia knowledge level, motivating factors for Chlamydia testing, barriers to Chlamydia testing, experience of testing for Chlamydia, preferred source of information and test kits and suggestions on improving Chlamydia test uptake. In each section, findings relating to young people who had been tested for Chlamydia and those who had not are reported separately. A conceptual model emerging from the interviews and focus group discussions is illustrated in figure 5.2. For correct knowledge and facts about Chlamydia see Appendix 5.12.

Chlamydia Knowledge

Young people who had taken a test for Chlamydia

All participants who had taken a test understood that Chlamydia was a sexually transmitted disease. Despite having taken a Chlamydia test two participants (male and female) did not know what kind of symptoms a person infected with Chlamydia would present with. The six who expressed knowledge of the symptoms correctly understood that there may be no symptoms initially and that on long term Chlamydia could affect an individual's fertility. However a half (two male and two female) thought only women developed symptoms and in particular would have their fertility affected:

“Well, errm, I'm not too sure really, but I'm sure, well I'm not sure, that people can have it for like years and not know about it. But boys I don't think have any consequences, they are just carriers of it. It's only girls that, it doesn't like decrease boys fertility or anything, I don't think. I'm not definitely sure, this is just what I think I know (laughs).” (*Interview 1: Female, 17 years*)

Six out of the eight participants understood the type of Chlamydia symptoms which may manifest following a long term infection such as pain on passing urine, abnormal discharge, vaginal thrush and itchiness around the genitalia but none mentioned the increased vulnerability to other STDs such as HIV. Knowledge of Chlamydia transmission and treatment was limited among participants. Whereas they all understood that Chlamydia could be spread through sexual intercourse and was treatable, they were unsure of any other means of transmission and type of treatment.

The most cited sources of knowledge about Chlamydia were leaflets sent to home addresses by the Chlamydia programme at NHS Havering and sexual health sessions in schools. Other sources included the internet, youth clubs and posters in public places. All participants perceived Chlamydia as a common and serious problem among young people. This was mainly based on the campaign messages accessed by participants from various forms of media such as posters, internet, television and school. However they were unsure if the same applied to their local area (Havering) (Box1). As expected all participants knew about how Chlamydia tests are done. Two had taken a Chlamydia test via their local GP surgery whereas six had received information and a test kit via the post from the NHS Havering Chlamydia office. After sending of urine samples to the laboratory for testing, they received their results via mobile phone text or email messages.

Box 1: Source of Chlamydia Knowledge

1. “Because we have so many talks about it at school. Like Form Tutor period we have it like loads of people talking about sex and drugs and alcohol and stuff and they always talk about Chlamydia. That's why I wanted to get the test, coz they convinced me, well not convinced me but I thought like oh, maybe I should check it (laughs).” (*Interview 3: Female, 17 years*)
2. “Yeah - I do not know if it definitely is, but it gets like advertised as if it is, there's a lot of advertisements and stuff about it and a lot more, trying to make you aware about it now so which makes me think it's more of a problem now. But, and they say it is one of the most common sexually transmitted diseases but I don't know if it is in Havering or not, probably (laughs).” (*Interview 2: Female, 18 years*)

Young people who had never taken a test for Chlamydia

All participants who had never taken a test understood that Chlamydia was a sexually transmitted disease. However one of the male participants reported having never heard about Chlamydia prior to getting involved in the study. Participants in all focus groups were uncertain about whether a person with Chlamydia would have noticeable symptoms or not. A few thought there would be symptoms but were not sure of the presentation. However it was not clear whether the expressions of ignorance were deceptive or real as some of the participants were noticeably guarded as if not to give an impression they knew too much, may be for fear of other group members thinking they had Chlamydia infection in the past, for example:

“It hurts when you are passing urine, like it is sore. I did not have it I just know that (laughing).” (*Focus Group 3: Female, 18 years*)

There was consensus in all focus groups about Chlamydia being spread mainly through sexual intercourse but none of the participants were certain about other means. All participants in focus groups thought there was treatment for Chlamydia infection but were as well not sure about the type of treatment. The most cited sources of information among participants in focus groups were television and sexual health sessions in school. Others included GP, Connexions, parents and friends. As was the case for participants who had taken a test in the past, there was a general consensus about Chlamydia being a common problem but mainly based on the observed intensity of Chlamydia campaign messages mainly in the form of posters in public places, internet and television. However some participants said they were not sure about the validity of the Chlamydia campaign messages as they did not know any one who had tested positive for Chlamydia (Box 2).

Box 2: Perception of Chlamydia prevalence

1. “I don’t really know. I know there’s a lot of statistics out there saying it’s a rise but also screening for it is on the rise as well. There’s a lot more people screening for it, there could have been just as many before the adverts as after the adverts or before these studies were done. It’s more publicly known now, so I think people are more aware of it, whether it’s more common or not now, I don’t know.” (*Focus Group 2: Male, 24 years*)
2. “I honestly don’t know anyone who has had Chlamydia. There are no symptoms, yeah so you wouldn’t know how many there are out there would you? So you could not be 100% sure how many.” (*Focus Group 3: Female, 19 years*)

Most of the participants in the four focus groups had limited knowledge about Chlamydia testing procedures. Whereas they all understood that one had to provide a urine sample to a health worker, none was sure of what followed afterwards i.e. where the urine sample is taken to, the notification of results and treatment:

“I have not got a clue. You pee in a pot, they send it off, they could be doing voodoo on it (laughs). They could just be dipping litmus paper in it and it could come out a different colour if you’ve got. It could possibly be under a microscope or something else.” (*Focus Group 1: Male, 16 years*)

Motivating factors for taking a Chlamydia test

The eight participants who had taken a Chlamydia test did so because it was offered to them, it was convenient and they thought it was a good opportunity to know their status. Among female participants, the majority (3/4) reported fear for their fertility as the other main reason for their decision to have a test. In all focus groups involving participants who had never taken a test, there was a general belief that those who test for Chlamydia consider themselves at a greater risk of infection for example:

“Because if you are having sex with many people like you have got to know where you stand, because you might have but you don’t know so it is better to go and get tested (*Focus Group 4: Female, 20 years*)

“May be because they have recently slept around and not worn a condom or they realize something bad, like their partners have been sleeping around as well so they get checked just in case.” (*Focus Group 2: Male, 24 years*)

Barriers to testing for Chlamydia

Participants in interviews and focus group discussions shared their perceptions about barriers to Chlamydia testing among young people in general rather than their personal experiences as agreed a priori.

Young people who had taken a test for Chlamydia

Fear and ignorance were cited as the main barriers to testing for Chlamydia among young people. Five participants said most young people decline Chlamydia tests because they fear the embarrassment that might result from being diagnosed with a sexually transmitted disease. Fear of being found out by close acquaintances was also identified as a major barrier. Four participants thought most young people do not test for Chlamydia due to ignorance and lack of understanding of the seriousness of the infection and how they can be affected. The asymptomatic nature of Chlamydia in itself they thought was a barrier as young people who might be aware of the disease may still assume they are safe even when infected due to lack of visible symptoms. Three participants were of the opinion that most young people were aware of Chlamydia and how it can affect them but simply ignored the advice to test as they perceived the process of testing and the possibility of positive results as a threat to their pride and dignity (Box 3).

Box 3: Barriers to testing for Chlamydia (Opinions of young people who had taken a test)

1. "I think people are embarrassed about it. I think people get the impression it implies that you have been sleeping around if you've got a sexually transmitted disease. But now you can do it at the clinic and you can do at the doctors, it is more private and if people know about it, they are more likely to do it. I think people get embarrassed." (*Interview 2: Female, 18 years*)
2. "I would say, because a lot of them, just don't really know what Chlamydia is and how it's caught really, and emmm... convenience, that's why a lot of people can't be bothered to actually go and get themselves screened coz they think that they wouldn't have anything coz they don't really know how they would catch it? So they don't think they've got it, so they think, why bother going to get screened." (*Interview 5: Male, 24 years*)
3. "I think a lot of people are scared of knowing well, they don't wanna know whether they've got it or not to be honest. There's a lot of people out there who would rather not know, yeah just try and put it to the back of their head maybe. Obviously if the symptoms were there, they are gonna need to, other than that, if it's dormant then they don't really want to know." (*Interview 4: Male 22 years*)

Young people who had never taken a test for Chlamydia

Young people who had never tested for Chlamydia highlighted loss of dignity/ pride, doubts about confidentiality and fear of being find out by close acquaintances as the main barriers to taking Chlamydia tests among young people. In one of the focus groups involving males aged 16-19, participants described offers for tests in public as being offensive. They thought accepting such offers would be a compromise on personal dignity and pride as it indicated lack of confidence in an individual's sexual lifestyle and health. The suspicion that young people who test for Chlamydia have their details stored in some government database which can be accessed by other people was highlighted as a possible barrier by participants in a focus group involving males aged 16-19. Fear of parents and other acquaintances finding out that a young person had taken a Chlamydia test was also cited as a discouraging factor in all focus groups. Some participants also felt taking a test was a public declaration that an individual was sexually active whereas most young people would like to keep issues about their sexuality confidential (Box 4).

Box 4: Barriers to testing for Chlamydia (Opinions of young people who had never taken a test)

1. “I personally haven’t, I’m not sure whether you can say I’m stuck up or if I have a bit too much dignity, but I don’t want to pee in a pot in public to be honest. I don’t like the idea of handing my urine to some random person I don’t know.” (*Focus Group 2: Male, 18 years*)
2. “Maybe, about information even though they said its all private, and like they have said it loads of time its private, it’s private. I think people may feel like no this is just the government trying to get our names and if we have it they put us down on the naughty list!” (*Focus Group 1: Male, 19 years*)
3. “May be they are shy, scared or they lack confidence. Like for example you go to a sexual health clinic for stuff (test kit) and other people who know you see you there and they will think you have it.” (*Focus Group 4: Female, 21 years*)
4. “Young people do not want to be known they are having sex, so they might meet someone they know at a testing place and they might say humm!! So you are having sex (all laughing).” (*Focus Group 3: Female, 17 years*)

Chlamydia test experience

Young people who had taken a test for Chlamydia

The eight participants who had tested for Chlamydia reported that results just confirmed what they thought as they were not involved in any risky sexual behaviour. They all said their results were negative. Two said they shared test results with their partners while six saw no need as they were negative. All participants said they would take a Chlamydia test again in future only if they felt they were in a risky relationship.

Young people who had never taken a test for Chlamydia

Participants were asked about how they thought they would feel if they took a test and results turned positive. They were also asked if they would inform their partners. All participants described negative emotional reactions. They said they would feel disheartened, disgusted, dirty, embarrassed and upset if they tested positive for Chlamydia but as it is not terminal they would not be too worried. In all focus groups, participants said they would feel embarrassed telling their partners about positive results. However in two focus groups involving 20-24 year olds, there was a consensus about informing a partner if a relationship was long-term.

Preferred sources of Chlamydia information & test kits

Young people who had taken a test for Chlamydia

Sending information about Chlamydia to all young people via postal address was considered the most effective way of creating awareness among young people. Five out of the eight participants who preferred this method explained that it was the only method that guaranteed privacy and confidentiality a factor which most young people are concerned about (The NHS Havering Chlamydia office sent information about Chlamydia and screening to postal addresses of all young people aged 16-24 living in Havering when the programme was initiated in 2008 and continue to do so periodically). But three disagreed and rather recommended use of posters and other forms of media such as television, radio and internet. They argued that unsolicited materials sent via postal addresses are rarely read and often get discarded:

“I would just say on the bus, shelters and things like that, just have posters there. I’m also thinking of television and stuff, I don’t really think if you send it through the post, people will just throw it in the bin, and wouldn’t really look into it, I think. I think somewhere, big where people walk past and they can actually spend time looking at it. I think that’s probably the best way.” (*Interview 1: Female, 17 years*)

School as a source of information was considered effective by half of the participants but the rest thought otherwise. They believed most young people wouldn’t bother to collect the information and though they might attend sessions where Chlamydia is discussed (as part of school curriculum) they were unlikely to benefit much due to lack of interest. Posters were considered better than leaflets which involve taking away and most young people did not want to be seen carrying or reading them due to the associated stigma:

“Like posters would be good. Like I don’t think leaflets and stuff, coz I think people, if they are seen reading it and stuff, they would feel embarrassed, but if you had posters and stuff, then that’s like, coz you can read it without being obvious that you are reading it and don’t have to feel self conscious about it but can be gaining information. Sort of places like the bus stops as well are good places as a lot of people young people get on the bus and if they have got posters at the bus stop you can glance at that and read. (*Interview 3: Female, 17 years*)

Requesting test kits from the NHS Havering Chlamydia screening office or other sources via the telephone or internet were preferred by all participants due to their confidential nature. Most participants considered schools, hospitals and other public places as unlikely

test kit sources for the majority of young people due to the effort required and inconvenience involved (Box 5).

Box 5: Preferred sources of test kits (Opinions of young people who had taken a test)

1. “Most of them will not go in and speak to a person face to face. A lot of young people won’t want to go in and say, can I have a Chlamydia testing kit? You see Connexion is better because it is confidential. And you just ring them and they put your name in the system and send it to you” (*Interview 2: Female, 18 years*)
2. “Places like schools, hospitals and stuff, they’re unlikely to go there. I don’t think young people would go out of their way to get one. I don’t think they would go out of their way to go to a hospital and get one. If the test kit is coming to them like in post, then it’s right on there, then they are more likely to just take it up coz it’s there *isn’t it?*” (*Interview 7: Male, 19 years*)

Young people who had never taken a test for Chlamydia

Participants in focus groups suggested the internet, television and postal address as the best channels of communication because they did not involve personal interaction. They thought public outreach programmes were not effective as they involved taking a risk of being seen by acquaintances while in attendance which would lead to embarrassment. They were of the opinion that most public outreach programmes only tended to attract young people who don’t live in targeted local areas:

“You have got these events like Romford road show, a lot of people go to them, but it’s really quite a minority of the population of the area that will go into the Chlamydia tent.” (*Focus Group 1: Male, 17 years*)

Some participants said the age of a health professional was significant in engaging young people at an individual level with preference to younger professionals whom young people would find easy to identify and engage with in discussions about sexual health issues. All participants agreed about the online or phone request system for test kits being the best option due its confidentiality which most young people value. However a few participants thought the issuing of test kits after health talks to all young people was also effective as it avoided singling out individuals which most young people dislike. Some considered GP practice and colleges as not good options due lack of confidentiality, for example:

“I don’t know probably my GP but I can’t go to the GP without my mother knowing.” (*Focus Group 3: Female, 17 years*)

“People would rather take it from like, you know them places, like the sex education for young people events or whatever and they give you at the end. It’s better than if it is in college yeah, that’s an open place and everyone will see that you’re asking for something.” (*Focus Group 1: Male, 19 years*)

Recommendations for health workers

The following were the main recommendations made by interview and focus group discussion participants on how to boost Chlamydia screening uptake (Box 6).

- Create more awareness about Chlamydia screening among young people and allay fears about possible embarrassment by reassuring them about the confidentiality of the service
- Provide incentives to encourage more young people to take Chlamydia tests.
- Educate young people about how Chlamydia is spread and the symptoms as most young people do not understand the seriousness and how common Chlamydia is and those who know do not believe.
- Ensure the service is confidential and utilise the postal method more by sending test kits to young people’s addresses rather than offering them in public.

Box 6: Recommendations on increasing Chlamydia screening uptake (All participants)

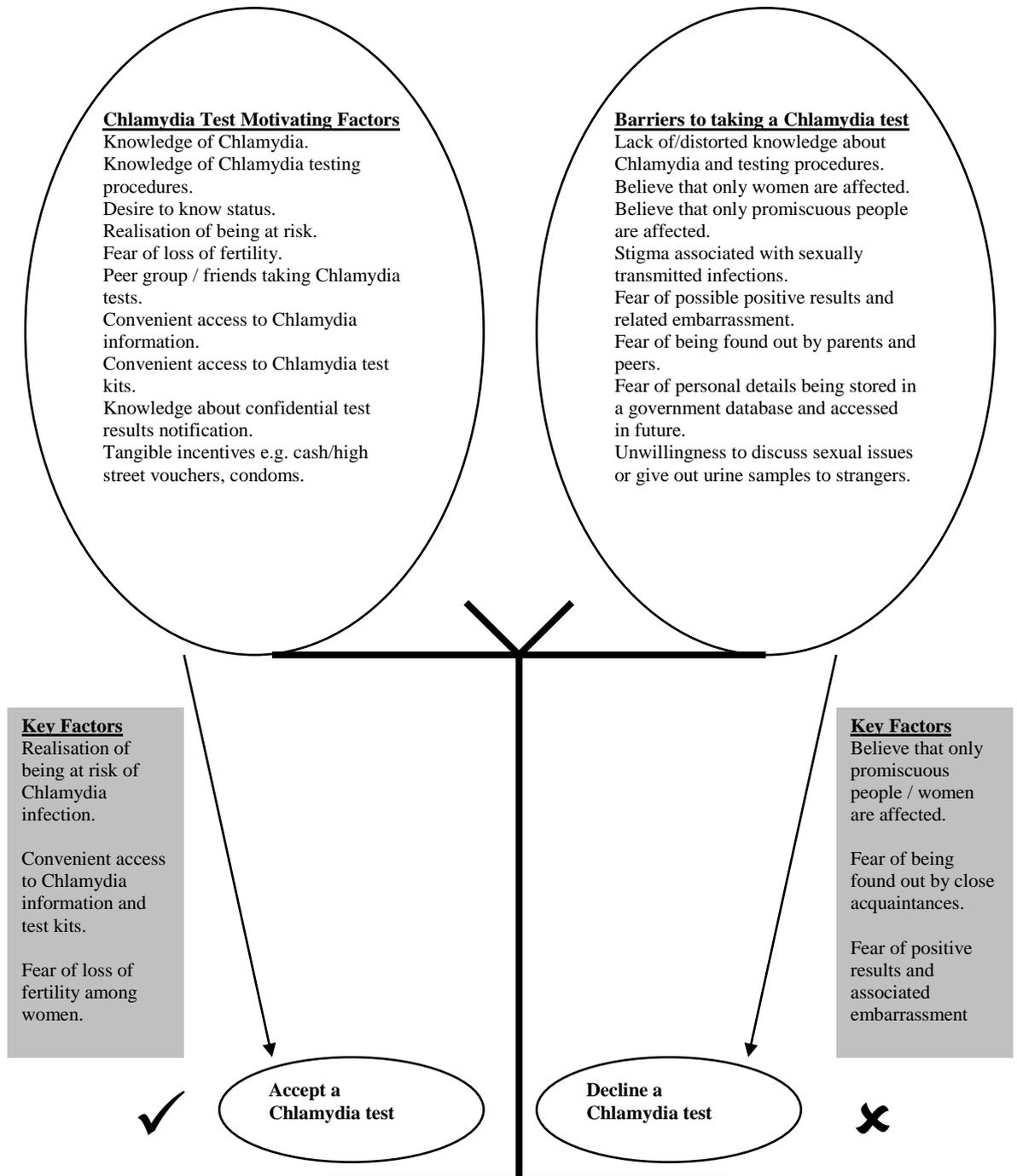
1. “Say, may be posters to sort of initiate awareness of actually how often, how many people sort of get Chlamydia and the reasons why it’s important to get tested. Put those all around and then obviously if something like came through the door, then well, like for me it’s even better, it’s easy and convenient. So, it’s not out of your way to go and get tested. It’s a private thing as well, so it’s like not as, there is no one else that is involved sort of thing it’s just you.” (*Interview 5: Male, 24 years*)
2. “Yeah, may be give them a free condom or something as an incentive. So give out some incentives to encourage them to screen like if they handed out vouchers that would be a good incentive as well for them.” (*Interview 6: Male, 18 years*)
3. “Well what did it for me was when the woman said that like in 12 people and 6 people have it and I was like ooohhhh!! That’s what made me think like...I think its one in 10 I got it wrong, I think it is one in 10. And I’ve got like a group of 10, 10 of like my friends and we were like one of us has it or gonna have in the end so we better get tested. So say like how common it is, how you might get it and how like there’s hardly any symptoms so you might not know you had it at all. And you might still have it and definitely talk about how it decreases fertility in girls, because I think a lot of girls will worry about things like that, from what I know anyway.” (*Interview 3: Female 17 years*)
4. “Make it more private. Like you send it to the house, so when you are weeing in the pot and you seal it then you send to the lab by post, you know no one is seeing you, no one is looking at you. That’s more anonymous, you’re outing your details but you don’t have the psychological thing of handing it physically to another person even though you know some scientist is going to open it up and do whatever they want to.” (*Focus Group 4: Female, 22 years*)

Summary of factors associated with Chlamydia screening uptake

Figure 5.4 gives a summary of factors that were associated with Chlamydia screening uptake as reported by participants and also highlights key determinants/factors based on the majority view. Convenient access to information and test kits was considered a key factor that would enhance the possibility of a young person taking a Chlamydia test (the majority who had taken a test: 6/8 received information and test kits at their home addresses). Knowledge about the consequences of Chlamydia infection was also identified as a key factor that would stir more young people to take a test. However this appeared to apply mainly to female participants who considered loss of fertility as a consequence of Chlamydia infection a significant issue (3/4 female participants who had tested for Chlamydia cited this as a key motivating factor). The belief that only promiscuous people were at risk of Chlamydia infection and only women were affected were identified as key

barriers based on the views of all participants who had never taken a test. Those who had taken a test also said they would only consider taking a test again in future if they got involved in a risky sexual relationship. Fear of parents, peers or other close acquaintances knowing that one was sexually active and concerned about their sexual health was considered a key barrier by all participants. Fear of positive results and the embarrassment of being associated with a sexually transmitted disease were also highlighted as key deterrents.

Figure 5.4: A conceptual model of factors associated with Chlamydia screening uptake among young people in Havering



5.4 Discussion

Results from this study show that gender, area of residence (ward), deprivation and ethnicity were the main predictors of screening uptake whereas area of residence, source of test kits and sexual behaviour were the main predictors of prevalence. The main barriers to taking a Chlamydia test were identified as: inadequate knowledge about Chlamydia and test procedures, underestimation of individual's infection risk, stigma associated with sexually transmitted diseases, fear of positive test results and related embarrassment, fear of being found out by significant others and personal details being stored in a government database. Motivating factors included adequate knowledge of Chlamydia and test procedures, realistic assessment of individual's infection risk, fear of loss of fertility among females, convenience in access to test kits, confidentiality in results notification and tangible incentives.

Screening uptake

The overall Chlamydia screening uptake rate was 14.4% which was slightly lower than the England national average (15.9%) and significantly lower than the London area average (18.1%). (National Chlamydia Screening Programme, 2009). Although this may be viewed as underperformance, the NHS Haverling programme was by then relatively new having been initiated in late 2008. The uptake rates should therefore be considered in that context as evidence shows that it takes several years of aggressive and comprehensive health marketing strategies to reach out to target groups and to realize high screening volumes (Herrmann & Egger, 1995; Kretzschmar et al., 1996; Honey et al., 2002; Levine et al., 2004; National Chlamydia Screening Programme, 2009).

The analysis of screening uptake by gender showed that females were twice more likely to take a Chlamydia test as compared to males. This is consistent with the national (Females 23.6% vs. Males 15.9%) and London area (Females 25.6% vs. Males 18.1%) uptake rates for the same period of study (2008/09) (National Chlamydia Screening Programme, 2009). Generally Chlamydia screening uptake among males has remained low nationally since inception of the programme. Some of the factors that have been attributed to low uptake include: settings offering screening being more likely to be visited by females

(contraceptive services and sexual health clinics), some health professionals being reluctant to offer test kits to males (Boekeloo et al., 2002), lower likelihood of asymptomatic young men as compared to women in seeking a test (Andersen et al., 2002) and low awareness about Chlamydia and screening among men (Adams et al., 2004b). Although this study did not specifically investigate gender disparity in relation to screening uptake, results from the qualitative component showed that most young people still consider Chlamydia as mainly affecting females and of little or no consequence to males. In England, the National Chlamydia Screening Programme has been implementing a strategy entitled, '*Men Too*' since 2007 (National Chlamydia Screening Programme, 2007). The strategy aims at addressing the gender disparity in uptake of screening by mainly raising young men's awareness of Chlamydia and the screening programme, ensuring provider commitment and reviewing, evaluating and developing good practice in working with young men based on local initiatives and research. In line with the "men too" strategy, NHS Havering needs to develop a local strategy to raise awareness about Chlamydia and screening and address the misperception inherent among young people that Chlamydia affects only females.

Young people of Non-White ethnic background were more likely to take a Chlamydia test as compared to those of White background. Many studies in the UK have examined the association between Chlamydia prevalence and ethnicity (Low et al., 2001; LaMontagne et al., 2004; Macleod et al., 2005; Das et al., 2005; Monteiro et al., 2005; Stein et al., 2008) but very few have looked at the association between screening uptake and ethnicity. One study (Macleod et al., 2005) found that uptake was low among ethnic minority groups. However, this study relied on records of young people who volunteered to take a test as part of the study on one occasion unlike the current study which looked at one year records of young people who took tests at varied times and sites. Whereas it is not clear why the uptake of Chlamydia tests is relatively lower among white young people, some studies in the USA have suggested that they are overlooked while non-white individuals tend to be over targeted by health workers who believe they are at a higher risk (Tebb et al., 2005; Centres for Disease Control and Prevention, 2010). But it is also possible that young people from the white ethnic group assume they are at low risk and therefore ignore offers to take a test. There is need for further research for a better understanding of this disparity

and for the development of better strategies that will increase uptake among young people from the all ethnic groups.

Young people from the least deprived quintiles were less likely to take a Chlamydia test as compared to those from the most deprived quintile. This was further confirmed with ward analysis which showed that young people from the St. Andrews ward which belongs to the most deprived quintile were up to two times more likely to take a test as compared to those in Harold Wood, a relatively less deprived ward. This disparity may be partly linked to ethnicity as the most deprived wards in Havering have a larger proportion of non-white young people whom this study found are more likely to take a Chlamydia test as compared to those from the white group. Evidence around deprivation and Chlamydia screening uptake is limited but some studies have linked use of incentives to the higher uptake rates among deprived groups (Zenner et al., 2010). It is argued that often the incentives involved in Chlamydia screening are of low value and therefore mainly attract young people from deprived homes. The NHS Havering programme has consistently used incentives as part of its strategy of increasing screening uptake, hence the need for an evaluation of this approach to determine its impact on the target population and ensure a more balanced approach as this study did not find any significant difference in Chlamydia prevalence among the various deprivation quintiles.

The most popular source for test kits was the NHS Havering Chlamydia screening office (67%). This was in contrast with the national outlook where similar sites accounted for only 5.4% of tests done over the same period (2008/09) (National Chlamydia Screening Programme, 2007; National Chlamydia Screening Programme, 2009). National statistics show that contraceptive and sexual health clinics are the most popular sites (25%) followed by GP practices (16%). The two only accounted for about 6% of all tests done at NHS Havering. Another significant source nationally is the outreach programme. This is not in place at NHS Havering which might be a factor contributing to low uptake of screening services as evidence shows it is the most popular source of test kits among males nationally (National Chlamydia Screening Programme, 2009). Overall there is need to strengthen other screening sites within Havering apart from the main screening office in order to increase target population coverage. However it is important to note that most young people who participated in the qualitative component of this study expressed

preference for sites that do not require their physical presence and keep them anonymous such as the NHS Havering screening office and Connexions where request for kits are done on line or by telephone.

Chlamydia Prevalence

The Chlamydia prevalence rate based on the total number of young people who were screened was 5.3%. This was lower than the national average (7.3%). Although high levels of Chlamydia prevalence have been linked with deprivation and minority ethnic groups (Shahmanesh et al., 2000; Winter et al., 2000; Low et al., 2001; Monteiro et al., 2005; Simms et al., 2009; Centres for Disease Control and Prevention (CDC), 2008), this study found no significant association. However, the general low uptake of screening services means the reported prevalence rates might not be accurate. NHS Havering needs to address identified barriers to screening uptake in order to boost overall uptake and therefore determine the true prevalence rates.

Chlamydia prevalence was highest among young people who got tested via pharmacy. This finding is consistent with other studies that have found that Chlamydia prevalence in healthcare settings tends to be higher than in general population settings as they are more likely to be visited by individuals who are symptomatic and possibly seeking treatment, the majority of whom accept to be tested (Pimenta et al., 2003). Pharmacy in particular might be preferred to for example a sexual health clinic or hospital where usually extensive history taking, documentations and examinations are done, which some young people may find embarrassing, tedious and intimidating. Overall these findings underline the significance of Pharmacy sites in identifying and treatment of young people who have Chlamydia and in the reduction of overall prevalence within the population.

Colleges had the lowest Chlamydia prevalence in this study. This is not unusual as evidence shows that non-health care settings tend to have lower prevalence rates (Adams et al., 2004a; Simms et al., 2009) compared to health care settings where the visiting population might be more sexually active such as in contraceptive services or already symptomatic as in sexual health clinics and pharmacy (Department of Health, 2001; Pimenta et al., 2003). But this could also be due to more awareness about safe sex and general sexual health as colleges tend to be more targeted by health education and sexual

health campaigns due to their large sexually active populations. On the other hand, the English National Study on Chlamydia screening (2007/08) (Simms et al., 2009) found that prevalence was low in educational settings because most tests were done during the beginning of semesters when actual sexual interactions had not started. The approach is similar at NHS Havering where staff visit local institutions at the beginning of academic years mainly to target freshers who tend to be more receptive to Chlamydia information and test offers. It is therefore recommended that Chlamydia screening campaigns be staggered through the academic semester period in order to determine the true prevalence and for appropriate intervention.

Risk of Chlamydia infection was strongly associated with having a new partner in the last three months and two or more partners in the last 12 months. This is consistent with most studies on Chlamydia prevalence (Fenton et al., 2001; LaMontagne et al., 2004; Simms et al., 2009). These findings highlight the need for health education on risky sexual behaviour for young people as an integral part of Chlamydia prevalence reduction efforts. This study also observed that young people who did not disclose information on sexual partnerships were also at a higher risk of Chlamydia infection than those who were not involved in risky sexual behaviour. It is therefore quite likely that this group of young people was actually involved in risky sexual behaviour but felt embarrassed about disclosing this information. The qualitative component of the current study and other studies have found that young people are generally reluctant to engage in Chlamydia screening because of its associated embarrassment among peers and the unwillingness to disclose details about their sexual lives (Blake et al., 2003; Chaudhary et al., 2008). There is need to create more awareness and reassure young people about the confidentiality of the Chlamydia screening service in order to encourage more participation and disclosure of details that are vital for surveillance and development of effective intervention strategies.

Evidence on Chlamydia and other sexually transmitted diseases shows that significant prevalence reduction can only be reached where there is an effective strategy of contacting and treating of partners of positive individuals (Cowan et al., 1996; Welte et al., 2001; LaMontagne et al., 2004). At the moment partner notification data in Havering is not linked to the screening volume and coverage data set. The linking of the two data sets

would enhance analytical capability and provide a better understanding of the screening programme impact on the target population.

Barriers & Motivating factors

The difference in knowledge about Chlamydia among participants who tested and those who had not was minimal. However those who had tested as expected had better knowledge of the testing process. A factor that might be considered a barrier to Chlamydia screening was the belief among participants who had never tested that those who take tests are engaged in high risk sexual activity. This finding implies that there is need for more awareness campaigns among young people in order to improve their general knowledge about Chlamydia and screening services and correct this misperception.

The Stigma associated with sexually transmitted diseases was highlighted as a major barrier among young people responsible for their reluctance to publicly engage in any Chlamydia associated events such as local awareness campaigns and accepting test kits when offered in public. This was also evident during recruitment of participants at partner institutions. Most young people were shy to engage with me and the team from NHS Havering. The interviews and focus groups were also problematic to hold as most young people did not attend as scheduled or failed to attend completely. Hence the data collection process took over three months to complete. Some young people who were interviewed said they had taken a test because it was a group decision a factor which appears to have lessened the stigma involved as the fear of being found out or perceived negatively was removed. This finding highlights the significance of targeting young people as groups rather than individuals as a strategy of de-stigmatizing Chlamydia screening and encouraging testing.

Most participants had taken a test because it was convenient and it did not involve personal effort. They were pleased with the process of testing which involved test kits being sent to their homes and they simply provided a sample and send it back by post to the laboratory. Results were sent as a coded text or email messages. Convenience, privacy and confidentiality were highlighted as the key factors that would encourage more young people to test if they were guaranteed. They believed this would also address related fears such as being found out by parents or peers or personal details being stored in some government data base of “naughty people”. Chlamydia information and test kits being sent

to home addresses was reported as the most preferred method that would ensure more young people take a test. Therefore, for NHS Havering to boost screening uptake they need to create more awareness about this option and the process involved. Some participants thought providing some tangible incentives such as cash/high street vouchers would encourage more young people to take tests. However the evidence around use of incentives in the UK is inconclusive as studies show mixed results (Kane et al., 2004; Sutherland et al., 2008; Zenner et al., 2010). The National Chlamydia Screening Programme discourages use of incentives due to lack of firm evidence and its own surveillance records that show minimal impact of financial incentives where they have been used. There is also concern that young people might engage in multiple tests for the sake of receiving the specified incentives hence increasing screening volumes but overall having no impact on reducing Chlamydia prevalence (National Chlamydia Screening Programme, 2010).

Several other qualitative studies have examined barriers and motivating factors among young people. Most have identified poor knowledge about Chlamydia and screening, concerns about confidentiality regarding screening and results (Blake et al., 2003), fear of being found out by friends (Rietmeijer et al., 1998; Serlin et al., 2002; Mills et al., 2006) and underestimation of individual infection risk (Lorimer et al., 2009) as major barriers to screening, factors which are consistent with my study. However, these studies mainly focused on those attending clinical settings for other medical reasons (Devonshire et al., 1999; Shahmanesh et al., 2000; Mills et al., 2006; Heritage & Jones, 2008) or did not involve participants who had been screened at a variety of settings or those not screened at all (Lorimer et al., 2009; Chaudhary et al., 2008). Some studies have reported that women are more concerned about the stigma associated with Chlamydia diagnosis than men (Mills et al., 2006; Lorimer et al., 2009) whereas men are mainly concerned about convenience. This is a contrast with my study where these were universal issues. The difference may again be attributed to the involvement of only individuals who had undergone tests in specific settings unlike the current study which involved young people who had tested in different settings and those who had not.

Policy & Practice Implications

This study has demonstrated the significance of understanding target populations (*consumer research*) in order to design interventions that are relevant to specific segments and consequently maximizing on outcomes and efficiency. The use of both quantitative and qualitative methods provided vital insight into current Chlamydia screening uptake and prevalence patterns and the perception of the intervention by a sample of the target group. The finding that screening uptake among least deprived and white ethnic groups was low raises questions on current screening promotion strategies and their relevance to the target population as a whole. Although the study did not evaluate the role of incentives in Chlamydia screening uptake, evidence shows higher rates have been reported especially among deprived communities where incentives are used (Molinar & Nardone, 2009; Zenner et al., 2010). It is therefore important that incentive schemes where in use are evaluated regularly to ensure they are not drivers of screening service inequity.

This study also found that individualistic approaches to Chlamydia awareness campaigns such as offering test kits to young people in public and issuing them with information leaflets are unlikely to have an impact on target groups and screening uptake due to societal stigma on sexually transmitted diseases that remains persistent. The evidence from this study supports targeting peer groups and other existing groups such as classmates in schools or youth club members as a more effective way of creating awareness about Chlamydia screening. This approach encourages more young people to take tests as it does not single out individuals, an issue young people highlighted as a major barrier to accessing information and test kits.

Remote testing where individuals don't have to go to a screening site appears to be the most appealing method of screening among young people as it protects their privacy and confidentiality. In particular information being sent to young people's addresses and use of phones and internet for requesting kits as well as communicating results were found to be the most popular methods and was supported by both the quantitative and qualitative results. The UK government policy supports this approach and has recommended a national website where young people can access information and request for kits as a cost

effective way of increasing screening uptake (House of Commons Committee of Public Accounts, 2010).

Implications for social marketing

This study identified segments of the young people who are unlikely to access screening services and those who experience a high prevalence of Chlamydia infection (*segmentation and targeting*). Also identified were young people's knowledge, attitudes and beliefs as regards Chlamydia prevalence and screening as well as their perceptions of what motivates (*exchange*) or discourages (*competition*) young people from testing for Chlamydia, a combination of factors which can be utilised in developing or improving Chlamydia intervention strategies (*marketing mix*). This study however did not include service providers due to resource and time limitation. Their perception and experiences of the key factors associated with screening uptake would have enhanced the understanding of uptake patterns and contributed immensely towards the development of effective intervention strategies (*marketing mix*).

Study strengths & limitations

This study had several limitations worth considering in the interpretation of its findings. Firstly, like other cross sectional studies, the study was only able to establish associations between participant characteristics and Chlamydia screening uptake and prevalence but not a cause and effect relationship. Secondly, because of lack of population data for areas of residence by ethnicity, I was not able to include the ethnicity variable in the adjusted logistic regression model for Chlamydia screening uptake.

Thirdly, I tried to ensure the selection of young people to participate in interviews and focus groups was reflective of the Havering demographic profile but it was not possible to have equal representation due to the difficulty in finding young people interested in the study and who also kept their appointments. Fourthly, I had no way of verifying those who had tested and those who had not. However, the responses to guiding questions during interviews and focus groups were a reflection of the expected differences between the two groups.

Despite the above limitations, this is the first study that has combined quantitative and qualitative methods and included young people who have an experience of being tested for Chlamydia and those who don't. These approaches have provided a more robust understanding of existing Chlamydia screening uptake and prevalence patterns among young people aged 16-24 and also their perception of barriers and motivating factors that influence the decision to take a Chlamydia test. The findings and recommendations from this study therefore provide vital intelligence for program redesign at NHS Havering and may be applicable to other similar contexts.

5.5 Conclusion

This study was a *consumer research* (social marketing component) application which utilized a mixed method approach to examine factors associated with Chlamydia screening uptake and prevalence among young people living in the London borough of Havering. Results from this study show that gender, area of residence, deprivation and ethnicity were the main predictors of screening uptake whereas area of residence, source of test kits and sexual behaviour were the main predictors for prevalence.

The main barriers to taking a Chlamydia test (*competition*) were identified as, inadequate knowledge about Chlamydia and test procedures, underestimation of individuals' infection risk, stigma associated with sexually transmitted diseases, fear of positive test results and related embarrassment, fear of being found out by significant others and personal details being stored in a government database. Motivating factors (*exchange*) included adequate knowledge of Chlamydia and test procedures, realistic assessment of individuals' infection risk, fear of loss of fertility among females, convenience in access to test kits, confidentiality in results notification and tangible incentives.

The low uptake of screening services among males was linked to the misperception that Chlamydia is a female problem. As males are major players in the reduction of Chlamydia prevalence in the population, there is need for sustained efforts in educating them about the basics of Chlamydia infection and screening and to correct this common misperception, clarify their role in spread of infection and encourage them to take tests regularly.

The high prevalence of Chlamydia infection among young people screened via pharmacy highlights the significance of the partnership between the NHS Havering screening programme and pharmacies (*partnership - marketing mix*). There is need to collectively develop a strategy that will increase uptake of screening services in these sites.

Individualistic approaches to Chlamydia awareness and screening campaigns which also involve offering of test kits in public were reported as repulsive among young people and a major barrier. Findings from this study instead support targeting peer groups as way of overcoming societal stigma on sexually transmitted diseases (*marketing mix*).

Convenience, privacy and confidentiality were highlighted as central in increasing screening uptake among young people. Remote testing where individuals request test kits on line, receive them in their homes and they in turn send urine samples by post to the laboratory and test results/advice are communicated via text or email messaging was considered the best screening option (*marketing mix*).

The ethnic and socioeconomic disparity in relation to screening uptake among young people in Havering and its possible relationship with provision of incentives requires further investigation to understand and act upon. It is recommended that service providers be included in future studies in order to capture their experiences and perceptions of the factors associated with screening uptake and utilize them in developing effective intervention strategies (*marketing mix*).

Chapter 6: Discussion

In this chapter, I discuss key findings from my three studies in light of the available evidence and draw out implications for public health policy and practice. The three studies were carried out to determine the effectiveness of a social marketing approach in reducing unintended teenage pregnancies and the applicability of *consumer research* (a foundational component of social marketing) in understanding young people's sexual health needs and perceptions in relation to use of LARC methods and Chlamydia screening service.

The effectiveness of a social marketing approach

Findings from the systematic review indicate that social marketing may be effective in influencing specified sexual behaviour change (delayed sexual initiation, contraceptive use at last intercourse, knowledge of contraception and reproductive health and efficacy to refuse unwanted sex) and may consequently reduce unintended teenage pregnancies especially where interventions are implemented over long periods. These findings are consistent with those of Tanner et al. (2009) and Messers et al. (2011), the only studies available that have evaluated unintended teenage pregnancy interventions in developed countries described as social marketing. Tanner et al. (2009) in their evaluation of a social marketing abstinence programme involving 11-16 year olds in the USA observed that participants' duration of attendance at the abstinence programme was positively associated with the marketed knowledge, beliefs, attitudes and intentions. However they also concluded that social marketing was effective in reducing teenage pregnancy without reporting the teenage pregnancy rates before and after implementation.

Messers et al. (2011) on the other hand carried out a study to demonstrate the application of *consumer research* in developing an effective teenage pregnancy intervention for students aged 11-13 years. The study successfully collected vital information about the target population which was utilised in designing and implementing a teenage pregnancy prevention programme. In contrast to studies included in my review, they did not report baseline sexual characteristics and perceptions of the target group nor related post implementation outcomes. They instead carried out random informal interviews with some target community members and based on their findings concluded that social marketing was effective in supporting behaviour change and normative misperceptions about teenage

pregnancy. The method of evaluation therefore raises questions on the objectivity of the process and validity of reported findings.

The applicability of *consumer research*

In my second study which was a *consumer research* application I examined factors associated with use of LARC methods among young women in the UK and considered the impact of NICE LARC guidelines published in 2005. I identified factors associated with LARC use as age and educational level for the period before the publication of NICE guidelines, observed a positive impact of the NICE LARC guidelines as evidenced by increase in LARC uptake among younger women (below 20 years) and those in education after 2005. I also identified reasons why women change contraception methods (reliability, convenience, influence by health workers and fear of side effects).

Only two other studies have explored the applicability of *consumer research* in designing interventions aimed at improving contraception uptake among women of reproductive age in developed countries (Bertrand et al. 1987 & Tanfer, 2000). However, only Tanfer et al. (2000) specifically investigated factors associated with LARC uptake. In their study they analysed data from the US national survey of women carried out between 1991 and 1995 to identify why the uptake of LARC methods among women aged 20-39 was low. Their findings were consistent with mine as regards the majority of women not using LARC methods mainly due to fear of side effects. My study however explored further the association between type of contraception and participant characteristics, included all LARC methods as compared to only two in the case of Tanfer et al. (2000) and also included teenage women who evidence shows are most affected by unintended pregnancy.

My third study (factors associated with Chlamydia screening uptake and prevalence) also a *consumer research* application, identified *segments* of the young people who are less likely to access screening services (males, white and those from affluent areas) and those who experience a high prevalence of Chlamydia infection (those testing via pharmacy or involved in risky sexual behaviour). Also identified were young people's knowledge, attitudes and beliefs as regards Chlamydia prevalence and screening as well as their perceptions of what motivates (*exchange*) (realisation of being at risk of Chlamydia infection, convenient access to information and test kits and fear of loss of fertility) or

discourages (*competition*) (belief that only promiscuous people/women are affected by Chlamydia, fear of being found out by close acquaintances and fear of positive results) young people from testing for Chlamydia.

Only one other study has explored the applicability of *consumer research* in designing a Chlamydia screening intervention (National Social Marketing Centre, 2011). Consistent with my study, this study also identified being male, lack of knowledge about screening sites, fear of test results and fear of being found out by acquaintances as the main factors associated with low uptake of Chlamydia screening services. Unlike my study which stopped at consumer research, this study used their consumer research findings to design and implement a complete social marketing intervention featuring all components. Evaluation results showed that the intervention was able to increase the uptake of Chlamydia screening in both target areas (North Lincolnshire and North East Lincolnshire, England). Three other similar studies (Futterman, 2001; Montoya 2005; Plant 2008) explored the applicability of consumer research in designing interventions aimed at increasing screening for syphilis and HIV among men who have sex with men. All the three studies reported increased awareness about screening among target groups. However only one (Futterman, 2001) reported increase in screening uptake. This may be attributed to the short implementation periods which did not allow for marketed behaviour change (testing for specified sexually transmitted diseases) to develop.

Limitations of the consumer research studies

My two consumer research studies (LARC & Chlamydia) had some limitations worth noting. Firstly, I utilised secondary data in determining factors associated with LARC uptake, Chlamydia prevalence and screening uptake whereas the data collection processes were not designed with consideration of my research questions hence limiting the choice of variables used in analyses. There being some evidence suggesting an association between women's parity (Baldwin et al., 2012; Jokin et al., 2011), influence by existing partners (Jokin et al., 2011; Frost & Darroch, 2008) and contraception choice, it would have been more informative to include the two variables in my LARC study. The Chlamydia data set also lacked information on young people's individual socioeconomic status, those who tested more than once over the one year period (2008/09) and partner follow up, screening and treatment for those who tested positive. An analysis including these factors would have

enhanced the understanding of Chlamydia prevalence patterns in Havering. However, considering time and resource limitations it would have been nearly impossible to collect data and process similar datasets from scratch. Despite the highlighted limitations the data sets utilised in the two studies contained sufficient information to determine key factors associated with LARC and Chlamydia screening uptake as well as prevalence.

Implications for Public Health Policy & Practice

The study on effectiveness of social marketing in reducing unintended teenage pregnancy provides an insight into the application of specified social marketing components in interventions and what works in reducing unintended teenage pregnancy. Though not conclusive, the study highlights the significance of implementing long-term multifaceted programmes with adequate intensity in order to realise desirable outcomes. This is consistent with the current UK Public Health strategy for addressing health behaviour change among young people that is currently moving away from short term public information campaigns that aim at influencing behaviours directly to focusing on long term interventions that aim at tackling antecedents to observed problem behaviours and reaching out to a broader audience (*marketing mix*) (Department of Health, 2009d; Department of Health, 2011). For unintended teenage pregnancy interventions this means addressing behaviours such as excess alcohol use, poor school performance, poor access to contraception and reaching out to more players involved such as: parents, male and female teenagers, teachers, health workers, social workers, faith groups and media.

The two studies on LARC and Chlamydia have demonstrated the significance of understanding target groups through *consumer research* so as to design programmes that are likely to have a positive impact and tackle inequalities in disease burden and access to health services. For example, the LARC study showed that before NICE guidelines were published younger women were disadvantaged in accessing more reliable methods of contraception (LARC), probably due to unfavourable policies by Primary Care Trusts which restricted prescription of LARC methods for younger women and those without children yet they were the most affected by unintended pregnancies. The Chlamydia study also highlighted a low uptake of screening services among males and young people from affluent areas in Havering. This insight can further be enhanced by investigating the underlying factors associated with the observed disparity among the specified groups and

addressing them in order to improve target population coverage. However the two studies did not assess the magnitude of influence by *consumer research* on intervention quality and outcomes hence the need for more studies that feature all the six components to determine the effectiveness of a social marketing approach in increasing the uptake of LARC and Chlamydia screening.

The evidence on social marketing effectiveness and applicability remains scanty in the UK despite social marketing being the official approach to health behaviour change (Department of Health, 2008a; Department of Health, 2009d; Department of Health, 2011). The National Social Marketing Centre which is the main institution charged with the responsibility of providing guidance on programme implementation as well as capacity building in the public sector is also responsible for developing an evidence base that is expected to be utilised in informing policy and improving practice around health behaviour change. Despite being in existence since 2006, it has only managed to document three successful social marketing sexual health projects carried out in partnership with Primary Care Trusts (“Are You Getting It,” COAST & DASH) (National Social Marketing Centre, 2011).

Apart from bureaucracy being a hindrance to carrying out research within Primary Care Trusts and NHS in general (Department of Health, 2011), lack of capacity among staff has also been highlighted (Gabbay & May, 2004; Cooke, 2005). Another factor has been identified as limited funding for public health research with the bulk of funding being allocated to secondary care institutions to carry out clinical research (Chen & Majeed, 2005). However the recent establishment of the School for Public Health Research within the National Institute for Health Research (the main body responsible for research within the Department of Health) (The National Institute for Health Research, 2011) provides some hope that more opportunities for research around public health and social marketing might be available in future.

Overall there is need for the National Social Marketing Centre and the National Institute for Health Research to support Primary Care Trusts who are currently the main implementers of social marketing projects with essential skills and resources necessary to enable them include a research/evaluation component in their programmes. This is vital not

only in ascertaining the effectiveness of a social marketing approach but also for improvement and modification of implementation strategies that would lead to better sexual health for young people in the UK. The future of social marketing as the preferred approach to health behaviour change by the UK Government however faces significant challenges. In its effort to reduce overall expenditure within the Department of Health, the Government has recently declared its intention to fund only social marketing interventions that have documented evidence of efficacy (Department of Health, 2011). This is a shift from the previous approach where the National Social Marketing Centre was given the mandate to work with primary care trusts in setting pilot projects to test the effectiveness of social marketing in various health behaviour change interventions including sexual health. It is not clear what will happen to programmes such as those addressing unintended teenage pregnancy where the evidence on efficacy is still limited.

There also exists some confusion on the preferred Government approach to behaviour change as currently “Nudge,” a behavioural change model based on the theory by Thaler & Sustein (2008) appears to feature prominently in Government plans. The Government has even gone further to establish a ‘Nudge Unit’ otherwise referred to as the Behavioural Insight Team currently based in the Cabinet Office whose remit include advising the Department of Health on the implementation of health behaviour change interventions based on the Nudge theory (French, 2011; Cabinet Office, 2011). At the moment it is not clear if any collaboration between the “Nudge Unit” and the National Social Marketing Centre exists at all. Therefore there is a possibility of future duplication of activities and confusion on what health behaviour change models should be adopted at local levels.

Another significant development within the UK government that has an impact on social marketing is the transfer of Public Health responsibility from Primary Care Trusts to Local Authorities as from April 2013 (Department of Health, 2011). This means the local authorities will be responsible for the implementation of public health programmes including social marketing interventions. This poses a challenge to the future of social marketing as local authorities will be new partners who will need time to assimilate the idea of social marketing and actively engage and commit their limited finances to associated public health interventions.

However a favourable development for social marketing has been the Government statutory requirement that the commissioning of all health and social care interventions in future will be based on Joint Strategic Needs Assessments (JSNA) involving local authorities, clinical commissioning groups, the voluntary sector and patient groups. Representatives from these groups will form what will be known as the Health and Wellbeing Boards. These boards will be responsible for tackling inequalities in health and wellbeing and will support local partners in the implementation of interventions and improving health and social outcomes for local populations (Department of Health, 2012). The JSNA therefore presents a great opportunity for the application of *Consumer research* and *Segmentation/Targeting* components of social marketing as means of needs assessment and identifying inequalities within local populations.

Chapter 7: Conclusion

Unintended pregnancy and sexually transmitted infections among young people are considered priority public health issues in the UK and other developed countries due to their known impact on individuals, families and the wider society (Nicoll et al., 1999; Tripp & Viner, 2005; Department of Health, 2009c). Social marketing as an approach to addressing these issues and sexual health behaviour change in general is currently preferred in the UK and other developed countries. However, sufficient evidence on its effectiveness and applicability is lacking. The three studies reported in this thesis therefore addressed this gap by firstly assessing the effectiveness of a social marketing approach in reducing unintended teenage pregnancies (systematic review). Secondly, by exploring the application of *consumer research* (a social marketing component) in the understanding of factors associated with use of Long Acting Reversible Contraceptives, Chlamydia screening uptake and Chlamydia prevalence among young people.

In the first study I carried out a systematic review of 12 unintended teenage pregnancy studies done in the UK and the USA while in the second I examined factors associated with use of LARC methods among young women aged 16-24 in the UK by analysing five datasets of ONS contraception opinion surveys (2002-2007). In the third study, I investigated factors associated with Chlamydia screening uptake and prevalence among young people (age 16-24) living in the London borough of Havering by analysing screening records for the period between September 2008 and August 2009 and conducting focus group discussions and interviews with 28 young people.

Results from the first study (unintended teenage pregnancy) indicate that a social marketing approach can be an effective approach in reducing unintended teenage pregnancies especially when implemented on long term (at least two years). However, this is not conclusive as the studies included in the review were not specifically designed as social marketing interventions even though they met the set criteria. As a consequence, the implementation of activities in included studies was highly varied in content, intensity and the impact of various interventions inconsistent. There is therefore need for well designed teenage pregnancy interventions that specifically utilize social marketing principles by intent to enable more robust evaluations.

The second and third studies (LARC & Chlamydia) explored the application of *consumer research* in understanding of young people's sexual health needs and perceptions in order to design appropriate and effective interventions. Although *consumer research* by itself is not a unique concept in public health as it is similar to other approaches such as baseline surveys and health needs assessments, when linked to the other components of social marketing, *consumer research* provides a valuable framework for intervention design, planning and implementation. Based on the emerging framework I was able to highlight segments within the young people population that need to be targeted in order to improve the uptake of LARC and Chlamydia screening services (*segmentation and targeting*), the competing messages, attitudes and beliefs that discourage young people from accessing LARC methods and Chlamydia screening services (*competition*), what would motivate more young people to take Chlamydia tests (*exchange*) and what marketing/intervention strategies need to be developed that would enhance the use of LARC methods and Chlamydia screening services (*marketing mix*).

Findings from three studies have notable implications on public health policy and practice in relation to young people's sexual health in the UK. The first study on unintended teenage pregnancies highlights the need to invest in long-term multifaceted programmes (*marketing mix*) with adequate intensity in order to realise desirable outcomes. Though this has financial implications as well, it is consistent with the current UK strategy for addressing health behaviour change among young people (Department of Health, 2009d; Department of Health, 2011). The two studies on LARC and Chlamydia highlight the significance of understanding target groups through *consumer research* so as to design programmes that are likely to have a positive impact. However the two studies did not assess the magnitude of influence by *consumer research* on intervention quality and outcomes hence the need for more studies that feature all the six components to determine the effectiveness of a social marketing approach in increasing uptake of LARC and Chlamydia screening.

Overall evidence on the effectiveness and applicability of social marketing in sexual health interventions among young people remains limited in the UK. The climate for producing the required evidence is likely to be challenging due to the current restructuring of the public health institution, changing Government policies and limited resources and capacity

at local level. There is need for the Government to commit more resources and support for Primary Care Trusts and Local Authorities to enable them implement social marketing interventions that have inbuilt research components. This will help in developing an evidence base which can be utilised in shaping future policy and practice around health behaviour change interventions.

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Appendix 2.1: Literature Search Strategy: Social Marketing and Sexual Health in Developed countries

I searched for studies on social marketing and sexual health in developed countries reported between 1980 and 2011 in the following data bases: PUBMED, COCHRANE Library, SCOPUS, CINAHL, TRIP, MEDLINE, Centre for Disease Control & Prevention (CDC), National Social Marketing Centre (NSMC) Evidence Database and manually searched bibliographies of relevant articles. Combinations of the following search terms were used: social marketing, health marketing, marketing, sexual health, reproductive health, family planning, contracept*, birth control, Chlamydia, sexually transmitted infection/disease, screen*, test*, teen* pregnancy, adolescen*, youth.

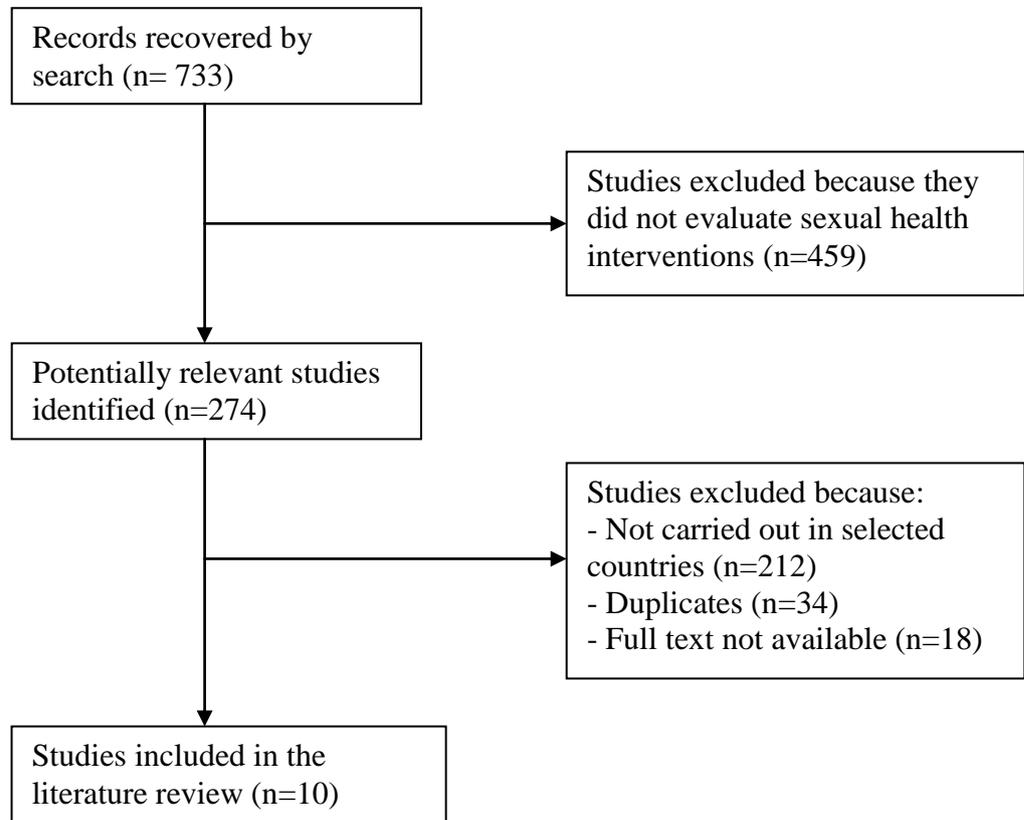
Inclusion criteria

Studies were included if they were described as social marketing and either evaluated the applicability or effectiveness of social marketing (one or more of the specified elements) in the area of sexual health and young people. They also had to have been carried out in Western Europe, USA, Canada, Australia, New Zealand or Canada.

Exclusion Criteria

Studies were excluded if they did not describe themselves as social marketing or did not report a sexual health intervention or if not done in selected developed countries

Figure 2.1: Study search and selection process



Appendix 3.1: Quality Assessment Tool for Quantitative Studies Dictionary

The purpose of this dictionary is to describe items in the tool thereby assisting raters to score study quality. Due to under-reporting or lack of clarity in the primary study, raters will need to make judgements about the extent that bias may be present. When making judgements about each component, raters should form their opinion based upon information contained in the study rather than making inferences about what the authors intended.

A) SELECTION BIAS

(Q1) Participants are more likely to be representative of the target population if they are randomly selected from a comprehensive list of individuals in the target population (score very likely). They may not be representative if they are referred from a source (e.g. clinic) in a systematic manner (score somewhat likely) or self-referred (score not likely).

(Q2) Refers to the % of subjects in the control and intervention groups that agreed to participate in the study before they were assigned to intervention or control groups.

B) STUDY DESIGN

In this section, raters assess the likelihood of bias due to the allocation process in an experimental study. For observational studies, raters assess the extent that assessments of exposure and outcome are likely to be independent. Generally, the type of design is a good indicator of the extent of bias. In stronger designs, an equivalent control group is present and the allocation process is such that the investigators are unable to predict the sequence.

Randomized Controlled Trial (RCT)

An experimental design where investigators randomly allocate eligible people to an intervention or control group. A rater should describe a study as an RCT if the randomization sequence allows each study participant to have the same chance of receiving each intervention and the investigators could not predict which intervention was next. If the investigators do not describe the allocation process and only use the words 'random' or 'randomly', the study is described as a controlled clinical trial. See below for more details.

(Q1) Was the study described as randomized?

Score YES, if the authors used words such as random allocation, randomly assigned, and random assignment. Score NO, if no mention of randomization is made.

(2) Was the method of randomization described?

Score YES, if the authors describe any method used to generate a random allocation sequence. Score NO, if the authors do not describe the allocation method or describe methods of allocation such as alternation, case record numbers, dates of birth, day of the

week, and any allocation procedure that is entirely transparent before assignment, such as an open list of random numbers of assignments.

If NO is scored, then the study is a controlled clinical trial.

(3) Was the method appropriate?

Score YES, if the randomization sequence allowed each study participant to have the same chance of receiving each intervention and the investigators could not predict which intervention was next. Examples of appropriate approaches include assignment of subjects by a central office unaware of subject characteristics, or sequentially numbered sealed, opaque envelopes. Score NO, if the randomization sequence is open to the individuals responsible for recruiting and allocating participants or providing the intervention, since those individuals can influence the allocation process, either knowingly or unknowingly. If NO is scored, then the study is a controlled clinical trial.

Controlled Clinical Trial (CCT)

An experimental study design where the method of allocating study subjects to intervention or control groups is open to individuals responsible for recruiting subjects or providing the intervention. The method of allocation is transparent before assignment, e.g. an open list of random numbers or allocation by date of birth, etc.

Cohort analytic (two group pre and post)

An observational study design where groups are assembled according to whether or not exposure to the intervention has occurred. Exposure to the intervention is not under the control of the investigators. Study groups might be non-equivalent or not comparable on some feature that affects outcome.

Case control study

A retrospective study design where the investigators gather 'cases' of people who already have the outcome of interest and 'controls' who do not. Both groups are then questioned or their records examined about whether they received the intervention exposure of interest.

Cohort (one group pre + post (before and after))

The same group is pretested, given an intervention, and tested immediately after the intervention. The intervention group, by means of the pre-test, act as their own control group.

Interrupted time series

A time series consists of multiple observations over time. Observations can be on the same units (e.g. individuals over time) or on different but similar units (e.g. student achievement scores for particular grade and school). Interrupted time series analysis requires knowing the specific point in the series when an intervention occurred.

C) CONFOUNDERS

By definition, a confounder is a variable that is associated with the intervention or exposure and causally related to the outcome of interest. Even in a robust study design, groups may not be balanced with respect to important variables prior to the intervention. The authors should indicate if confounders were controlled in the design (by stratification

or matching) or in the analysis. If the allocation to intervention and control groups is randomized, the authors must report that the groups were balanced at baseline with respect to confounders (either in the text or a table).

D) BLINDING

(Q1) Assessors should be described as blinded to which participants were in the control and intervention groups. The purpose of blinding the outcome assessors (who might also be the care providers) is to protect against detection bias.

(Q2) Study participants should not be aware of (i.e. blinded to) the research question. The purpose of blinding the participants is to protect against reporting bias.

E) DATA COLLECTION METHODS

Tools for primary outcome measures must be described as reliable and valid. If ‘face’ validity or ‘content’ validity has been demonstrated, this is acceptable. Some sources from which data may be collected are described below:

Self reported data includes data that is collected from participants in the study (e.g. completing a questionnaire, survey, answering questions during an interview, etc.).

Assessment/Screening includes objective data that is retrieved by the researchers. (e.g. observations by investigators). Medical Records/Vital Statistics refers to the types of formal records used for the extraction of the data. Reliability and validity can be reported in the study or in a separate study. For example, some standard assessment tools have known reliability and validity.

F) WITHDRAWALS AND DROP-OUTS

Score YES if the authors describe BOTH the numbers and reasons for withdrawals and drop-outs.

Score NO if either the numbers or reasons for withdrawals and drop-outs are not reported. The percentage of participants completing the study refers to the % of subjects remaining in the study at the final data collection period in all groups (i.e. control and intervention groups).

G) INTERVENTION INTEGRITY

The number of participants receiving the intended intervention should be noted (consider both frequency and intensity). For example, the authors may have reported that at least 80 percent of the participants received the complete intervention. The authors should describe a method of measuring if the intervention was provided to all participants the same way.

As well, the authors should indicate if subjects received an unintended intervention that may have influenced the outcomes. For example, co-intervention occurs when the study group receives an additional intervention

(other than that intended). In this case, it is possible that the effect of the intervention may be over-estimated. Contamination refers to situations where the control group accidentally receives the study intervention. This could result in an under-estimation of the impact of the intervention.

H) ANALYSIS APPROPRIATE TO QUESTION

Was the quantitative analysis appropriate to the research question being asked?

An intention-to-treat analysis is one in which all the participants in a trial are analyzed according to the intervention to which they were allocated, whether they received it or not.

Intention-to-treat analyses are favoured in assessments of effectiveness as they mirror the non-compliance and treatment changes that are likely to occur when the intervention is used in practice, and because of the risk of attrition bias when participants are excluded from the analysis.

COMPONENT RATINGS OF STUDY:

For each of the six components A – F, use the following descriptions as a roadmap.

A) SELECTION BIAS

Strong: The selected individuals are very likely to be representative of the target population (Q1 is 1) and there is greater than 80% participation (Q2 is 1).

Moderate: The selected individuals are at least somewhat likely to be representative of the target population (Q1 is 1 or 2); and there is 60 - 79% participation (Q2 is 2). ‘Moderate’ may also be assigned if Q1 is 1 or 2 and Q2 is 5 (can’t tell).

Weak: The selected individuals are not likely to be representative of the target population (Q1 is 3); or there is less than 60% participation (Q2 is 3) or selection is not described (Q1 is 4); and the level of participation is not described (Q2 is 5).

B) DESIGN

Strong: will be assigned to those articles that described RCTs and CCTs.

Moderate: will be assigned to those that described a cohort analytic study, a case control study, a cohort design, or an interrupted time series.

Weak: will be assigned to those that used any other method or did not state the method used.

C) CONFOUNDERS

Strong: will be assigned to those articles that controlled for at least 80% of relevant confounders (Q1 is 2); or (Q2 is 1).

Moderate: will be given to those studies that controlled for 60 – 79% of relevant confounders (Q1 is 1) and (Q2 is 2).

Weak: will be assigned when less than 60% of relevant confounders were controlled (Q1 is 1) and (Q2 is 3) or control of confounders was not described (Q1 is 3) and (Q2 is 4).

D) BLINDING

Strong: The outcome assessor is not aware of the intervention status of participants (Q1 is 2); and the study participants are not aware of the research question (Q2 is 2).

Moderate: The outcome assessor is not aware of the intervention status of participants (Q1 is 2); or the study participants are not aware of the research question (Q2 is 2); or blinding is not described (Q1 is 3 and Q2 is 3).

Weak: The outcome assessor is aware of the intervention status of participants (Q1 is 1); and the study participants are aware of the research question (Q2 is 1).

E) DATA COLLECTION METHODS

Strong: The data collection tools have been shown to be valid (Q1 is 1); and the data collection tools have been shown to be reliable (Q2 is 1).

Moderate: The data collection tools have been shown to be valid (Q1 is 1); and the data collection tools have not been shown to be reliable (Q2 is 2) or reliability is not described (Q2 is 3).

Weak: The data collection tools have not been shown to be valid (Q1 is 2) or both reliability and validity are not described (Q1 is 3 and Q2 is 3).

F) WITHDRAWALS AND DROP-OUTS - a rating of:

Strong: will be assigned when the follow-up rate is 80% or greater (Q2 is 1).

Moderate: will be assigned when the follow-up rate is 60 – 79% (Q2 is 2) OR Q2 is 5 (N/A).

Weak: will be assigned when a follow-up rate is less than 60% (Q2 is 3) or if the withdrawals and drop-outs were not described (Q2 is 4).

Appendix 3.2: Quality Assessment Tool for Quantitative Studies

COMPONENT RATINGS

A) *SELECTION BIAS*

(Q1) Are the individuals selected to participate in the study likely to be representative of the target population?

1

Very likely

2

Somewhat likely

3

Not likely

4

Can't tell

(Q2) What percentage of selected individuals agreed to participate?

1

80 - 100% agreement

2

60 – 79% agreement

3

less than 60% agreement

4

Not applicable

5

Can't tell

RATE THIS SECTION STRONG MODERATE WEAK

See dictionary 1 2 3

B) *STUDY DESIGN*

Indicate the study design

1

Randomized controlled trial

2

Controlled clinical trial

3

Cohort analytic (two group pre + post)

4

Case-control

5

Cohort (one group pre + post (before and after))

6

Interrupted time series

7

Other specify _____

8

Can't tell

Was the study described as randomized? If NO, go to Component C.

No Yes

If Yes, was the method of randomization described? (See dictionary)

No Yes

If Yes, was the method appropriate? (See dictionary)

No Yes

RATE THIS SECTION STRONG MODERATE WEAK

See dictionary 1 2 3

C) CONFOUNDERS

(Q1) Were there important differences between groups prior to the intervention?

1

Yes

2

No

3

Can't tell

The following are examples of confounders:

1

Race

2

Sex

3

Marital status/family

4

Age

5

SES (income or class)

6

Education

7

Health status

8

Pre-intervention score on outcome measure

(Q2) If yes, indicate the percentage of relevant confounders that were controlled (either in the design (e.g. stratification, matching) or analysis)?

1

80 – 100%

2

60 – 79%

3

Less than 60%

4

Can't Tell

RATE THIS SECTION STRONG MODERATE WEAK

See dictionary 1 2 3

D) BLINDING

(Q1) Was (were) the outcome assessor(s) aware of the intervention or exposure status of participants?

1

Yes

2

No

3

Can't tell

(Q2) Were the study participants aware of the research question?

1

Yes

2

No

3

Can't tell

RATE THIS SECTION STRONG MODERATE WEAK

See dictionary 1 2 3

E) DATA COLLECTION METHODS

(Q1) Were data collection tools shown to be valid?

1

Yes

2

No

3

Can't tell

(Q2) Were data collection tools shown to be reliable?

1

Yes

2

No

3

Can't tell

RATE THIS SECTION STRONG MODERATE WEAK

See dictionary 1 2 3

F) WITHDRAWALS AND DROP-OUTS

(Q1) Were withdrawals and drop-outs reported in terms of numbers and/or reasons per group?

1

Yes

2

No

3

Can't tell

(Q2) Indicate the percentage of participants completing the study. (If the percentage differs by groups, record the lowest).

1

80 -100%

2

60 - 79%

3

less than 60%

4

Can't tell

RATE THIS SECTION STRONG MODERATE WEAK

See dictionary 1 2 3

G) INTERVENTION INTEGRITY

(Q1) What percentage of participants received the allocated intervention or exposure of interest?

1

80 -100%

2

60 - 79%

3

less than 60%

4

Can't tell

(Q2) Was the consistency of the intervention measured?

1

Yes

2

No

3

Can't tell

(Q3) Is it likely that subjects received an unintended intervention (contamination or co-intervention) that may influence the results?

4

Yes

5

No

6

Can't tell

RATE THIS SECTION STRONG MODERATE WEAK

See dictionary 1 2 3

H) ANALYSES

(Q1) Indicate the unit of allocation (circle one)

community organization/institution practice/office individual
(Q2) Indicate the unit of analysis (circle one)
community organization/institution practice/office individual

(Q3) Are the statistical methods appropriate for the study design?

1
Yes
2
No
3
Can't tell

(Q4) Is the analysis performed by intervention allocation status (i.e. intention to treat) rather than the actual intervention received?

1
Yes
2
No
3
Can't tell

RATE THIS SECTION STRONG MODERATE WEAK

See dictionary 1 2 3

GLOBAL RATING

COMPONENT RATINGS

Please transcribe the information from the component ratings of each section here (STRONG, MODERATE, WEAK).

- A. SELECTION BIAS
- B. STUDY DESIGN
- C. CONFOUNDERS
- D. BLINDING
- E. DATA COLLECTION METHODS
- F. WITHDRAWALS AND DROPOUTS

GLOBAL RATING FOR THIS PAPER (circle one):

- 1 STRONG (four STRONG ratings with no WEAK ratings)
- 2 MODERATE (less than four STRONG ratings and one WEAK rating)
- 3 WEAK (two or more WEAK ratings)

With both reviewers discussing the ratings:

Is there a discrepancy between the two reviewers with respect to the component (A-F) ratings?

No Yes

If yes, indicate the reason for the discrepancy

- 1 Oversight
- 2 Differences in interpretation of criteria
- 3 Differences in interpretation of study

Final decision of both reviewers (circle one):

1 STRONG

2 MODERATE

3 WEAK

Appendix 3.3: Published Journal Article

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The Effectiveness of Social Marketing in Reduction of Teenage Pregnancies: A Review of Studies in Developed Countries

Anthony Simiyu Wakhisi; Pascale Allotey; Namrata Dhillon; Daniel D. Reidpath

Online publication date: 25 February 2011

To cite this Article Wakhisi, Anthony Simiyu , Allotey, Pascale , Dhillon, Namrata and Reidpath, Daniel D.(2011) 'The Effectiveness of Social Marketing in Reduction of Teenage Pregnancies: A Review of Studies in Developed Countries', Social Marketing Quarterly, 17: 1, 56 – 90

To link to this Article DOI: 10.1080/15245004.2010.546941

URL: <http://dx.doi.org/10.1080/15245004.2010.546941>

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The Effectiveness of Social Marketing in Reduction of Teenage Pregnancies: A Review of Studies in Developed Countries

BY ANTHONY SIMIYU WAKHISI, PASCALE ALLOTEY, NAMRATA DHILLON, AND DANIEL D. REIDPATH

ABSTRACT

The aim of this study was to determine the effectiveness of a social marketing approach in reduction of unintended teenage pregnancies. We identified studies undertaken between 1990 and 2008 through electronic searches of databases, manual searches of bibliographies, and consultations with experts. Twelve studies that met the inclusion criteria were selected for further analysis. Results showed variation in intervention effects across specified outcomes (reduction in unintended pregnancies, delayed sexual initiation, contraceptive use at last intercourse, knowledge of contraception and reproductive health, and self-efficacy to refuse unwanted sex). Of the 12 studies, 9 reported significant effects on at least one of the outcomes. Long-term interventions were generally more effective than short-term ones for most outcomes. The impact on male participants' sexual behavior was minimal in most studies. Overall, social marketing appears to be an effective approach in reducing teenage pregnancies and influencing sexual behavior change, but the evidence is limited to particular outcomes and context. There is, therefore, need for more primary studies specifically designed around social marketing principles for more robust evaluations. The minimal impact on male participants' behavior also warrants further investigation.

Appendix 4.1: Methods of contraception in use in the UK and their effectiveness

Methods of Contraception	Description	Effectiveness
Emergency Contraceptive	<p>Used by women to prevent pregnancy after having unprotected sex, or if a method of contraception has failed. There are two methods of emergency contraception:</p> <ul style="list-style-type: none"> The emergency contraceptive pill (the morning-after pill). Available as Levonelle and ellaOne in the UK The copper intrauterine device (IUD) 	<p>The effectiveness of the emergency contraceptive pill decreases over time. If it is taken within 24 hours of having unprotected sex, it is effective in preventing 95% of pregnancies.</p> <p>The IUD stops sperm from reaching an egg and fertilising it. It is the most effective method of emergency contraception and prevents up to 99% of pregnancies.</p>
Male and Female Condoms	<p>Condoms are a form of barrier contraception. They prevent pregnancy by stopping sperm from reaching an egg.</p> <p>There are many different varieties and brand names of the male condom. At the moment there is only one brand of female condom available in the UK, called Femidom.</p>	<p>If used correctly, male condoms are 98% effective in preventing pregnancy. Female condoms are thought to be around 95% effective.</p>
Combined Contraceptive pill	<p>The combined oral contraceptive pill is usually just called the Pill. It contains synthetic (artificial) versions of the female hormones oestrogen and progesterone, which women produce naturally in their ovaries. There are mainly three types in use in the UK:</p> <ul style="list-style-type: none"> Monophasic 21-day pills (the most common type). Each pill has the same amount of hormone in it. Examples include; Microgynon, Brevinor and Cilest. Phasic 21-day pills. Phasic pills contain two or three different amounts of hormones. Examples include; Binovum and Logynon. Every Day (ED) pills. There are 21 active pills and seven inactive (dummy) pills in a pack. Examples are Microgynon ED and Logynon ED. 	<p>When taken correctly, the Pill is over 99% effective at preventing pregnancy.</p>
Progestogen-only contraceptive pill	<p>There are two different types of progestogen-only pills, which must be taken at different times of the day:</p> <ul style="list-style-type: none"> The three-hour progestogen-only pill - must be taken within three hours of the same time each day. Examples are Femulen, Micronor, Norgeston and Noriday. The 12-hour progestogen-only pill (Cerazette) - must be taken within 12 hours of the same time each day. It is less commonly used than the three-hour pill. 	<p>When taken correctly, the progestogen-only pill is over 99% effective at preventing pregnancy.</p>
Contraceptive Implants and Injections	<p>Implants</p> <p>There is currently one type of contraceptive implant used in the UK called Implanon. Implanon is a small (4cm), thin flexible tube. It is implanted under the skin of a woman's upper arm by a doctor or nurse. Implanon works for up to three years before it needs to be replaced.</p> <p>Injections</p> <p>The contraceptive injection is usually given intramuscularly. There are two types available:</p> <ul style="list-style-type: none"> Depo-Provera is the most commonly used injection in the UK and is effective for up to 12 weeks, after which another injection is given. Noristerat is effective for up to eight weeks. 	<p>Contraceptive implants and injections are long-acting, effective methods of contraception. They are over 99% reliable in preventing pregnancy.</p>
Contraceptive patch	<p>The contraceptive patch is a small, thin, beige patch about 5cm by 5cm in size. It is stuck onto the skin and it releases two hormones – oestrogen and progesterone – through the skin and into the bloodstream. These are the same hormones as those used in the combined oral contraceptive pill. The hormones prevent ovaries releasing an egg</p>	<p>If used properly, the contraceptive patch is over 99% effective in preventing pregnancy.</p>

	(ovulation) and stops pregnancy. The patch needs to be changed for a new one each week.	
Diaphragms and Caps	Diaphragms and caps stop sperm reaching an egg by covering the cervix. To be effective in preventing pregnancy, they need to be used in combination with spermicide, a chemical that kills sperm.	If used correctly and in combination with spermicide, diaphragms and caps are estimated to be 92-96% effective in preventing pregnancy.
Intrauterine device (IUD)	An IUD is a small, T-shaped contraceptive device made from plastic and copper that fits inside the womb (uterus). It used to be called a coil or a loop. An IUD stops sperm from reaching the egg. It does this by releasing copper into the body, which changes the make-up of the fluids in the womb and fallopian tubes. These changes prevent sperm from fertilising eggs. IUDs may also stop fertilised eggs from travelling along the fallopian tubes and implanting in the womb.	An IUD is 98–99% effective at preventing pregnancy. Newer models that contain more copper are the most effective (over 99% effective).
Intrauterine System (IUS)	An IUS is a small, T-shaped contraceptive device that fits inside the womb (uterus) and releases the female hormone progesterone into the body. The IUS that is available in the UK is called Mirena and works for up to five years after being fitted.	The IUS is over 99% effective in preventing pregnancy.
Vasectomy	Vasectomy or 'male sterilisation' is a simple and reliable method of contraception. It is usually considered permanent, although in some cases the procedure can be reversed - for example, if the male decides to have children later on in life.	A vasectomy is normally permanent, so once it has been carried out successfully and semen tests have shown there is no sperm present, it is over 99% effective.
Vaginal ring	The vaginal ring is a small, soft plastic ring that is placed inside the vagina for 21 days at a time. It's about 4mm thick, and 5.5cm in diameter. The ring continually releases oestrogen and progesterone, which are synthetic versions of the hormones that are naturally released by the ovaries. This reduces ovulation and thickens vaginal mucus, which makes it more difficult for sperm to get through, and thins the lining of the womb so that an egg is less likely to implant there.	If used correctly, the vaginal ring is more than 99% effective.
Female sterilisation	Female sterilisation is an effective and permanent form of contraception. The operation usually involves cutting, sealing or blocking the fallopian tubes, which eggs travel through from the ovaries to the womb. This prevents the eggs from reaching the sperm and becoming fertilised.	Female sterilisation is more than 99% effective, and only one in 200 women will become pregnant after the operation

Source: <http://www.nhs.uk/conditions/contraception/Pages/Introduction.aspx>

Appendix 4.2: Number & Percentage of Most Deprived Areas in the London Borough of Havering

The number and percentage of Lower Super Output Areas (LSOAs) that fall in the most deprived 20% of LSOAs in England according to the Index of Multiple Deprivations (IMD) 2007 by region.

Region	Number of LSOAs in 'most deprived 20% of LSOAs in England'	Number of LSOAs in the Region	% of LSOAs in each Region falling in 'most deprived 20% of LSOAs in England'
The North	2893	9408	31
Midlands & East England	1634	9764	17
London	1351	4765	28
South East	318	5319	6
South West	300	3226	9

Source: <http://www.communities.gov.uk/documents/communities/pdf/576659.pdf>

Note:

England's most deprived 20% of LSOAs have the following characteristics on average:

- Just over a third of people (35.4%) are income deprived
- One in five of women aged 18 to 59 and men aged 18-64 (20.3%) are employment deprived
- Just under half of children (48.8%) live in families that are income deprived
- 37.5% of older people are income deprived

Appendix 4.3: Current contraception use among 16-24 year old women by year of survey: 2002/03 - 2006/07

Contraception	2002/03 % (CI) ¹	2003/04 % (CI) ¹	2004/05 % (CI) ¹	2005/06 % (CI) ¹	2006/07 % (CI) ¹
No method ²	33.4(21.7, 31.3)	29(24.1, 34.4)	26(21.4, 31.2)	25(19.4, 31.6)	24.3(18.9, 30.6)
Male Condom	26.3(21.7, 31.3)	30(25, 35.4)	29.3(24.4, 34.6)	33(26.7, 40)	32.2(26.1, 38.9)
Pill	31.6(26.7, 36.8)	31.6(26.6, 37.1)	31.3(26.3, 36.7)	30.9(24.7, 37.8)	27.2(21.6, 33.7)
IUD	2.2(1.1, 4.4)	1(0.3, 2.9)	2(0.9, 4.2)	0.5(0.1, 3.0)	3.5(1.7, 7.0)
IUS	0.6(0.2, 2.2)	0.7(0.2, 2.4)	0.3(0.1, 1.8)	0	1(0.3, 3.5)
Injection	2.8(1.5, 5.3)	4(2.3, 6.9)	7.6(5.1, 11.1)	3.2(1.5, 6.8)	5(2.7, 8.9)
Implants	0	0.7(0.2, 2.4)	0.3(0.1, 1.8)	4.3(2.2, 8.2)	3.5(1.7, 7.0)
Others ³	3.1(1.7, 5.7)	3.7(2.1, 6.5)	3.3(1.8, 5.9)	3.2(1.5, 6.8)	3(1.4, 6.3)
Total number of women	320	297	304	188	202

1. 95% Confidence Interval
2. Not in heterosexual relationship, sterile or partner sterile, pregnant or trying to get pregnant
3. Withdrawal, Safe period, Cap / diaphragm, spermicide, female condom, emergency contraception, contraception patch

Appendix 4.4: Current contraception use among 16-17 year old women by year of survey: 2002/03 - 2006/07

Contraception	2002/03 % (CI) ¹	2003/04 % (CI) ¹	2004/05 % (CI) ¹	2005/06 % (CI) ¹	2006/07 % (CI) ¹
No method ²	56.6(43.3, 69)	46.0(34.3, 58.2)	42.4(30.6, 55.1)	44.1(28.9, 60.5)	44.1(30.4, 58.9)
Male Condom	22.6(13.5, 35.5)	23.8(15.0, 35.6)	32.2(21.7, 44.9)	41.2(26.4, 57.8)	32.6(20.5, 47.5)
Pill	18.9(10.6, 31.4)	19.0(11.2, 30.4)	23.7(14.7, 36)	2.9(0.5, 14.9)	11.6(5.1, 24.5)
IUD	0.0	1.6(0.3, 8.5)	1.7(0.3, 9.0)	0.0	4.7(1.3, 15.5)
IUS	0.0	0.0	0.0	0.0	0.0
Injection	0.0	3.2(0.9, 10.9)	0.0	2.9(0.5, 14.9)	2.3(0.4, 12.1)
Implants	0.0	1.6(0.3, 8.5)	0.0	2.9(0.5, 14.9)	2.3(0.4, 12.1)
Others ³	1.9(0.3, 9.9)	4.8(1.6, 13.1)	0.0	2.9(0.5, 14.9)	2.3(0.4, 12.1)
Total number of women	53	63	59	34	43

1. 95% Confidence Interval
2. Not in heterosexual relationship, sterile or partner sterile, pregnant or trying to get pregnant
3. Withdrawal, Safe period, Cap / diaphragm, spermicide, female condom, emergency contraception, contraception patch

Appendix 4.5: Current contraception use among 18-19 year old women by year of survey: 2002/03 - 2006/07

Contraception	2002/03 % (CI) ¹	2003/04 % (CI) ¹	2004/05 % (CI) ¹	2005/06 % (CI) ¹	2006/07 % (CI) ¹
No method ²	34.3(24.1, 46.3)	28.8(18.8, 41.4)	27.3(17.3, 40.2)	29.2(14.9, 49.2)	32.5(20.1, 48.0)
Male Condom	28.4(19.0, 40.1)	33.9(23.1, 46.6)	29.1(18.8, 42.1)	37.5(21.2, 57.3)	37.5(24.2, 53.0)
Pill	28.4(19.0, 40.1)	35.6(24.6, 48.3)	30.9(20.3, 44.0)	20.8(9.2, 40.5)	17.5(8.7, 31.9)
IUD	1.5(0.3, 8.0)	0	0	0	5(1.4, 16.5)
IUS	0	0	0	0	0
Injection	3(0.8, 10.2)	1.7(1.3, 9.0)	7.3(2.9, 17.3)	4.2(0.7, 20.2)	5(1.4, 16.5)
Implants	0	0	1.8(0.3, 9.6)	4.2(0.7, 20.2)	2.5(0.4, 12.9)
Others ³	4.5(1.5, 12.4)	0	3.6(1.0, 12.3)	0	0
Total number of women	67	59	55	24	40

1. 95% Confidence Interval
2. Not in heterosexual relationship, sterile or partner sterile, pregnant or trying to get pregnant
3. Withdrawal, Safe period, Cap / diaphragm, spermicide, female condom, emergency contraception, contraception patch

Appendix 4.6: Current contraception use among 20-24 year old women by year of survey: 2002/03 - 2006/07

Contraception	2002/03 % (CI) ¹	2003/04 % (CI) ¹	2004/05 % (CI) ¹	2005/06 % (CI) ¹	2006/07 % (CI) ¹
No method ²	26.9(21.2, 33.4)	22.6(17.1, 29.3)	20.5(15.4, 26.8)	19.2(13.4, 26.8)	17.6(11.8, 25.5)
Male Condom	26.4(20.8, 32.9)	50.3(43.0, 57.6)	28.4(22.5, 35.2)	30(22.8, 38.4)	30.3(22.7, 39.0)
Pill	35.8(29.5, 42.7)	53.1(45.8, 60.3)	33.7(27.3, 40.7)	40(32.0, 48.6)	36.1(28.1, 45.1)
IUD	3(1.4, 6.4)	1.1(0.3, 4.0)	2.6(1.1, 6.0)	0.8(0.1, 4.2)	2.5(0.9, 7.2)
IUS	1(0.3, 3.6)	1.1(0.3, 4.0)	0.5(0.1, 2.9)	0	1.7(0.5, 5.9)
Injection	3.5(1.7, 7.0)	5.1(2.7, 9.4)	10(6.5, 15.1)	3.1(1.2, 7.6)	5.9(2.9, 11.6)
Implants	0	0.6(0.1, 3.1)	0	4.6(2.1, 9.7)	4.2(1.8, 9.5)
Others ³	3(1.4, 6.4)	2.3(0.9, 5.7)	4.2(2.1, 8.1)	2.3(0.8, 6.6)	2.5(0.9, 5.7)
Total number of women	200	175	190	130	119

1. 95% Confidence Interval
2. Not in heterosexual relationship, sterile or partner sterile, pregnant or trying to get pregnant
3. Withdrawal, Safe period, Cap / diaphragm, spermicide, female condom, emergency contraception, contraception patch

Appendix 4.7: Current use of LARC or Non-LARC methods among 16-24, 16-19 & 20-24 year old women by year of survey: 2002/03 - 2006/07

Age group & Method	2002/03 % (CI) ¹	2003/04 % (CI) ¹	2004/05 % (CI) ¹	2005/06 % (CI) ¹	2006/07 % (CI) ¹
16-24					
LARC ²	5.6(3.6, 8.7)	5.7(3.6, 9.0)	9.9(7.0, 13.7)	8(4.9, 12.7)	13.4(9.4, 18.7)
Non-LARC ³	60.9(55.5, 66.1)	65.3(59.7, 70.5)	63.8(58.3, 69)	67(60, 73.3)	62.4(55.5, 68.8)
<i>Total number</i>	320	297	304	188	202
16-17					
LARC ²	0	4.8(1.6, 13.1)	1.7(0.3, 9)	5.9(1.6, 19.1)	11.6(5.1, 24.5)
Non-LARC ³	43.4(31, 56.7)	49.2(37.3, 61.2)	55.9(43.3, 67.8)	50(34.1, 65.9)	44.2(30.4, 58.9)
<i>Total number</i>	53	63	59	34	43
18-19					
LARC ²	4.5(1.5, 12.4)	1.7(0.3, 9)	7.3(2.9, 17.3)	8.3(2.3, 25.8)	12.5(5.5, 26.1)
Non-LARC ³	61.2(49.2, 72)	69.5(56.9, 79.7)	65.5(52.3, 76.6)	62.5(42.7, 78.8)	60(44.6, 73.7)
<i>Total number</i>	67	59	55	24	40
20-24					
LARC ²	7.5(4.6, 12.0)	7.4(4.4, 12.3)	13.2(9.1, 18.8)	8.5(4.8, 14.5)	14.3(9.1, 21.7)
Non-LARC ³	65.5(58.7, 71.7)	69.7(62.5, 76.0)	66.1(59.1, 72.5)	72.3(64.1, 79.3)	69.7(61.0, 77.3)
<i>Total number</i>	200	175	190	130	119

1. 95% Confidence Interval
2. Intrauterine device (IUD), Intrauterine system (IUS), Injection & Implant
3. Male Condom, Pill & Others

Appendix 4.8: The ONS Opinion Contraception Module Survey Questionnaire

IF: Men under 70 OR women under 50

Introduction

The next set of questions are for you to fill in yourself on the computer. I will show you how to answer the first two questions and then be here if you need any help.

This section is being asked on behalf of the Department of Health and begins with ways of preventing pregnancy.

EXPLAIN THAT INSTRUCTIONS WILL APPEAR ON THE SCREEN AND THEN WORK THROUGH THE FIRST 2 QUESTIONS WITH THE INFORMANT. IF THE INFORMANT MAKES A MISTAKE TAKE HIM/HER BACK TO THE QUESTION AND ALLOW HIM/HER TO KEY IN THE RIGHT ANSWER.

IF RESISTANCE/DISTRESS ABOUT USING THE COMPUTER THEN YOU CAN SUGGEST THAT YOU CARRY ON ASKING THE QUESTIONS

- (1) Self-completion accepted and completed
- (2) Completed by interviewer
- (3) Section refused

ASK IF: Men under 70 OR women under 50

AND: Elected self-completion

Pract1

This is the first time I have used a computer

- (1) Yes
- (2) No

ASK IF: Men under 70 OR women under 50

AND: Elected self-completion

Pract2

On which days of the week do you watch television?

SET [9] OF

- (1) Monday
- (2) Tuesday
- (3) Wednesday
- (4) Thursday
- (5) Friday
- (6) Saturday
- (7) Sunday
- (8) I do not have a television/don't watch the television
- (9) I mostly only listen to the radio

ASK IF: Men under 70 OR women under 50

M170_1

Have you had a vasectomy? /

Have you ever been sterilised - I mean have you ever had an operation intended to prevent you getting pregnant?

(DO NOT INCLUDE HYSTERECTOMIES)

- (1) Yes
- (2) No

ASK IF: Men under 70 OR women under 50

AND: Has had an operation to prevent pregnancy

M170_2

Was that operation carried out under the NHS or not?

- (1) Yes
- (2) No

ASK IF: Men under 70 OR women under 50

AND: Has had an operation to prevent pregnancy

M170_3

Was the operation more or less than two years ago, that is before or after June 2002?

- (1) More than 2 years ago
- (2) Less than 2 years ago

ASK IF: Men under 70 OR women under 50
AND: NOT (has had an operation to prevent pregnancy)

M170_4

Have you had any other operation which prevents you getting someone pregnant / becoming pregnant?

- (1) Yes
- (2) No

ASK IF: Men under 70 or women under 50
AND: NOT (Has had an operation to prevent pregnancy)
AND: Had other operation preventing pregnancy

M170_5

Was the operation more or less than two years ago, that is before or after June 2002

- (1) More than 2 years ago
- (2) Less than 2 years ago

ASK IF: Women under 50
AND: No operation

M170_6M

SHOWCARD C170.6

Here is a list of possible ways of preventing pregnancy. Which, if any, do you (and your partner) usually use at present?

SET [3] OF

- (1) No method used – no sexual relationship with someone of the opposite sex
- (2) No method used – partner sterilised / had a vasectomy
- (3) No method used – other reasons
- (4) Withdrawal
- (5) Male sheath/condom
- (6) Safe period/rhythm method/Persona
- (7) Cap/Diaphragm
- (8) Pill
- (9) IUD/coil/intra-uterine device
- (10) Hormonal IUS – MIRENA
- (11) Foams/gels/sprays/pessaries (spermicides)
- (12) Going without sexual intercourse to avoid pregnancy
- (13) Female condom
- (14) Injections/implants
- (15) Emergency contraception (morning after pill)
- (16) Another method

ASK IF: Women under 50
AND: No operation
AND: Used another method

SPEC6

What other method is used?

ASK IF: Women under 50
AND: No operation
AND: Used the pill

M170_7

SHOWCARD C170.7

Is the pill you take one of the brands listed here: (Micronor, Noriday, Femulem, Microval, Norgesten, Neogest?)

These are progestogen only pills (sometimes known as the mini- pill) as opposed to combined pills.

- (1) Yes
- (2) No
- (3) Not sure

ASK IF: Women under 50
AND: No operation
AND: More than one method used

M170_8

You have mentioned that you usually use more than one method. Do you use them in combination or do you sometimes use one and sometimes the other?

- (1) In combination
- (2) Sometimes one, sometimes other

ASK IF: Women under 50
AND: No operation
AND: More than one method used
AND: Sometimes one, sometimes other

M170_9

SHOWCARD C170.9

Which one do you use most often?

- (4) Withdrawal
- (5) Male sheath/condom
- (6) Safe period/rhythm method/Persona
- (7) Cap/Diaphragm
- (8) Pill
- (9) IUD/coil/intra-uterine device
- (10) Hormonal IUS – MIRENA
- (11) Foams/gels/sprays/pessaries (spermicides)
- (12) Going without sexual intercourse to avoid pregnancy
- (13) Female condom
- (14) Injections/implants
- (15) Emergency contraception (morning after pill)
- (16) Another method

ASK IF: Women under 50
AND: No operation
AND: Have a heterosexual relationship

M170_10

How long have you not been using a method / has this method been your usual one / have these methods been your usual ones?

- (1) Less than 3 months
- (2) At least 3 months, less than 6 months
- (3) At least 6 months, less than 1 year
- (4) At least 1 year, less than 2 years
- (5) At least 2 years, less than 5 years
- (6) 5 years or more

ASK IF: Women under 50
AND: No operation
AND: Have a heterosexual relationship
AND: No method used (Other reason)

M170_11

SHOWCARD C170.11

Here is a list of reasons why people do not use any method for preventing pregnancy. Which of these reasons applies to you?

CODE MAIN REASON ONLY

- (1) I am pregnant
- (2) I want to become pregnant
- (3) Unlikely to conceive because of the menopause
- (4) Unlikely to conceive because possibly infertile
- (5) Don't like contraception/Find methods unsatisfactory
- (6) My partner doesn't like – or won't use – contraception
- (7) Don't know where to obtain contraceptives / advice
- (8) Find access to contraceptive services difficult
- (9) Some other reason

ASK IF: Women under 50
AND: No operation
AND: Have a heterosexual relationship
AND: No method used
AND: Some other reason in M170_11

SPEC11

RECORD OTHER REASON

ASK IF: Women under 50
AND: No operation
AND: No method used or no heterosexual relationship

M170_12

Have you used any method of contraception in the last 2 years?

- (1) Yes
- (2) No

ASK IF: Women under 50

AND: No operation

AND: No method used or no heterosexual relationship

AND: Has used methods in last 2 years

M170_13M

SHOWCARD C170.13

Which method(s) did you usually use?

SET [3] OF

- (4) Withdrawal
- (5) Male sheath/condom
- (6) Safe period/rhythm method/Persona
- (7) Cap/Diaphragm
- (8) Pill
- (9) IUD/coil/intra-uterine device
- (10) Hormonal IUS – MIRENA
- (11) Foams/gels/sprays/pessaries (spermicides)
- (12) Going without sexual intercourse to avoid pregnancy
- (13) Female condom
- (14) Injections/implants
- (15) Emergency contraception (morning after pill)
- (16) Another method

ASK IF: Women under 50

AND: Operation less than 2 years ago, or heterosexual relationship now

and usual method less than 5 years

M170_14M

SHOWCARD C170.14

Which method(s) of contraception / if any did you use immediately before that?

SET [3] OF

- (1) No method used – no sexual relationship with someone of the opposite sex
- (2) No method used – partner sterilised / had a vasectomy
- (3) No method used – other reasons
- (4) Withdrawal
- (5) Male sheath/condom
- (6) Safe period/rhythm method/Persona
- (7) Cap/Diaphragm
- (8) Pill
- (9) IUD/coil/intra-uterine device
- (10) Hormonal IUS – MIRENA
- (11) Foams/gels/sprays/pessaries (spermicides)
- (12) Going without sexual intercourse to avoid pregnancy
- (13) Female condom
- (14) Injections/implants
- (15) Emergency contraception (morning after pill)
- (16) Another method

ASK IF: Women under 50

AND: Operation less than 2 years ago, or heterosexual relationship now and usual method less than 5 years

AND: Used the pill (at M170_14M)

M170_15

SHOWCARD C170.15

Is the pill you took one of the brands listed on this card? These are progesterone only pills (sometimes known as the mini-pill) as opposed to combined pills?

- (1) Yes
- (2) No
- (3) Not sure

ASK IF: Women under 50

AND: No operation and method used

AND: Method at 6 not the same as method at 14

M170_16

Did the change in method happen because you began a relationship with a different partner?

- (1) Yes
- (2) No

ASK IF: Women under 50
AND: No operation and method used
AND: Method at 6 not the same as method at 14

M170_17

[*] Compared with the method(s) you used before, do you think the method(s) you are using now is/are:
More reliable in preventing pregnancy?

- (1) Yes
- (2) No

ASK IF: Women under 50
AND: No operation and method used
AND: Method at 6 not the same as method at 14

M170_18

[*] (Compared with the method(s) you used before, do you think the method(s) you are using now is/are:
...more convenient to use?

- (1) Yes
- (2) No

ASK IF: Women under 50
AND: No operation and method used
AND: Method at 6 not the same as method at 14

M170_19

[*] (Compared with the method(s) you used before, do you think the method(s) you are using now is/are:
...better for your long-term health?

- (1) Yes
- (2) No

ASK IF: Women under 50
AND: No operation and method used
AND: Method at 6 not the same as method at 14

M170_20

[*] (Compared with the method(s) you used before, do you think the method(s) you are using now is/are:
...better for protecting against sexually transmitted infections (including HIV/AIDS)?

- (1) Yes
- (2) No

ASK IF: Women under 50
AND: No operation and method used
AND: Method at 6 not the same as method at 14

M170_21

SHOWCARD C170.21

Which was the main reason for changing your method of contraception?

- (1) Different partner
- (2) More reliable in preventing pregnancy
- (3) More convenient to use
- (4) Better for long-term health
- (5) Better for protecting against infections
- (6) Some other reason

ASK IF: Women under 50
AND: No operation and method used
AND: Method at 6 not the same as method at 14

M170_22

Were you at all influenced to make the change by advice from a GP or Family Planning Clinic?

- (1) Yes
- (2) No

ASK IF: Women under 50 who have not had operation or had operation less than 2 years ago

M170_23

Some of the previous questions referred to emergency contraception after unprotected sex. There are two kinds of emergency contraception. One is a pill based method, sometimes known as the 'morning after' pill. The other is an IUD (intra-uterine device) method. Before reading about it here, had you heard of the pill method of emergency contraception after intercourse?

- (1) Yes
- (2) No
- (3) Don't know

ASK IF: Women under 50 who have not had operation or had operation less than 2 years ago

AND: Has heard of emergency pill

M170_24

SHOWCARD C170.24

[*] If no other method of contraception has been used, how long after sexual intercourse has taken place do you think that the pill method of emergency contraception can be used?

- (1) Up to 12 hours
- (2) Up to 24 hours
- (3) Up to 72 hours
- (4) Up to 5 days
- (5) Over 5 days
- (6) Don't know

ASK IF: Women under 50 who have not had operation or had operation less than 2 years ago

AND: Has heard of emergency pill

M170_24M

SHOWCARD C170.24M

[*] Which of the following statements about emergency contraception do you think is true?

SET [7] OF

- (1) The emergency pill has no identified harmful long-term side-effects
- (2) The emergency pill can still be effective taken at any time up to 72 hours after intercourse
- (3) The emergency pill can sometimes cause nausea / make you feel sick
- (4) The emergency pill is more effective the sooner it is taken after intercourse
- (5) The emergency pill is safer and more effective than it has been in the past
- (6) The emergency pill protects against sexually transmitted infections (STIs)
- (7) The emergency pill protects against pregnancy until the next period
- (8) None of these

ASK IF: Women under 50 who have not had operation or had operation less than 2 years ago

AND: Has heard of emergency pill

M170_25

SHOWCARD C170.25

Have you used the emergency contraception pill in the last year?

- (1) Yes
- (2) No

ASK IF: Women under 50 who have not had operation or had operation less than 2 years ago

AND: Has heard of emergency pill

AND: Has used emergency pill

M170_26

SHOWCARD C170.26

On how many occasions in the last year have you used the emergency contraception pill?

1...50

ASK IF: Women under 50 who have not had operation or had operation less than 2 years ago

AND: Has heard of emergency pill

AND: Has used emergency pill

M170_27M

SHOWCARD C170.26

Where did you go for this?

SET [7] OF

- (1) Your own GP or practice nurse
- (2) Another GP or practice nurse
- (3) Family Planning Clinic, (including Brook Clinics)
- (4) Hospital Accident & Emergency Department
- (5) Directly to a chemist or pharmacy
- (6) A walk-in centre or minor injuries unit
- (7) Somewhere else

ASK IF: Women under 50 who have not had operation or had operation less than 2 years ago

AND: Has heard of emergency pill

AND: Has used emergency pill

M170_27A

On the most recent occasion, did you have any difficulty in obtaining the emergency pill when you needed it?

- (1) Yes
- (2) No

ASK IF: Men aged 16–69 or women aged 16–49

AND: Interviewing

AND: Women aged 16 to 49 who have not had operation or had less than 2 years ago

AND: Has heard of emergency pill

AND: has used emergency pill

AND: got emergency pill directly to a chemist or pharmacy

M170_27B

Did you buy the emergency pill yourself or did the pharmacist supply it to you free of charge under NHS arrangements?

- (1) Bought emergency pill
- (2) NHS Supplied free of charge under NHS arrangements

ASK IF: Women under 50 who have not had operation or had operation less than 2 years ago

AND: Has heard of emergency pill

AND: Has not used emergency pill

M170_28M

SHOWCARD C170.28

If someone were to need the emergency contraception pill where do you think they would be able to obtain it?

SET [7] OF

- (1) Your own GP or practice nurse
- (2) Another GP or practice nurse
- (3) Family Planning Clinic (including Brook Clinics)
- (4) Hospital Accident & Emergency Department
- (5) Directly from a chemist or pharmacy
- (6) A walk-in centre or minor injuries unit
- (7) Somewhere else
- (8) Would not use

ASK IF: Women under 50 who have not had operation or had operation less than 2 years ago

M170_29

Before (I mentioned it/you read about it here), had you heard of the IUD method of emergency contraception after intercourse?

- (1) Yes
- (2) No

ASK IF: Women under 50 who have not had operation or had operation less than 2 years ago

AND: Has heard of emergency IUD

M170_30

SHOWCARD C170.24

[*] If no other method of contraception has been used, how long after sexual intercourse has taken place do you think that an IUD can be fitted as an emergency method of contraception?

- (1) Up to 12 hours
- (2) Up to 24 hours
- (3) Up to 72 hours
- (4) Up to 5 days
- (5) Over 5 days
- (6) Don't know

ASK IF: Women under 50 who have not had operation or had operation less than 2 years ago

AND: Has heard of emergency IUD

M170_31

SHOWCARD C170.31

Have you had an IUD fitted for emergency contraception in the last year?

- (1) Yes
- (2) No

ASK IF: Women under 50 who have not had operation or had operation less than 2 years ago

AND: Has heard of emergency IUD

M170_35M

SHOWCARD C170.35

Where did you go for this? / Where would someone go for this?

SET [6] OF

- (1) Your own GP
- (2) Another GP
- (3) Family Planning Clinic (including Brook Clinics)
- (4) Hospital Accident and Emergency Department
- (5) Somewhere else
- (6) Would not use

ASK IF: Women aged 16 to 49 who have not had operation or had operation less than 2 years ago

AND: Has used emergency pill or had emergency IUD fitted

M170_35B

SHOWCARD C170_35B

On the most recent occasion, what was your main reason for using emergency contraception?

- (1) Condom failure
- (2) Missed pill/ forgot to take the pill
- (3) Other routine contraceptive failure
- (4) Condom not available
- (5) I or my partner did not want to use a condom
- (6) Other reason

ASK IF: Women aged 16 to 49 who have not had operation or had operation less than 2 years ago

AND: Has used emergency pill or had emergency IUD fitted

AND: M170_35B = Other Reason

SPEC35B

RECORD OTHER REASON

ASK IF: Men under 70

AND: Not had operation which prevents pregnancy

M170_36M

SHOWCARD C170.36

Here is a list of possible ways of preventing pregnancy. Which, if any, do you (and your partner) use at present?

SET [4] OF

- (1) The contraceptive pill
- (2) Male condom
- (3) The Female condom
- (4) Emergency contraception (morning after pill)
- (5) Another method of protection
- (6) No method
- (7) No sexual relations with a woman currently

ASK IF: Men under 70

M170_37

SHOWCARD C170.36

Which of the following best describes your situation?

- (1) I have had sex only with women
- (2) I have had sex only with men
- (3) I have usually had sex only with women but have had sex at least once with a man
- (4) I have usually had sex only with men but have had sex at least once with a woman
- (5) I have not (yet) had a sexual relationship

ASK IF: Men under 70 or women under 50

M170_38M

SHOWCARD C170.38

Have you been to any of the following to obtain contraception, for advice on contraception or preventing pregnancy, or for family planning purposes within the last 5 years?

SET [6] OF

- (1) Family planning clinic (including Brook Clinics)
- (2) Your own GP or practice nurse
- (3) Another local GP or practice nurse
- (4) Directly to a chemist or pharmacy
- (5) A walk-in centre or minor injuries unit
- (6) Somewhere else
- (7) None of these

ASK IF: Men under 70 or women under 50

AND: Has been somewhere for family planning last 5 years

AND: More than one place visited (If only one place visited then data is carried forward)

M170_39

Which did you visit most recently for these purposes?

- (1) Family planning clinic (including Brook Clinics)
- (2) Your own GP or practice nurse
- (3) Another local GP or practice nurse
- (4) Went directly to a chemist or pharmacy
- (5) A walk-in centre or minor injuries unit

(6) Somewhere else

ASK IF: Men under 70 or women under 50

AND: Has been somewhere for family planning last 5 years

M170_40

When did you last go there for these purposes?

- (1) Less than 3 months ago
- (2) At least 3 months but less than 6 months ago
- (3) At least 6 months but less than 1 year ago
- (4) Or at least 1 year but less than 5 years ago

ASK IF: Men under 70 or women under 50

AND: Not currently in a sexual relationship or has had an operation

M170_50

SHOWCARD C170.50

Have you had any sexual partners in the last year?

- (1) Yes
- (2) No

ASK IF: Men under 70 or women under 50

AND: Currently in a sexual relationship/ had a sexual relationship in last 12 months

AND: Has not said uses condoms (Imputed if has used condoms)

M170_51

SHOWCARD C170.51

May I just check, do/did you (and/or your partner) use a condom in the last 12 months?

Please include either male or female condoms

- (1) Yes
- (2) No

ASK IF: Men under 70 or women under 50

AND: Currently in a sexual relationship/ had a sexual relationship in last 12 months

AND: Uses a condom

M170_52

SHOWCARD C170.52

Why do/did you use a condom?

- (1) To prevent pregnancy
- (2) To prevent infection
- (3) Both to prevent pregnancy and infection
- (4) Some other reason

ASK IF: Men under 70 or women under 50

AND: Currently in a sexual relationship/ had a sexual relationship in last 12 months

AND: Uses a condom

M170_53

SHOWCARD C170.53

How regularly do/did you use a condom?

- (1) Whenever I have sexual intercourse
- (2) Usually when I have sexual intercourse
- (3) Sometimes when I have sexual intercourse

ASK IF: Men under 70 or women under 50

AND: Currently in a sexual relationship/ had a sexual relationship in last 12 months (Has had sexual partner in the last year OR Woman – no operation and not said no sex as reason for contraception OR Man – no operation and not said never had a sexual relationship)

M170_54M

SHOWCARD C170.54

Has what you have heard about HIV and AIDS and other sexually transmitted infections influenced your behaviour?

SET [3] OF

- (1) When I have sexual intercourse I use a condom more often than I used to
- (2) I have fewer one-night stands
- (3) When I change partners I have a test for sexually transmitted infections
- (4) It has not influenced me at all

ASK IF: Men under 70 or women under 50

AND: Currently in a sexual relationship/ had a sexual relationship in last 12 months (Has had sexual partner in the last year OR Woman - no operation and not said no sex as reason for contraception OR Man - no operation and not said never had a sexual relationship)

M170_55

SHOWCARD C170.55

(May I just check), How many sexual partners have you had in the last year?

- (1) 1
- (2) 2 or 3
- (4) 4 or more

ASK IF: Men under 70 or women under 50

AND: Currently in a sexual relationship/ had a sexual relationship in last 12 months (Has had sexual partner in the last year OR Woman - no operation and not said no sex as reason for contraception OR Man - no operation and not said never had a sexual relationship)

AND: Currently in a sexual relationship

AND: Not only one partner in M170_55 (In this case data for M170_56 are imputed)

M170_56

SHOWCARD C170.56

May I just check, How many sexual partners do you currently have?

- (1) 1
- (2) 2
- (3) 3
- (4) 4 or more

ASK IF: Men under 70 or women under 50

AND: Currently in a sexual relationship/ had a sexual relationship in last 12 months (Has had sexual partner in the last year OR Woman – no operation and not said no sex as reason for contraception OR Man – no operation and not said never had a sexual relationship)

AND: Has had 2 or more sexual partners in past 12 months and uses condom

M170_57

SHOWCARD C170.57

(And may I just check), Do/did you use condoms with all your sexual partners, or with only one/some of them?

Please include either male or female condoms.

- (1) Used condoms with all partners
- (2) Used condoms with only one/some partners

ASK IF: Men under 70 or women under 50

M170_41

SHOWCARD C170.41

There has been a lot of information in recent years about HIV/AIDS and about other sexually transmitted infections.

From which source would you say you have learnt most about these?

- (1) TV advertisements
- (2) TV programmes
- (3) Newspapers, magazines or books
- (4) Your GP
- (5) Family Planning Clinic (including Brook clinics)
- (6) GUM or sexual health clinic in a hospital
- (7) Friends or family
- (8) Government information leaflet
- (9) Internet
- (10) School or college
- (11) Somewhere else

ASK IF: Men under 70 or women under 50

M170_58

Please hand the computer back to the interviewer now.

ASK IF: Men under 70 or women under 50

M170_59

INTERVIEWER: PRESS 1 TO CONTINUE

1.2

ASK ALWAYS:

M170_60M

SHOWCARD C170.60

Which of the following are sexually transmitted infections?

CODE ALL THAT APPLY

SET [6] OF

- (1) Tuberculosis

- (2) Gonorrhoea
- (3) Listeria
- (4) Chlamydia
- (5) Diabetes
- (6) None of these

ASK IF: Recognised Chlamydia as STI at M170_60M

M170_49M

SHOWCARD C170.49

Which of the following statements about Chlamydia do you think are true?

CODE ALL THAT APPLY

SET [5] OF

- (1) Chlamydia does not always cause symptoms
- (2) Chlamydia is easily treated with antibiotics
- (3) Chlamydia has no serious effects
- (4) Chlamydia can cause infertility and ectopic pregnancy if untreated
- (5) Chlamydia only affects men
- (6) None of these

Appendix 5.1: Participant Information Sheet



Title of Research Study: Factors associated with Chlamydia screening and prevalence among young people in Havering.

Dear Participant,

You are being invited to take part in a research study. Before you decide whether to participate, it is important for you to understand why the research is being done and what it will involve. Please take time to read the following information carefully and ask me 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.

What is the purpose of the study?

This study is being undertaken in part fulfilment of a Doctorate in Public Health for the researcher (Anthony Wakhisi) who is a student at Brunel University. He is also an employee of NHS Havering where he works as a Public Health Information Analyst. The study aims to identify barriers and motivating factors among young people as regards their decision to get tested for Chlamydia. This will enable health workers at NHS Havering to facilitate more effective services that encourage more young people to get tested and improve their sexual health.

Why have I been chosen?

You have been chosen to take part in this study because you are within the age category of individuals who are most affected by Chlamydia infection (16 – 24 years).

What will I have to do if I take part?

You will participate in a group discussion which will involve about five other young people and two researchers if you have never been screened for Chlamydia. If you have been screened in the past, you will be taking part in an interview with a researcher. Group discussions/interviews will be held during your free time. This is likely to be in the evenings on weekdays or Saturday so as not to interrupt your attendance of other organized activities. The venue will be at either Havering college in Hornchurch or the Youth zone Information Centre at Romford. Sessions will be will last approximately 60 to 90 minutes and will mainly be about the existing barriers and motivating factors as regards access to Chlamydia screening for young people in Havering, and what can be done to improve the same. The researcher would like to use direct quotations in the write up and possible publication of this study. He will therefore request you and other participants to sign a consent form to indicate that you understand this will happen and have no objection. In

order to ensure the information is accurate, the session will be recorded on a digital voice recorder with your permission.

What are the possible benefits of taking part?

There is no direct benefit resulting from your participation in this study. However you will be offered a £10 gift voucher at the end of the study as a token of appreciation for your participation. Otherwise your contribution in this study will help health workers at NHS Havering to improve Chlamydia screening services for you and other young people living in Havering.

What are the possible disadvantages or risks of taking part?

There is no discomfort or disadvantage involved in this study. The researcher will expect you to respond to questions or get involved in discussion topics that you are comfortable with. However in case the interview/discussion raises issues you may find embarrassing or upsetting, you will be at liberty to leave if you so wish. In case you require further support at any stage or at the end of the session, the researcher will intervene and provide contacts for local institutions that may provide further help. All that will be discussed during the interview or in groups will be confidential. However, any disclosures which raise concerns about your safety or that of others will have to be passed on to appropriate authorities because of duty of care or in the public interest. At the end of focus group discussions, one of the researchers will read out the emerging key issues to be confirmed by members of the group.

Do I have to take part?

You are under no obligation to participate in this study. If you do decide to take part, you are free to withdraw at any time without giving a reason. If you do not take part or withdraw from the study at a later date, it will not disadvantage you in any way.

What will happen to the information collected from the discussions?

Your participation in this study and all information collected will be kept strictly confidential. The consent form you will be asked to sign will be the only written record of your full name associated with your participant record. Written records of the discussion will be labelled with your participant code only to ensure confidentiality. The digital voice recording of the discussions will be stored on a computer at NHS Havering and will only be accessed by the researcher. The voice recording will be deleted after a maximum period of five years. Consent forms will be kept in a locked filing cabinet at NHS Havering for a maximum of five years as well, after which time they will be shredded/ destroyed. All other information about you which is shared with others, for example any quotes that you may say during the discussion will be included in the dissertation write up and any subsequent publications will have your name and any other details about you removed so that you can not be recognized from it. This information will be identified by your participant code only.

What will happen to the results of this research?

The findings from this study will be utilized by the Havering Chlamydia screening team to improve their screening services for young people. The findings will also be used for the researcher's doctorate dissertation and may later be submitted for publication in a peer reviewed journal.

Who has approved this research?

This study has been approved by the School of Health Sciences and Social Care Research Ethics Committee, Brunel University and the Outer North East London National Health Service Research Ethics Committee.

If you have any questions about the conduct of this research, please contact the following:Researcher's Contact:

Anthony Wakhisi

Public Health Directorate, NHS Havering, St. Georges Hospital, Suttons Lane, Hornchurch, RM12 6RS, Tel. 01708465610

Email: anthony.wakhisi@havering.nhs.uk

Academic Supervisor's Contact:

Dr Geraldine Barrett

School of Health Sciences & Social Care, Brunel University, Uxbridge, Middlesex, UB8 3PH

Tel: 01895268740 Email: geraldine.barrett@brunel.ac.uk

NHS Havering Supervisor's Contact:

Dr Louise Dibsall

Public Health Directorate, NHS Havering, St. Georges Hospital, Suttons Lane, Hornchurch, RM12 6RS, Tel: 01708465610

Email: louise.dibsall@havering.nhs.uk

If you have any concerns or complaints about the conduct of this research, please contact:

Elizabeth Cassidy,

Chair, School of Health Sciences and Social Care Research Ethics Committee, Brunel University

Tel: 01895 268736

Email: elizabeth.cassidy@brunel.ac.uk

Appendix 5.3: Parent/Carer Consent Form



Title of research study: Factors associated with Chlamydia screening and prevalence among young people in Havering.

Initial box to agree

- I understand that the participation of my child in this study is completely voluntary and that he/she can withdraw at any time without giving reason
- I confirm that I have read and understood the information sheet provided for this study
- I confirm that the researcher has explained the nature and purpose of the study and I have had an opportunity to ask questions
- I give permission for any quotes taken from the discussions to be used in the final report
- I understand that my child will only be identified by his/her participant code printed at the bottom of this sheet
- I understand that consent form and CD recording of the discussion will be kept in a locked filing cabinet according to the Data Protection Act 1998
- I know who to contact if I have any question/concerns about my child's participation and I have their contact details
- I hereby fully and freely give consent for my child to take part in this study

PARTICIPANT

PRINT NAME **SIGNED** **DATE**

RESEARCHER

PRINT NAME **SIGNED** **DATE**

Participant code _____

Appendix 5.4: Participant Description

This form is to be filled by each participant before commencement of interview/discussion

Name
Sex
Age
Residence (postcode)
Occupation
Ethnicity (tick): White <input type="checkbox"/> Black <input type="checkbox"/> Mixed <input type="checkbox"/> Asian <input type="checkbox"/> Others (specify) -----

For official use only

Venue of FGD/Interview -----

Date & Time of FGD/Interview -----

Tape recorded? Yes / No

Identification number of FGD/Interview (*This number should be used on all pages of notes and transcripts of this FGD/Interview*) -----

Appendix 5.5: Focus Group Discussion Topic Guide

Background information

- Reminder on voluntary participation
- Discuss confidentiality.
- Purpose of group discussion
- Introductions

Main topics

About Knowledge of Chlamydia

- What is your understanding of the term Chlamydia?
- What are the symptoms of Chlamydia infection
- How is Chlamydia spread?
- Can Chlamydia be treated?
- How did you know about Chlamydia?
- Do you think Chlamydia is a common problem among young people in Havering?

About Chlamydia Screening

- What do you know about screening tests for Chlamydia?
- Why do some young people get tested for Chlamydia?
- What discourages other young people from getting tested for Chlamydia?
- What can health workers do to encourage more young people to get tested for Chlamydia?

About emotional reaction to Chlamydia diagnosis

- If you were tested for Chlamydia and found positive, how would you feel?
- How would you feel about telling your partner?
- What kind of support would you need from health workers?

About access to information and services

- What do you think you and other young people should be told about Chlamydia?
- Where would you like to access this information?

About Chlamydia screening sites

- What are the places you can get a screening kit in Havering?
- Where would you be comfortable acquiring one? (pharmacy, GP surgery, School/college nurse, youth club, sexual health clinic, local hospital)

Appendix 5.6: Interview Topic Guide

Background information

- Introduction
- Reminder on voluntary participation
- Reassurance of confidentiality
- Purpose of interview

Main topics

About Knowledge of Chlamydia

- What is your understanding of the term Chlamydia?
- What are the symptoms of Chlamydia infection
- How is Chlamydia spread?
- Can Chlamydia be treated?
- How did you know about Chlamydia?
- Do you think Chlamydia is a common problem among young people in Havering?

About Chlamydia Screening

- What do you know about screening tests for Chlamydia?
- Why did you get tested for Chlamydia?
- Will you go for another test in future, if not why?
- What discourages other young people from getting tested for Chlamydia?
- What can health workers do to encourage more young people to get tested for Chlamydia?

About emotional reaction to Chlamydia diagnosis

- How did you feel when you received your results?
- Did you tell your partner?
- What kind of support did you get from health workers after the test? Was it adequate?

About access to information and services

- What do you think you and other young people should be told about Chlamydia?
- Where would you like to access this information?

About Chlamydia screening sites

- What are the places you can get a screening kit in Havering?
- Where would you be most comfortable acquiring one? (pharmacy, GP surgery, School/college nurse, youth club, sexual health clinic, local hospital)

Appendix 5.8: Study Advertisement

NHS
Havering

Brunel
UNIVERSITY
WEST LONDON

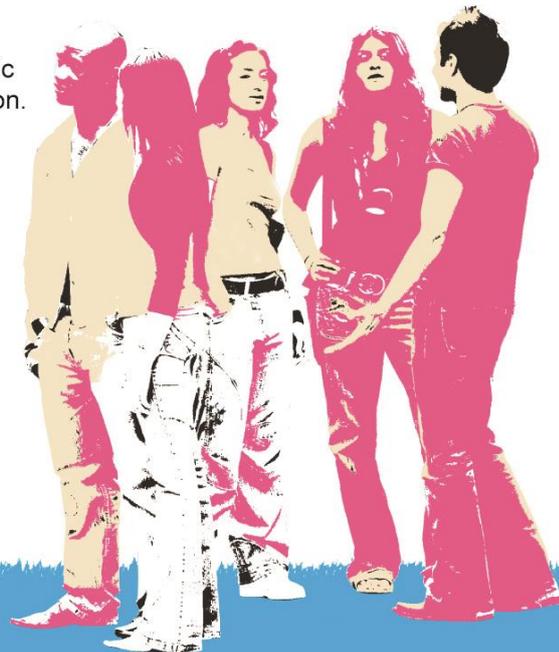
Live in Havering? Aged 16–24? help us **c2it** and get a £10 music voucher!

We're interested in your opinion on what motivates or puts young people off getting tested for Chlamydia. What you tell us will help to shape the service to make it as easy and appealing as possible for other young people.

You don't need to have been tested before, or even know anything about it - we still want to hear what you think. We'll do this by either arranging small discussion groups or individuals having a private conversation with one of our friendly team.

If you're selected to participate, you'll be given a £10 HMV music voucher at the end of the session.

For registration and more information, talk to one of the staff at the Centre.



If you've got any questions or comments about our service, you can speak to one of the guys in the team – Sarah, Charlotte or Anthony – by calling 01708 465 610 / 01708 465 733, emailing c2itnow@nhs.net or texting "WHAT I THINK" to 07508 341208

Appendix 5.9: Participant Support Services Information

In case you feel distressed or anxious during an interview or focus group discussion please let the researcher know. You will be free to withdraw completely or take a short break and resume when able to. The following are important contacts in case you require further help afterwards.

Your GP (Doctor)

Contact your local GP. If the surgery is closed, please telephone your doctor's usual number. An answer-phone message will give you information on how to access a doctor out of hours.

Queen's Hospital

For pregnancy testing, Contraception, Sexually transmitted infections screening and treatment
Romvalley Way, Romford, Essex, RM7 0AG, Tel. 02089246400

NHS Direct

NHS Direct provides confidential health advice 24 hours a day. Call NHS Direct on 0845 4647 or log on to NHS Direct Online www.nhsdirect.nhs.uk

Chrysalis counselling project

Free confidential counselling service to young people living, educated or working in Havering. For further information, call Lara on Tel: 07930 908 965

Rape and Sexual Abuse Support

Free and confidential support service for anyone affected by rape.

Web: www.rasasc.org.uk

Tel: 08451 221 331 (Mon-Fri, 12pm-2.30, 7pm-9:30pm. Sat-Sun, 2.30pm-5pm)

Email: info@rasasc.org.uk

Samaritans

Confidential help for anyone who is experiencing feelings of distress or despair, including those which may lead to suicide.

Web: www.samaritans.org.uk

Tel: 08457 909090

Sexual Health Help Line

Information, advice and counselling on all aspects of HIV, AIDS and sexual health.

Web: www.condomessentialwear.co.uk

Tel: 0800 567123

Sex-wise

A helpline available to young people concerned about any sex-related issue. Trained helpers can also provide details of your nearest sexual health clinic.

Web: www.ruthinking.co.uk

Tel: 0800 28 29 30

Brook Advisory Centres

Advice, counselling and medical help on contraception, pregnancy, abortion and sexual health.

Web: www.brook.org.uk/

Tel: 0808 802 1234 **Text:** 81222 (text BROOK INFO for information or BROOK SERVICE + your postcode for local services)

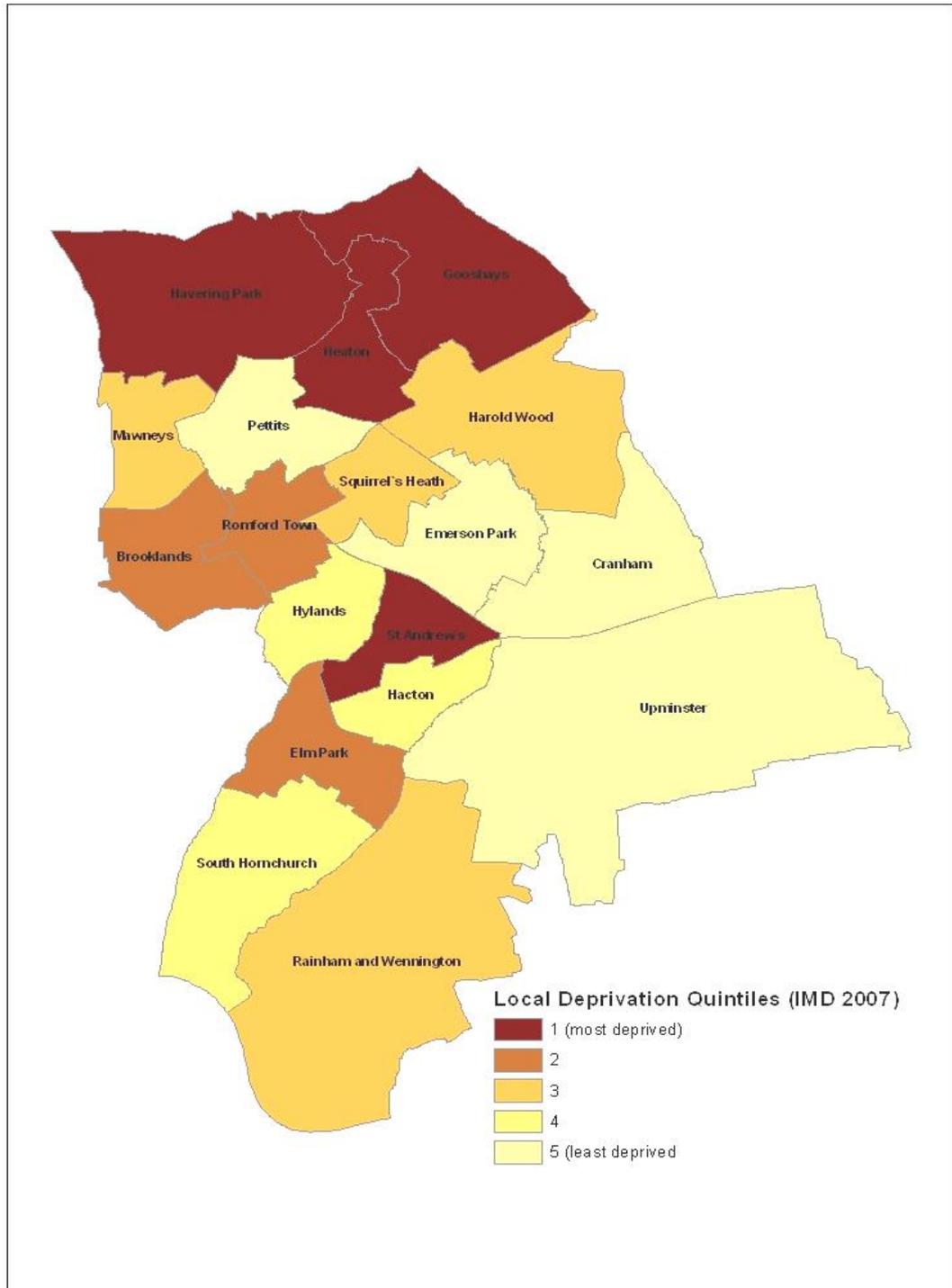
Appendix 5.10: Havering deprivation scores aggregated to ward level

Ward Name	IMD Quintile (a)	Local Rank (b)	IMD Score (c)
Gooshays	1 (most deprived)	1	32.18
Heaton	1 (most deprived)	2	28.89
St Andrew's	1 (most deprived)	3	23.18
Havering Park	1 (most deprived)	4	21.65
Romford Town	2	5	18.68
Brooklands	2	6	18.11
Elm Park	2	7	16.66
Rainham & Wennington	3	8	16.56
Harold Wood	3	9	16.42
Mawneys	3	10	16.2
Squirrel's Heath	3	11	13.46
South Hornchurch	4	12	11.15
Hylands	4	13	11.1
Hacton	4	14	10.03
Pettits	5 (least deprived)	15	9.84
Emerson Park	5 (least deprived)	16	8.78
Cranham	5 (least deprived)	17	7.68
Upminster	5 (least deprived)	18	6.7
Havering			16.7

Source: NHS Havering, Key Health Data

- a. The 2007 IMD local quintiles are provided. For example, if the value is 1, it means that the ward is in the 20% most deprived wards locally, and a value of 5 means that the ward is in the 20% least deprived wards locally.
- b. The local ranks are provided with a value of "1" denoting the most deprived areas locally and 18 denoting the most affluent areas locally.
- c. The IMD scores for the wards of Havering the higher the IMD score, the more the deprivation.

Appendix 5.11: A Map of Havering Local Deprivation quintiles by ward (IMD, 2007)



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Appendix 5.12: Chlamydia Fact Sheet

What is Chlamydia?

Genital Chlamydia infection is a sexually transmitted infection caused by the bacterium, *Chlamydia trachomatis*. It is the most commonly reported bacterial sexually transmitted infection at GUM clinics in the United Kingdom.

Who gets Chlamydia?

Anyone who has sex can get genital chlamydial infection. The people at risk are those having unprotected sexual intercourse (i.e. not using condoms), especially those with more than one sexual partner and those who change sexual partners. Eye infection can occur in adults and in infants who are born to infected women. Rates are highest in young people, especially men and women under 25 years of age.

How do you catch Chlamydia?

Genital Chlamydia is a sexually transmitted infection. It is caught through unprotected vaginal, oral or anal sex or genital contact with an infected partner. An infected person will frequently have no symptoms of Chlamydia, however he or she can still infect a partner without knowing. Genital Chlamydia cannot be caught by casual contact (toilet seats, swimming pools, saunas). Pregnant women can pass infection to infants during birth.

How do you know that you have Chlamydia?

At least 50% of infected men and 70% of women do not have any symptoms and consequently a large proportion of cases remain undiagnosed. A person may carry the infection, have no symptoms and be able to pass it on to any sexual partner during that time. Of those with symptoms of genital Chlamydia, women may experience some unusual vaginal discharge, bleeding between periods, pain when passing urine and lower abdominal pain. Men may experience discharge from the penis, burning and itching in the genital area, and pain when passing urine. Symptoms may persist but in some cases, they may only last for a few days then disappear. If symptoms do occur, they start 1-3 weeks after becoming infected.

How serious is Chlamydia?

If left untreated, chlamydial infections can progress to serious reproductive and other health problems. In women, untreated infection can cause chronic pelvic pain and lead to pelvic inflammatory disease (PID), ectopic pregnancy and infertility. An infected pregnant woman, who does not receive antibiotic treatment prior to delivery, can also pass the bacteria on to her baby causing it to be born with conjunctivitis (inflammation of the lining of the eye) or pneumonia. However, both are treatable. In men, complications are rarer but can include epididymitis (pain and swelling around the testicles) and Reiter's Syndrome (arthritis).

What is Pelvic Inflammatory Disease (PID)?

Pelvic inflammatory disease affects the uterus, ovaries and fallopian tubes and is caused by micro-organisms migrating from the lower to upper genital tract.

Chlamydia is a common cause of PID and the risk of PID increases with the number of Chlamydia episodes.

What are the complications of PID?

Up to 1 in 5 women who develop PID will consequently become infertile and the risk of ectopic pregnancy greatly increases. Furthermore, the risk of infertility will increase if a woman has more than one episode of PID. The consequences of PID are not easily treatable and can have lifelong implications for the individuals concerned.

How can you protect yourself against Chlamydia?

Sexually active men and women can reduce their risk of Chlamydia by reducing their numbers of partners, reducing frequency of partner change, and by using condoms correctly and consistently during sexual intercourse.

How is Chlamydia diagnosed?

Recently, new laboratory tests have been introduced to diagnose genital chlamydial infections using non-invasive samples, such as urine or self-taken vulva-vaginal samples. Most testing for sexual infections is done in STI clinics (also called genitourinary medicine or GUM clinics) which have specialist facilities for testing and systems for contacting, testing and treating sexual partners. Details of these clinics can be found in the telephone book, from your local hospital or from the STI clinic directory on the web site of the British Association for Sexual Health and HIV (www.bashh.org). Clinics are confidential and will not inform GPs of any results, unless specifically requested to do so. You can attend one of these clinics at any age (even if you are under the age of consent to sex which is 16). The National Chlamydia Screening Programme works to ensure that all sexually active men and women under 25 years of age are aware of Chlamydia, its effects, and have access to services providing screening, prevention and treatment to reduce their risk of infection or onward transmission. To find out more about the NCSP log on to: <http://www.chlamydia-screening.nhs.uk>.

Some people now choose to be tested for Chlamydia and some other infections when starting a new sexual relationship.

A person with confirmed Chlamydia should also be offered screening for other sexually transmitted infections, which may be present without symptoms.

How is Chlamydia treated?

Once diagnosed, uncomplicated chlamydial infection is easy to treat and cure.

There are a number of antibiotics which are used to treat chlamydial infection.

Azithromycin (single dose) or Doxycycline (twice daily for 7 days) are currently the most commonly prescribed treatments. Recent sexual partners (within the last six months) of an infected person should be tested and treated to prevent re-infection and further spread of

disease. Partners need to be tested whether or not they show symptoms of infection and may be offered treatment whether or not a positive diagnosis is made.

What is the National Chlamydia Screening Programme (NCSP)?

The NCSP in England aims to:

Prevent and control Chlamydia through early detection and treatment of asymptomatic infection, reduce onward transmission to sexual partners and prevent the consequences of untreated infection. The NCSP aims to ensure that all sexually active men and women under 25 years of age are aware of Chlamydia, its effects, and have access to services providing screening, prevention and treatment to reduce their risk of infection or onward transmission.

Source: Health Protection Agency, England. Available at:

<http://www.hpa.org.uk/Topics/InfectiousDiseases/InfectionsAZ/Chlamydia/GeneralInformation/> Accessed 15.07.2011

Appendix 5.13: Brunel University Research Ethics Committee Approval Letter

Brunel
UNIVERSITY
WEST LONDON

School of Health Sciences and
Social Care

Research Ethics Committee

School of Health Sciences and
Social Care
Brunel University,
Uxbridge
Middlesex UB8 3PH
Telephone: +44 (0)1895 274000
Web www.brunel.ac.uk

8 March 2010

Proposer: Anthony Wakhisi - DrPH

Title: Decision to be tested for Chlamydia: Barriers and Motivating Factors Among Young People in Havering

Reference: 10/02/DPH/01

Letter of Approval

The School Research Ethics Committee has considered the amendments recently submitted by you in response to the Committee's earlier review of the above application

The Chair, acting under delegated authority, is satisfied that the amendments accord with the decision of the Committee and 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.*

NB:

- 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 School of Health Sciences and Social Care 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 School 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 School Research Ethics Committee reserves the right to sample and review documentation, including raw data, relevant to the study.



David Anderson-Ford
Chair, Brunel University Research Ethics Committee
School Research Ethics Officer, School of Health Sciences and Social Care

Appendix 5.14: NHS Research Ethics Committee Approval Letter

National Research Ethics Service

North West London REC 2

Royal Free Hospital NHS Trust
Royal Free Hospital
South House, Block A
Pond Street
London
NW3 2QG

07 July 2010

Mr Anthony Wakhisi
Centre for Public Health Research
Brunel University
Uxbridge, Middlesex
UB8 3PH

Dear Mr Wakhisi

Study Title: Decision to be tested for Chlamydia: Barriers and Motivating Factors Among Young People in Havering
REC reference number: 10/H0720/33
Protocol number: 10/02/DPH/01

Thank you for your letter of 16th June, responding to the Committee's request for further information on the above research and submitting revised documentation.

The further information has been considered on behalf of the Committee by the Chair.

Confirmation of ethical opinion

On behalf of the Committee, I am pleased to confirm a favourable ethical opinion for the above research on the basis described in the application form, protocol and supporting documentation as revised, subject to the conditions specified below.

Ethical review of research sites

The favourable opinion applies to all NHS sites taking part in the study, subject to management permission being obtained from the NHS/HSC R&D office prior to the start of the study (see "Conditions of the favourable opinion" below).

Conditions of the favourable opinion

The favourable opinion is subject to the following conditions being met prior to the start of the study.

Management permission or approval must be obtained from each host organisation prior to the start of the study at the site concerned.

For NHS research sites only, management permission for research ("R&D approval") should be obtained from the relevant care organisation(s) in accordance with NHS research governance arrangements. Guidance on applying for NHS permission for research is available in the Integrated Research Application System or at <http://www.rdforum.nhs.uk>.
Where the only involvement of the NHS organisation is as a Participant Identification