GENERAL PUBLIC VIEWS

ON COMMUNITY PHARMACY SERVICES IN PUBLIC HEALTH

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A thesis submitted in partial fulfilment of the

requirements of Liverpool John Moores University

for the degree of Doctor of Philosophy

January 2013

The following tables have been omitted on request of the university –

ABSTRACT

Community pharmacists are increasingly providing public health services in response to government policies. Published literature regarding the views of the general public related to pharmacy public health services, although important in ensuring uptake of these services, was limited. This study series aim to explore the general public's perspective on how to maximise the appropriate utilisation of community pharmacy services for improving public health.

A large study comprising four sequential phases was designed and conducted in Sefton borough. Initially, to gather background information, focus group discussions (FGDs) and semi-structured interviews were undertaken with the general public and key stakeholders. The second phase involved the development and testing of a questionnaire extracted from the qualitative findings and a literature review. The questionnaire focused upon seven pharmacy public health services related to cardiovascular risks as well as views on factors influencing pharmacy use and advertising/promotion techniques. Geodemographic concepts, widely recognised in public health, were also included to identify potential benefits to pharmacy practice research. Next, a large scale survey was administered among the general public using eight survey modes, to additionally evaluate the range of methods available for gathering public views. Finally, survey findings were evaluated by representatives of survey respondents using a FGD.

Results indicated that, although stakeholders considered that community pharmacy can make an extensive contribution in supporting public health, pharmacy public health services are used at a relatively low level by the general public and

awareness of services is also low. Survey respondents indicated a willingness to use services in the future. Important factors influencing pharmacy use include loyalty, location and convenient accessibility. Appropriate promotional campaigns are a key facilitator to help raise the public's awareness.

The findings will help the profession to increase uptake of pharmacy public health services. The variety of survey modes used proved beneficial in obtaining diverse population demographics, with street survey being the optimal technique, however, the potential for social desirability bias must be considered with this and other interviewer-assisted approaches. MOSAIC^{TM} as a geodemographic tool is potentially useful in helping to target services for specific groups and is recommended for use in further research.

DEDICATION

Dedicated to my parents, grandparents and extended family

ACKNOWLEDGEMENTS

I would like to express my profound gratitude to several key persons who have been involved continuously throughout my PhD study. First of all, I am deeply grateful to Professor Janet Krska who initially offered me this valuable academic opportunity of studying at Liverpool John Moores University. I also appreciate all support I received, particularly the academic direction provided by all of my supervisory team members including Professor Janet Krska, Dr Adam Mackridge, Dr Penelope Phillips-Howard, Jacqueline Richards and Dr Siritree Suttajit. Without your contributions, I could not have completed this doctoral degree. Also, I would like to thank Joanna Sayer, Barry Toner, Nerman Bahig and Emma Donnelly for help in data gathering for the main survey.

I would like to acknowledge the Royal Thai Government who has generously funded the full scholarship for my PhD study. This is one of the greatest and most valuable opportunities in my life; one which has strengthened my potential not only in my academic career but also in many other aspects of life.

I would like to express my special thanks to my good friend and language coach, Larry Simons, who has willingly contributed his time to proof-read many pieces of my PhD work as well as helping me with numerous issues relating to the use of academic English. You have built up my confidence in using the English language and helped me to become comfortable living in an English speaking environment.

I also wish to thank my many other friends especially the Liverpool Thai Society members for helping me acclimatise to Liverpool and for providing great psychological support. You have not only helped me to feel connected, but at the same

time, we have had great fun and many happy times together, while developing strong friendships which made my time in Liverpool even more beautiful and memorable.

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ABBREVIATIONS

Abbreviation	Meaning
AAPOR	American Association for Public Opinion Research
AUR	Appliance Use Review
BMI	Body Mass Index
CATI	Computer-Assisted Telephone Interview
CEA	Cost-Effectiveness Analysis
CI	Confidence Interval
CVD	Cardiovascular Disease
DoH	Department of Health
Drop-off-OGN	Questionnaires dropped-off at public/private organisations
GCSE	General Certificate of Secondary Education
FGD	Focus Group Discussion
FIP	International Pharmaceutical Federation
GP	General Practitioner
ICER	Incremental Cost-Effectiveness Analysis
IMD	Index of Multiple Deprivations
LJMU	Liverpool John Moores University
LSOA	Lower Super Output Area
MUR	Medicine Use Review
NHS	National Health Service
NHSCB	National Health Service Commissioning Board
NMS	New Medicine Service

Abbreviation	Meaning
OR	Odds Ratio
OTC	Over The Counter
PCT	Primary Care Trusts
Postal-OGN	Postal survey to public/private organisations
SAC	Stoma Appliance Customisation
SE	Standard Error
SOA	Super Output Area
SPSS	Statistical Package for Social Sciences
UK	United Kingdom
US	United States
WHO	World Health Organisation

CHAPTER 1 STUDY BACKGROUND

1.1 INTRODUCTION

Community pharmacy's provision of public health services is the main focus of this study, since community pharmacists' roles have changed and they have begun to contribute significantly to public health in the last few decades worldwide.[1, 2] The study was conducted in England which has developed a distinctive model based on well-established evidence,[3, 4] encouraging community pharmacists to provide public health services beyond medicine supply.[5] Previously there was little published literature in relation to the views of the general public on this subject.[6] The 'general public' refers to individual members of society,[7] including healthy and unwell people, and both users and non-users of services. Regarding societal perspectives on pharmacy service provision, most reports have covered findings based on service users' opinions. While it may be assumed they represent the general public, views could be biased due to their experience of service use. For all these reasons, a large study investigating the general public's views on community pharmacy services in public health was needed.

Since response rates in health surveys have been decreasing,[8] testing a variety of survey modes for collecting data is also of great interest in order to enhance the study's ability to include all demographic sectors among the general public and to maximise responses. Moreover, the study provided an opportunity to apply geodemographic concepts, which had become widely recognised to be of use in public health in the United Kingdom (UK).[9, 10] This study, therefore, sets out to design a

mixed-methods study in order to achieve the goals described above in anticipation that the findings could reflect the public's views and help improve pharmaceutical policy further.

Therefore, the literature review covered a comprehensive range of related content including;

- Public health and community pharmacy,
- Pharmacy public health services,
- Community pharmacist's views towards pharmacy public health services,
- General public's views towards pharmacy public health services,
- Survey modes used in health service research,
- Geodemographic concepts and their application in health research

1.2 PUBLIC HEALTH AND COMMUNITY PHARMACY

1.2.1 Public health

'Health' as defined by the World Health Organisation (WHO) is *"a state of complete physical, mental, and social well-being and not merely the absence of disease or infirmity"*.[11] This is widely accepted as a goal for all health professionals contributing the best practice of healthcare to maintain health for individual people.

'Public health' has a wider emphasis, encompassing the health of populations or society.[12] The classic definition of public health was provided in 1920 by Winslow,[13] *"Public health is the science and art of preventing disease, prolonging life, and promoting physical health and efficiency through organized community efforts for the sanitation of the environment, the control of community infections, the education of*

the individual in principles of personal hygiene, the organization of medical and nursing service for the early diagnosis and preventive treatment of disease, and the development of the social machinery which will ensure to every individual in the community a standard of living adequate for the maintenance of health" This definition clearly describes core concepts in public health and is still valid today, despite our globalised environment.

In the past, public health focused predominantly on the prevention of communicable diseases, e.g. tuberculosis, malaria, HIV, both promoting prevention programmes and providing appropriate treatments for such diseases. More recently, public health has evolved further to include the prevention of non-communicable disease, e.g. cardiovascular disease, diabetes and cancer, since they have become major causes of death and disability for the entire global population.[12, 14, 15]

Inequality in health is also a concern for public health workers. In 1980 the Black report was published, which identified that illness and death rates were unequally distributed among the British population.[16-19] Wanless[15] later commented in the report *'Securing good health for the whole population'* that the issue was not endorsed by the government until 1998, by which time this disparity was likely widening. Pomerleau and McKee[20] recommended four strategies to reduce health inequality;

- Enhancing people's abilities to take responsibility for their individual health,
- Empowering local community groups to identify and solve their health problems,
- Improving facilities and accessibility of health services,

- Reducing the economic and social gap by paying attention to housing, education and employment of the general population.

More recently, the Marmot Review, published in 2010, has reiterated that a social gradient in health has continued in England – *'the lower a person's social position, the worse his or her health'*.[21] Marmot et al[21] suggested that universal action is needed to eliminate health disparity and the actions should focus on;

- Quality of child birth,
- Maximise people's capacities to control their lives,
- Increase opportunities for fair employment,
- Ensure a healthy standard of living for all,
- Create and develop healthy and sustainable places and communities,
- Strengthen the role and impact of ill health prevention.

Later, Marmot[22] and other international colleagues additionally commented that understanding social determinants will also help reduce gap of inequality in health. To date, inequality in health still exists and is closely related to people's socioeconomic status. Although the strategies suggested by these two groups[20, 21] to reduce health disparity are slightly different in details, improving quality of primary care to strengthen the public's health seems a significant solution intended to narrow the health inequality gap.

1.2.2 Public health practitioners

Public health practitioners refer to professionals who spend the majority of their working time providing health interventions to individuals and communities.[3] Primary care professionals, e.g. general practitioners (GPs), nurses, midwives and

other related professionals, play important roles in public health practice – thus are recognised as public health practitioners. This needs inter-disciplinary engagement and expertise from relevant health professionals providing appropriate interventions/services for disease prevention and treatment.[12] Community pharmacists are competent and well-trained health professionals. They routinely deliver services to both individual patients and society.[2] They, together with pharmacy staff, routinely interact with both healthy and ill members of the public. All these support the concept that community pharmacy is a recognised health setting within primary care and community pharmacists should be thus recognised as public health practitioners.

Up to this point, it is clear that the community pharmacist is one of a number of distinctive primary health professionals. Additionally, community pharmacy could provide services extending well beyond medicine supply, thus there is an expectation they could help to narrow inequalities in health. Global policy has also directed the pharmacy profession to continue contributing benefits to the public and individual patients. This indicates that the pharmacy profession nowadays should engage with public health to improve health for the society.

1.3 PHARMACY PUBLIC HEALTH SERVICES

1.3.1 Paradigm shift of pharmacy practice

The practice of community pharmacy has been evolving over the last three decades. In 1988, the WHO assembled consultative members to review roles and contributions of pharmacists in health system. The meeting report covered roles of

community pharmacists, acknowledging that their principal tasks relate to medicine supply in accordance with prescriptions or non-prescription medicines. However, while providing this fundamental service, community pharmacists have additional opportunities to provide advice to help promote appropriate use of medicines as well as other health information.[1] In 1990, the term 'pharmaceutical care' was introduced by Hepler and Strand,[23] which is *'the responsible provision of drug therapy for the purpose of achieving definite outcomes that improve a patient's quality of life'*.[24] This term was subsequently widely accepted as a valuable extension to the role of pharmacists. Pharmaceutical care is a patient-focused service aimed at achieving optimal outcomes of medicinal treatment that needs multi-disciplinary work.[23] The role of pharmacists in pharmaceutical care is to identify, resolve and prevent both potential and actual drug-related problems.[24] Pharmacists can conduct pharmaceutical care activities either in a hospital or a community pharmacy.[23] Although pharmaceutical care emphasises the individual patient, the WHO and the International Pharmaceutical Federation (FIP) also suggest that this professional service can impinge on the population's health.[2] In 2006, the WHO and the FIP worked collaboratively to propose a new guideline for pharmacy practice advocating pharmacists everywhere to rise to the challenge of enhancing rational drug use and evolving the pharmacy profession worldwide.[2] The trend within the pharmacy profession has thus shifted from traditional medicine supplier (a product emphasis) to service provider (patient-centred and population-based care), the latter being considered as of greater benefit to the public health.[2, 25]

1.3.2 Pharmacy public health services

The WHO and the FIP report,[2] *'Developing pharmacy practice a focus on patient care, Handbook – 2006 Edition'*, mentioned that the potential of pharmacists to improve public health has remained largely untapped. They classified pharmaceutical activities, excluding medicine supply and dispensary tasks, into several levels;

- Individual patient level refers to pharmaceutical care and clinical pharmacy services provided by pharmacists which could have impact on the population's health.
- Institutional level (hospital, health organisation, pharmacy) refers to activities such as creating medicine formularies, developing treatment guidelines. These activities are typically managed by Drug and Therapeutics Committees or by National Essential Medicines Committees.
- National and local authority level refers to activities involving policy planning, legislation and regulation, e.g. decide which pharmaceutical service should be provided in community pharmacy.
- Community and population level refers to activities relevant to public health interventions, e.g. health promotion, disease prevention and lifestyle advice.[2] The various public health roles of pharmacists have been summarised.[26]

Potential services encompass interventions for health education, protecting health against harm caused by medicines, preventing the spread of communicable diseases, screening for and supporting non-communicable disease management, closely aligning with activities at community and population level described above.[2] Krska et al[26] outline how medicine management is also one of pharmacist's roles in

public health. Medicine management covers pharmaceutical activities for individuals (e.g. review of repeat prescriptions, clinical assessment) and strategies designed to improve overall population health which basically relate to medicines use control (e.g. drug formularies, treatment guidelines).

From the pharmaceutical activities described above, there are two major types of activities in public health; (i) policy-relevant activities (macro level) which refer to actions/strategies managed at institutional and national level aiming to optimise medicines use and minimise the spread of disease and (ii) activities at patient level and at community/population-based level (micro level) which refer to services provided by pharmacists or pharmacies intending to help improve the overall health of the population including some medicine management activities for individuals. The latter type is the scope of services covered by this study and termed 'pharmacy public health services'.

1.3.3 Evolution of pharmacy public health services in the United Kingdom

The United Kingdom (UK) is comprised of four countries; England, Scotland, Northern Ireland and Wales. England and Scotland have separate Parliaments, while the Government Assembly is organised in Northern Ireland and Wales enabling them to administer their own internal affairs in particular for education and health care systems.[27] Community pharmacy in the UK is a professional health entity, which has a long and continuous history of contributing to the improvement of public health. Anderson[28] reviewed the history of UK community pharmacy in public health, which started in the 19th century. Prior to 1948, community pharmacists were primarily involved in the making, selling and dispensing of medicines along with giving health advice, which was informal and not remunerated by government, but by pharmacy

customers. The community pharmacist was thus widely respected by community members. After the establishment of the National Health Service (NHS) in 1948, the role of the community pharmacy was significantly transformed with emphasis on the dispensing of pharmaceuticals under contract to the NHS, which greatly redefined the nature of the pharmacists' work and dramatically increased their workloads. In 1981, the British community pharmacy profession was critiqued by Dr Vaughan (The Minister of Health at that time) who suggested that the future of community pharmacy practice was in doubt. After this criticism, the campaign promoting the role of the community pharmacist as an expert on medicines was introduced in 1982, *'Ask your pharmacist: you'll get the help you need'*, to improve the public's awareness of the role of pharmacists. In 1986, The Nuffield Report[28] was published in order to respond to the Trustees of the Nuffield Foundation, who requested a review of the structure of pharmacy practice and its contribution to health care. This report stated that the pharmacy profession could have an indispensable contribution to the health care system. A Healthcare in the High Street scheme, the first national distribution of health education leaflets through pharmacies, was introduced in 1986.[28] Health leaflets covered issued related to contraception, smoking cessation, prevention of heart disease and drug abuse. In 1987, the white paper *'Promoting better health'* was published as a guide to improve primary health care. Since then, the role of the community pharmacist in public health has extended and increased. Public health activities started with distributing health education leaflets and providing health promotion in relation to smoking cessation services, services to drug users and sexual health.

In 2005, Armstrong et al[3] published a systematic review, including peer-reviewed and non-peer-reviewed literature from 1990-2002, to evaluate how community pharmacists had contributed to public health in the UK. Policies were developed relevant to pharmacy public health across the four countries which were set out differently depending on regional health needs. The Department of Health (DoH) of England released several policy documents promoting community pharmacy to help overcome public health issues in 2003, e.g. *'Tackling Health Inequalities: A Programme for Action', 'A Vision for Pharmacy in the New NHS'*. The Scottish NHS launched the white paper *'Pharmacy for Health: The Way Forward for Pharmaceutical Public Health in Scotland'* to utilise the full potential of community pharmacists to improving public health. The National Assembly of Wales promoted, *'Act now for the future', 'Reduce poverty and achieve equality',* aiming to improve health and reduce health inequalities for Welsh population. The DoH of Northern Ireland issued the policy *'Making it Better – A Strategy for Pharmacy in the Community'* highlighting that pharmacies can deliver services that improve public health.

This illustrates that pharmacy public health roles are recognised throughout the UK. The policies summarised that community pharmacies have the potential to improve the public's health in three ways; health improvement for individuals (e.g. advice on cardiovascular risk), health improvement for communities (e.g. health education and health inequality) and health protection (e.g. preventing sexually transmitted infections). In terms of the health problems being major causes of national morbidity, community pharmacists can deliver health services for a range of diseases, including coronary heart disease and risk factors, cancer, diabetes and other illnesses.

1.3.4 Pharmacy public health services in England

In 2005, the DoH of England launched a revised community pharmacy contractual framework. Community pharmacists hold contracts with local NHS organisations, called Primary Care Trusts (PCTs), for the provision of pharmaceutical services. The revised contract, for the first time, outlined the roles expected of community pharmacists, comprising of more established medicine-related services and additional public health services.[5, 28] Overall, the 2005 community pharmacy contractual framework divided services into three levels; essential, advanced and enhanced (Table 1-1). All levels of community pharmacy provision are remunerated.[5, 27, 29]

- Essential services must be provided by all community pharmacies, such as the supply of prescribed medicines. Essential services also include activities relevant to public health e.g. promoting healthy lifestyle, advice for self-care.
- Advanced services can only be provided by accredited pharmacists and the activity must be conducted in a private consultation area in which a pharmacist discusses and assesses the medicinal profile of patients and provides appropriate intervention according to suboptimal use of medicines or appliances. Services included at this level are the Medicine Use Review (MUR) and prescription intervention service, Appliance Use Review (AUR) service, Stoma Appliance Customisation (SAC) Service and New Medicine Service (NMS). Community pharmacists can choose to provide any advanced services if they meet requirements.
- Enhanced services are commissioned by PCTs. PCTs can commission enhanced services dependent on the needs of the local population. Examples of

enhanced services are smoking cessation assistance, needle exchange and supervised methadone consumption for drug addicts.

Regarding the enhanced services mentioned above, there is a wide range of public health services which PCTs can choose to commission in their authority areas, dependent on local health problems. The systematic review of community pharmacy's contributions to the public's health published previously[3] was updated,[4] to encompass a thorough literature search covering 1990-2007. The authors reported a range of public health areas where community pharmacists could be involved. (Table 1-2) Smoking cessation, lipid management, diabetes, emergency contraception, flu immunization and services to drug misusers were potentially among the pharmacy services which were supported with solid evidence. Additionally, services relating to cardiovascular disease and hypertension were being delivered but with somewhat less robust evidence. However, further research to evaluate services relating to weight management, sexual health, folic acid promotion and osteoporosis/falls prevention

was still needed. The DoH of England recognised the potential benefits of these activities[30] and subsequently announced the white paper *'Choosing Health Through Pharmacy'* in 2005 to guide community pharmacy development.[5] The DoH has identified an array of public health priorities, slightly different to the previous review,[4] in which community pharmacy could be involved in providing services. (Table 1-2) The services with the greatest potential impact on public health were identified as the reduction of smoking and prevention of heart disease, provision of emergency contraception, MUR, services for drug misusers and immunisation.[5]

Overall, it seems that smoking cessation support, emergency contraceptive supply, drug misuse services and immunization offered by community pharmacists are well supported by evidence. Although evidence was not strong for other services, these areas could also represent valuable opportunities. These two reports provide a useful basis on which PCTs could base decisions about which services should be delivered in each locality to support their local public health needs.

Table 1-2 Comparison of community pharmacy contributions to public health identified by DoH white paper and systematic review by Anderson et al

Recently, Agomo[31] published another systematic review regarding the role of the community pharmacist in public health covering literature during 1985-2010. The potential areas of pharmacy public health services summarised in this review were similar to the previous review[4] and the DoH's guidance.[5] Dominant public health themes for community pharmacy, reported in Agomo's review, included advice for smoking cessation, healthy eating and lifestyle advice, provision of emergency hormonal contraception, infection control and prevention, promoting cardiovascular health and blood pressure control and prevention and management of drug misuse.

In response to the 2005 contractual framework for community pharmacy,[29] many PCTs have started commissioning a range of public health services through community pharmacies. Portsmouth PCT initiated a project in 2009 known as 'Healthy Living Pharmacy' (HLP)[32] through which it is attempting to proactively provide advice in

the areas of smoking, obesity, alcohol, sexual health and other health concerns. Subsequently, pharmacy organisations and the DoH have encouraged other localities to establish HLP programmes for their local people.[33]

Previously researchers have paid attention to many public health issues but less on cardiovascular disease (CVD). CVD is a leading cause of death worldwide, estimated as 30% of all global deaths.[34] Of these deaths, about 7.25 million were due to (12.8%) ischemic heart disease and 6.15 million (10.8%) were due to stroke and other cerebrovascular disease.[35] This reinforces the global burden in terms of economic and public health.[36] CVDs are a group of disorders of heart and blood vessels. Heart attack and stroke are acute clinical events caused by the blockage of blood flow to the heart and brain which can lead to a number of manifestations or death.[34, 35] CVD risk factors comprise modifiable behavioural factors such as tobacco use, unhealthy diet and physical inactivity (which related to overweight or obesity), and other chronic diseases such as hypertension, dyslipidaemia and diabetes.[34, 37] Excessive alcohol consumption is also possibly considered as a CVD risk factor. Although the association is not strong, however, it is cautiously suggested that excessive alcohol consumption raises the blood pressure which can lead an individual to develop some cardiovascular events.[37] The WHO urges the world to reduce tobacco use, control healthy diet and engage in physical activities to prevent CVD.[29, 34] Services related to cardiovascular diseases, therefore, are potentially important to be incorporated into pharmacy public health services.

One of the potential opportunities for pharmacists to contribute to reducing CVD is through screening.[38] Screening is a systematic process used to identify individuals who are at risk of disorders or diseases. Screening comprises a wide range

of activities which may lead to diagnosis and subsequent action through health promotion or treatment to prevent or control diseases. This implies that screening involves the use of medical testing devices for diagnosis or may also use risk assessment questionnaires, which can help to plan necessary advice.[36] Community pharmacy has been shown to help prevent CVD by delivering CVD screening services.[38, 39] Dependent on the screening and CVD risk factors identified, community pharmacy-based CVD screening can then lead to an array of activities such as advice for behaviour modification and further health checks.[36] This systematic process could consequently impact on wider public health issues.

In England, as globally, CVD is one of the leading causes of death.[40] The DoH has stated in the policy agenda that community pharmacy has the potential to help prevent and reduce CVDs in the English population.[5] Sefton, located in North West England, is a local authority which has great socioeconomic diversity within its boundary. Its average deprivation is worse than the national average and CVD is one of the main disease burdens.[40, 41] The Sefton PCT has responded to the national agenda directing local health authorities to utilise community pharmacy to tackle public health. They commenced commissioning community pharmacy-based CVD screening in 2009 as an enhanced service under the framework of the 2005 community pharmacy contract.[42] Therefore, Sefton was chosen to be a geographical area for this study. Pharmacy public health services of interest were a range of services relevant to CVD risk factors including health advice for; stopping smoking, sensible drinking, losing weight and heart health, and health checks; blood pressure check, cholesterol check and blood sugar check.

1.4 VIEWS OF COMMUNITY PHARMACISTS TOWARDS PHARMACY PUBLIC HEALTH SERVICE

A community pharmacist is a person who may deliver pharmacy public health services; their own perception towards this role is therefore important. Anderson et al[43] systematically reviewed the literature about pharmacist's contribution to public health during 1990-2001. Twelve papers were found relevant, nine of which were UK studies. Anderson et al[43] identified that pharmacists viewed their roles in public health as important, however, they were more comfortable with delivering public health services related to medicines. Pharmacist's interventions were not proactive since the pharmacists were concerned with being seen as intrusive by customers, in particular, with sensitive health issues; e.g. emergency hormonal contraception, folic acid for the prevention of neural tube defects and misuse of drugs. The authors commented that training programmes in providing public health services were needed to encourage the community pharmacist to be more proactive.

Eades et al[30] conducted a further systematic review regarding public health in community pharmacy, covering literature during 2001-2010. Community pharmacists had a positive attitude towards public health services (e.g. emergency hormonal contraceptive, needle exchange for drug misusers) but they still perceived medicine-related services as their core responsibility. Community pharmacists are moderately confident in providing public health services. A number of barriers to public health services provision identified included lack of time, lack of space for counselling and lack of consumer's demand. Again, authors suggested further training is needed to coach community pharmacists on how to deliver public health services.

Recently, Al Hamarneh et al[44] conducted short interviews exploring community pharmacists' perceptions of their practice in two different countries, Northern Ireland and Canada. Researchers asked participants to explain in three to four words (or a phrase), from their perspective, what pharmacists do. This technique is believed to be able to elicit the 'top of mind' or automatic responses from interviewees. Data were analysed using the 'word-cloud' technique through which interpretation was made based on the actual text participants gave, rather than the researcher's suggestion. Results revealed that community pharmacists predominantly provide product-focused practice. However, community pharmacists in Northern Ireland provided patient-centred services more than those in Alberta, Canada. Authors suggested this might be due to the remuneration scheme which has been established for some extended roles of community pharmacists in Northern Ireland.

Another concern is that a community pharmacist plays the dual roles of being a health professional and a business man simultaneously.[3] Commercialism is likely to be an additional barrier to utilisation of the public health services offered by community pharmacy. A qualitative study found that a large pharmacy company has set a target for a number of MURs provided, in order to gain financial benefit from NHS funding.[45] As found by Rapport et al,[46] some community pharmacists felt under pressure to balance the demands of their pharmacy company, the patient's needs and their own standard of professionalism.

Perception/attitude towards pharmacy public health services from community pharmacists is important since they play important roles in delivering the services. From the reviews and the research study above, community pharmacists still regard medicine-related services as their principle tasks, although positive perceptions

towards public health services may be increasing over time. However, there is a need for action in order to eliminate the constraints of time, ensure privacy within the community pharmacy, balance between professionalism and business, and improve the public's awareness regarding the pharmacist's public health roles.

1.5 VIEWS OF THE GENERAL PUBLIC TOWARDS PHARMACY PUBLIC HEALTH SERVICE

A number of reports published both in the UK and internationally which focused on the opinion of the general public towards the role of community pharmacies were reviewed. Most of the reports were based upon the feedback of service users. From the international perspective, a systematic review of users' feedback on the contribution of community pharmacies during the period of 1990-2002, conducted by Anderson et al,[47] indicated that the community pharmacy was heavily used, particularly by women customers. However, most users did not view the pharmacy as a source of health information, but mainly as a means for obtaining prescribed medicines and receiving advice regarding minor health problems. The authors therefore concluded that community pharmacists were perceived as 'drug experts' rather than health and illness specialists. Eades et al[30] subsequently reviewed literature between 2001 and 2010 and found that perceptions of the general public had slightly changed compared to the previous review. The general public had a positive view of the community pharmacist as a public health service provider. However, most pharmacy users had rarely been offered unsolicited public health services. Again, those two reviews included studies which were mainly conducted

among pharmacy customers, hence their views may be influenced by experience of service use. Several further individual studies conducted in other countries were found. A study of consumer perceptions in Singapore found that most Singaporeans preferred to self-manage their minor ailments and would seek further advice only when their symptoms showed no improvement. This is in contrast to the UK where advice for minor ailments seemed to be acceptable to pharmacy users.[47] Moreover, less than 10% of Singaporean consumers would consider the community pharmacist as the first option for health advice.[48] In Jordan, the finding was similar, i.e. that the general public perceived pharmacists as a good source of advice only in cases of minor illness.[49] In Portugal, a qualitative study showed that people were highly satisfied with product supply services, while having low expectations regarding other services in the extended roles of pharmacies.[50] A telephone survey conducted in Taiwan indicated that about 40% of Taiwanese did not consider community pharmacists to be the first professional they would consult when seeking health information and a considerable proportions (35.9%) were not satisfied with home medication review service.[51] A telephone survey in Australia reported that the general public acknowledged the capability of pharmacists to provide CVD screening but their awareness of the service availability was relatively low.[52]

From a UK perspective, an ethnographic study conducted in ten pharmacies found that the greatest consumer need was for reliable information about products. This was in contrast to pharmacists and pharmacist assistants who felt that their primary responsibility was to provide the public with drug safety information.[53] Some patients believed that the pharmacy was not the appropriate place for dealing with their illnesses, even minor ailments.[54] While a survey conducted by the Patients

Association indicated that, although patients were willing to accept wider services from pharmacies (such as various health screenings), they also felt that pharmacies needed to create a more private area for delivering such services and stronger links with other health professionals in order to provide a high level of confidentiality and safety.[55] Moreover, few researchers have attempted to explore the opinions of the general public using face-to-face interviews or postal questionnaires with people in the community. A survey undertaken in Liverpool found that the majority of people recognised the pharmacy's role in the delivery of smoking cessation services, needle exchange and diabetes screening. In parallel, however, the public considered that the health problems needing to be tackled most urgently were smoking, cancer, healthy eating and exercise and cardiovascular disease.[56] A pilot survey conducted in Scotland revealed that the Scottish were likely to support community pharmacists in providing advice for healthy living, health screening and supporting other health professionals.[57] A more recent postal survey reported that the Scottish public accepted that community pharmacies should provide a weight management service but they were reluctant to use it due to the lack of privacy and scepticism about the knowledge of pharmacists to deliver this service.[58] In Northern Ireland, a survey of the general public found that people had a high level of awareness regarding the misuse of over the counter (OTC) medications and community pharmacists were involved in promoting the rational and appropriate use of drugs and medications.[59] A public survey conducted in North Staffordshire indicated that the majority of people had used pharmacies for obtaining prescription medicines, but only a small number of people had used them as a source for health advice.[60]

It appears that community pharmacists have great potential for contributing a number of valuable services to improve public health, and health policy makers such as the NHS have strongly supported delivering health services through pharmacies with the high expectation that doing so would help to narrow health inequalities. The community pharmacists (a service provider) have positive views on public health provision but identified dispensary workload limiting their time and consumer's demand in services as crucial barriers. The general public (the potential service user) primarily perceive the community pharmacist as a drug expert and source of advice specifically for minor illnesses. This probably indicates that pharmacy public health services are underused. Therefore, it will be worthwhile to explore the opinions of the general public regarding which kinds of services they feel they actually need prior to putting them in place. It is also useful to explore their views on how to maximise service uptake. The community pharmacy will thus be better placed to serve the real needs of the public.

1.6 SURVEY MODES USED IN HEALTH SERVICE RESEARCH

This current study aimed to administer a survey involving a large sample of the general public, therefore potential survey techniques were reviewed a priori to examine different methods in order to maximise survey responses. In health service research, surveys are commonly used to study the population's perceptions.[61] A valid, representative sample, in relation to demographic, socioeconomic or other attributes, is vital to ensure generalisability of the sample. Postal surveys are the most frequently used approach since probabilistic random sampling can be simply applied, thus

minimising the possibility of selection bias.[62] Unfortunately, the postal survey mode is affected by a low response rate.

Response rate is one of important indicators in the quality of survey research, and a 60% response is considered generally acceptable.[63, p.60-61] Systematic reviews report that the response rates for postal surveys of both health professionals[64] and on population lifestyles[65] have decreased in recent decades, a trend also found in surveys of hospitality industries.[66] This suggests a low response rate occurs in many areas of research which may limit the validity of any generalisation. Reports suggest ways to boost response rates, including shorter questionnaires, reminder letters or telephone calls, follow-up of non-respondents, incentives and other measures.[64-68] However, information on the costs of different approaches remains limited. Two Australian studies, both looking at a follow-up strategy, debated the use of a telephone follow-up reminder since study outcomes were contradictory.[69, 70]

Another approach to improving response rates is to combine multiple data collection modes. The Consumer Assessment of Health Plan survey evaluated the experience of the American public on their medical care, comparing results using two different survey modes; postal mailing and telephone interviews. The authors concluded that the two different survey modes had little effect on how key questions were answered.[71] A UK-based cross-sectional study also used a mixed-modes survey to evaluate how best to approach ethnic minority groups, and concluded they were able to combine data generated from the different survey modes to maximise their sample size but, at the same time, recommended that researchers do not automatically assume equivalence with multiple modes.[72] In Canada, a systematic review of community pharmacy practice research found that, while self-completion surveys are

predominantly used, researchers noted that future studies should consider the use of alternative survey approaches.[73] Similarly, researchers reporting outcomes on a lifestyle survey also recommended other survey modes, such as telephone surveys, face-to-face interviews or internet-based surveys, should be used to supplement data gathering and achieve a higher response rate.[65] Therefore, researchers from many countries suggest using multiple survey modes to gather data.

In both health and market research, survey modes generally used for data collection can be divided into two primary approaches; interviewer-assisted, such as face-to-face and telephone survey, and self-completion, such as the postal survey. For face-to-face survey modes, the questionnaire is administered face-to-face with respondents by a researcher/interviewer. Telephone survey mode is similar to face-to-face interviewing but conducted over the telephone. Postal survey mode is the technique used where respondents are sent the questionnaire by post and asked to complete it by themselves and return it, although this provides no assurance on who actually completed the survey.[61, 62, 74] Each survey mode has unique strengths and weaknesses, which are summarised in Table 1-3. To choose appropriate survey modes any researcher, therefore, should consider the study objectives and other limitations such as time, budget and number of research staff.

Table 1-3 Summary of advantages, disadvantages and features of each survey mode

The published studies cited above discussed the limitations of low response rates during surveys. Although several reports suggested the use of mixed-mode surveys to gather data, evidence on the equivalence of different survey modes in terms of efficiency and cost effectiveness is sparse, both relating to public perception of community pharmacy, and more broadly public perceptions on health care. If a mixed-mode survey is being considered, then the efficiency of each survey mode needs evaluation prior to designing data collection.

1.7 GEODEMOGRAPHIC SEGMENTATION

1.7.1 Geodemographic concept

The concept of 'social marketing' has become an area of great interest within the context of public health, particularly for tackling health inequalities. Geodemographic analysis is a social marketing tool used to classify (or segment) people according to where they live and incorporates socioeconomic data such as deprivation, lifestyle and consumer behaviour. The principle idea is that similar people live in similar types of neighbourhoods, go to similar places, do similar things and behave in a similar manner. During the last decade, the earlier idea of 'one size fits all' for health service development was not universally successful.[9, 10, 75] Geodemographic segmentation has been gradually used in the planning and development in a few areas of public health, for example HIV,[76] prenatal diagnosis of Down syndrome,[77] dental care.[78, 79]

There are a number of different types of geodemographic classification systems used for data analysis, most of which are computer-based programmes

provided by various commercial companies, such as ACORN, MOSAIC, P^2 People and Places, Personicx Geo and Personicx Household. Each tool has been developed slightly differently, thus categories derived in each tool are dissimilar.[75] (Table 1-4) Cost is the first concern for researchers when considering using a geodemographic tool. Some tools require an annual fee for subscription, while others are free of charge. The purpose of the research is also a factor influencing choice. For example, if the study was to emphasise developing household delivery, then a tool profiling household and postcode may be of greater benefit. However, if the analysis covers the overall situation, then the one providing the main geographic clusters should be considered.[10]

Abbas et al[10] suggested that geodemographic analysis could be applied to the health sector in many ways, some of which would be to target interventions and to inform health service planning, to understand the predominant characteristics or phenomena of local populations, enabling the most appropriate health services to then be established to address identified needs.[10] However, to date geodemographic segmentation has rarely been applied to pharmacy practice research. Only one study conducted in 1996 used the ACORN classification (one of a range of geodemographic tools) to differentiate pharmacy user type into ACORN segments. It was found that respondents in the segment termed 'striving' who are more likely to live in 'inner city' with the poorest conditions are the most frequent pharmacy users.[2]

Table 1-4 Comparison of leading geodemographic classification tools

1.7.2 Applications in health service research

A number of ways suggesting the usefulness of geodemographic segmentation have been proposed.[9, 10] This section is a summary of geodemographic applications that are relevant to health service research.

a. Population profiling

Geodemographic groups or clusters in every tool are described by narrative information derived from multi-faceted characteristics of people (called a 'profile'), such as lifestyle, health behaviours, postcodes and other aspects. If the survey was to explore health behaviour and analyse descriptive data exploring health behaviour against geodemographic clusters, the results can be presented as mapping of geographical areas containing small populations with specific health behaviours. For example, Great Yarmouth and Waveney PCT investigated how their population consumed fruit and vegetables by applying the MOSAIC™ classification in the analysis. Results revealed the six MOSAIC™ groups which consumed lower than one portion of fruit and vegetables per day. Also, the PCT was able to perform mapping of this finding as a health profile by geographical area.[9]

b. Service design, provision and evaluation

Geodemographic segmentation provides insightful information into any population by helping in the design of a proper service, particularly in primary care, which is based on people's needs.[10] For example, Yorkshire and Humber PCT found that the ACORN group N ('Struggling families') had the highest proportion of women who had not attended cervical screening. This finding was similar to other PCTs' data and results suggested qualitative research was needed to explore problems behind

underutilisation of cervical screening. The ACORN model could help PCTs understand in-depth what target audiences desire, thus help planning better services in local areas.[9]

c. Targeting services and communication

The consumer is a key component of the commercial cycle because he/she is a target of product sales. The cycle would be incomplete if products were not purchased by a consumer. Practitioners in the commercial sector, therefore, need to communicate with consumers to introduce products and convince them to buy. Likewise in health arenas, health services or other health products are designed for service users. Health practitioners also need to promote service provision and this should be undertaken properly. There are various ways of communicating with potential users. Some people read daily newspapers while some are too busy to watch adverts on television. Many people spend time surfing the internet whereas other people like to read leaflets.[10] Geodemographics can be used to identify which communication technique is appropriate for specific geodemographic subgroups.

1.7.3 MOSAIC™ classifications

Because of a concern over the cost of some geodemographic tools the MOSAIC™ classification, available free of charge, was highly suitable for use in this study. The MOSAIC™ classification for the UK (supplier named Experien) was chosen for use because its classifications were created based on postcode, deprivation, lifestyle, attitudes and behaviours, providing a narrative portrait of a cluster. MOSAIC™ is used by many NHS primary care organisations, including Sefton PCT, and is free of charge for academic use.[9, 10] The MOSAIC™ classifications used were

published in 2004, and comprise of 11 groups and 61 types of geodemographic segments,[80] shown in Table 1-5. This table also demonstrates the figure of MOSAIC™ classification within the Sefton boundary as it is an area used for this study. Reasons as to why Sefton was chosen are described further in Chapter 4.

As seen from Table 1-5, Sefton is dominated by groups described as 'Suburban Comfort', 'Ties of Community' and 'Symbol of Success'. Descriptions of these top three MOSAIC™ segments are detailed in Figure 1-1, 1-2, 1-3. This illustrates how MOSAIC™ classification defines a profile for each segment. The figures below have been modified slightly from the original document.[80]

Figure 1-1 Description for Suburban Comfort

Group C: Suburban Comfort
(25.3% of Sefton households)

Suburban Comfort people have established themselves and their families in comfortable homes in mature suburbs. Children are becoming independent, work is less of a challenge and interest payments on homes and other loans are becoming less burdensome.

These people live in inter-war suburbs and work mostly in intermediate level, white-collar occupations, where they are beginning to plan for approaching retirement. They are likely to be married and most have children, who may be at secondary school or university, or grown up and starting families of their own.

These neighbourhoods consist mostly of houses built between 1918 and 1970 to meet the needs of a new generation of white-collar office workers. Pleasant but homogenous semi-detached houses are set back from the road in generously sized plots with leafy gardens. Such areas were once on the edge of the city, but they now often form a no-man's land between the high density Victorian inner city and the more modern family estates further out.

People in this group value independence and self-reliance, and tend to rely on their own judgment, rather than social or community attitudes, when taking key decisions. Although they expect neighbours to be helpful, they do not necessarily take pride in or get involved with their local community.

'An Englishman's home is his castle' could describe this group's outlook. Suburban Comfort people seldom earn enough money to accumulate significant wealth. Much of their personal equity is locked up in their property, which has often increased significantly in value in relation to the original mortgage. A number have small share investments; most own and use credit cards, but usually as a convenient method of payment rather than as a line of credit. As rational planners who want to minimise financial uncertainty, this group is a good market for insurance products.

Figure 1-2 Description for Ties of Community

Group D: Ties of Community
(19.3% of Sefton households)

Ties of Community people live in very established, rather old-fashioned communities. Traditionally, people in this group married young and had manual jobs in industries such as docks and mines. Today, this group has a younger than average population; many are married or cohabiting and bringing up young children. Social support networks are strong, with friends and relations nearby.

These neighbourhoods are often characterised by late nineteenth century housing. Many homes have been improved, and are comfortable if somewhat cramped places to live (usually two rooms and a back extension downstairs, two or three small bedrooms, and a modest rear garden). Originally, such neighbourhoods were within short walking distance of local factories and shops, and many still have access to small corner shops, often owner-managed by recently arrived Asian families.

Typically, these neighbourhoods are in former coalfield regions, old steel and shipbuilding towns, and places with docks and chemical plants – industries that have been in serious if not terminal decline in recent years.

But regional initiatives have attracted footloose industry to new light-industrial estates and unemployment has fallen; it is lower than in areas where people rent their houses from the local council.

To varying degrees, this group has resisted the shift toward individualistic consumption styles. A person's standing in their community is based on the reputation of their family, their personality and their integrity. Conspicuous consumption is out of place.

This was the culture in which the building society movement and the co-operative originated. Money has traditionally been hard to come by and there is a culture of economy and thrift, along with a reluctance to borrow beyond their means. People build up savings through frequent small contributions from their income. They like to use local branches of trusted financial services groups with a friendly image.

Figure 1-3 Description for Symbols of Success

Group A: Symbols of Success
(11.4% of Sefton households)

Symbols of Success people are well set in their careers and their incomes have risen far into upper income tax ranges. Some work for large corporations in senior management positions; some hold respected roles in professional practices; others have built successful enterprises with their own commercial acumen.

These are people with busy and complex family lives. Their children are now less time consuming, with more independent lifestyles, but with leisure interests that are likely to be more expensive.

This group is mostly white British but is likely to contain significant Jewish, European, Chinese and Indian minorities.

Symbols of Success neighbourhoods are concentrated in economically successful regions, notably London and the South East of England, where a high proportion of the workforce is engaged in 'knowledge' industries. These are typically neighbourhoods of choice housing, whether fashionable inner city areas such as Kensington or the New Town area of Edinburgh or prestige outer suburbs.

These are well-established neighbourhoods; houses are well built and spacious, with four or more bedrooms, very often built to individual designs at low densities.

In this group, status is established by the values associated with the brand rather than by the product category, and by the manner in which the product is accessed and consumed. The air of discretion and understatement that is associated with traditional premium brands appeals more than the flamboyance and conspicuous consumption associated with the nouveau riche.

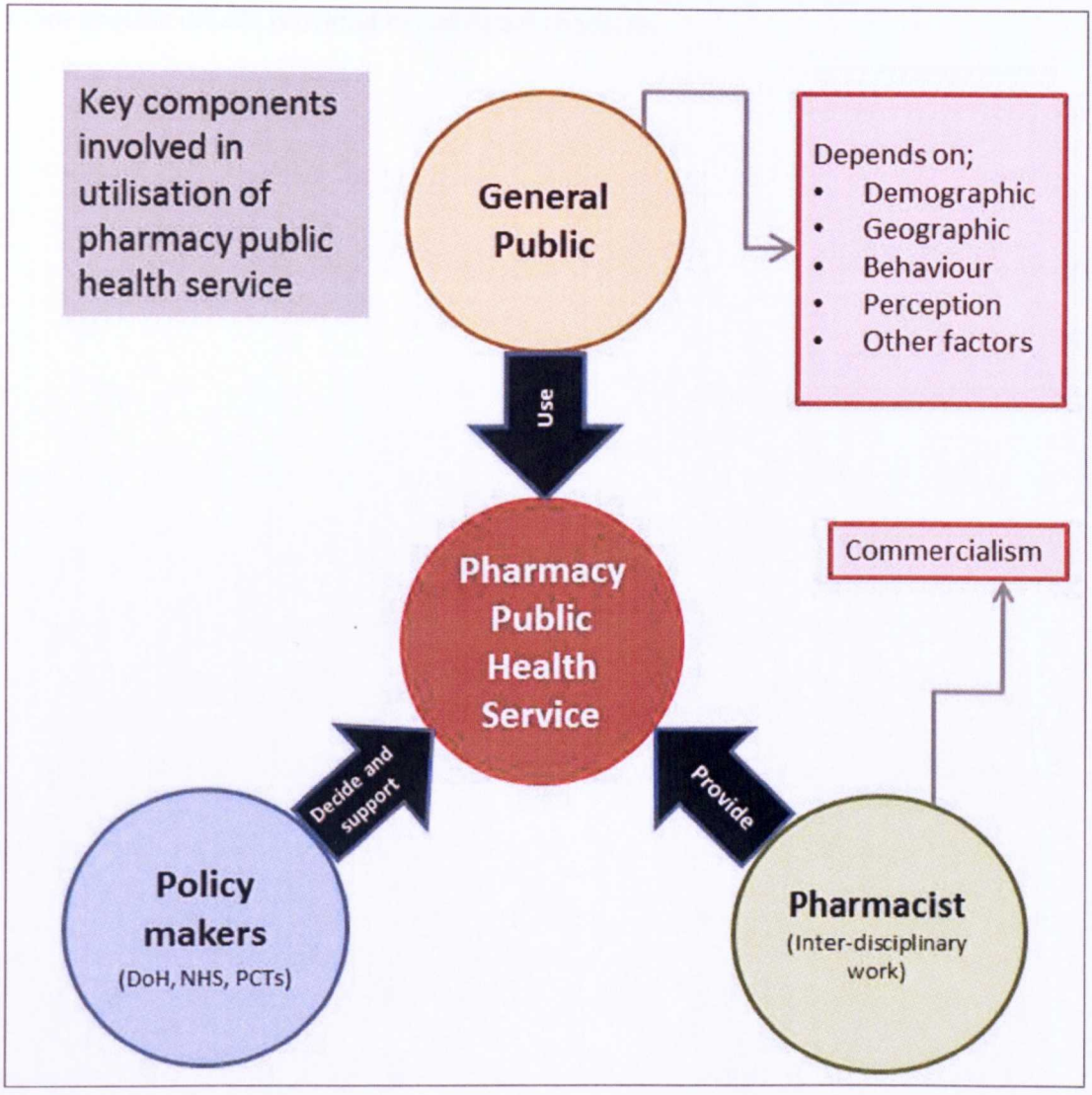
Symbols of Success people are likely to have accumulated substantial equity of some kind, and to have a high 'net worth'. Assets might be held as equity in high value properties, in stocks and shares, in pension schemes or in the form of illiquid assets such as business enterprises.

1.8 CONCEPTUAL FRAMEWORK

Research on the views of the general public, despite the limited number of studies, reveal that the public do not expect community pharmacists to provide public health services and, consequently, may not use them. A conceptual framework was developed based on the literature to summarise the main components, possibly influencing service utilisation as shown in Figure 1-4. Three key parties involved in this framework encompass;

- Policy makers – Policy makers both at national and local levels such as DoH, NHS and PCTs have roles in making decisions about which pharmacy public health services should be provided in and designing remuneration schemes for service contractors.
- Community pharmacists – A community pharmacist is a person who delivers services to communities. Community pharmacists should respond to policy agendas and provide services following best professional practice. This work should be supported by inter-disciplinary collaboration at primary care level.
- The general public – The general public are potential service users. Whether or not services are used may depend on some personal characteristics of the general public, such as demographic and geographic differences, personal behaviours and perceptions.

Figure 1-4 Conceptual framework



Key components involved in the utilisation of pharmacy public health services are the general public, community pharmacists and policy makers, as shown in Figure 1-4. This model will be used as a framework of the study. However, the study will focus mainly on looking at the public's perspective by undertaking the large survey as well as by exploring the views of key stakeholders using the qualitative research method. Views of policy makers will be gathered by a review of relevant policy documents. An

overview of the methodologies used will be described thoroughly in Chapter 2 and more specific details provided in individual chapters.

CHAPTER 2 OVERVIEW OF METHODOLOGY

2.1 INTRODUCTION

The conceptual framework as shown in Figure 1-4 illustrates that utilisation of pharmacy public health services is driven by three key parties; the general public (potential service user), health care providers, and policy makers (service supporter). Literature review in Chapter 1 revealed that the role of community pharmacists has broadened recently to increase their contribution towards providing public health services to community members, for example, by providing smoking cessation assistance, medicine use reviews, and others.[5, 47] Although the evidence is as yet limited on the effectiveness of services relating to the prevention and care of CVD,[5, 82] health policy makers continue to promote this role.[5, 83] Several studies have shown a consensus among the general public who perceive pharmacists to be a good source of prescribed medication and minor health advice. [55, 56, 59] Importantly, however, the public appear to have lower recognition of the role of community pharmacists in providing other services.[6, 47, 50, 84]

A series of studies were designed for this thesis to explore the opinion of the general public which has been neglected previously but is important in pharmacy public health services. Attention was paid to demographic and geodemographic characteristics to ensure that the preferences of the population could be stratified by their social status. This approach provides the opportunity to generate segmented data which can inform pharmaceutical policy development, offering services best

suited to the specific public health needs of particular populations. This chapter describes overview of aim, objectives and methodologies of the study. Additional methodological details are provided in each chapter.

2.2 AIM

The aim of this study series is to explore the general public's perspective on how to maximise the appropriate utilisation of pharmacy public health services for improving public health.

2.3 OBJECTIVES

(1) To qualitatively explore the views of three key stakeholder groups (the general public, community pharmacists and other relevant stakeholders) on the utilisation of pharmacy public health services.

(2) To develop and validate a questionnaire that can be applied, via a range of marketing survey modes, to measure the views of the general public on pharmacy public health services.

(3) To refine survey modes used in marketing research so they can be applied specifically to health services research.

(4) To evaluate the efficiency and equivalence of contemporary survey modes when applied to health services research.

(5) To quantitatively assess the views of the general public in Sefton, North West England, towards pharmacy public health services.

(6) To evaluate whether public opinion differs according to particular socio- and geodemographic, life style and health -related characteristics.

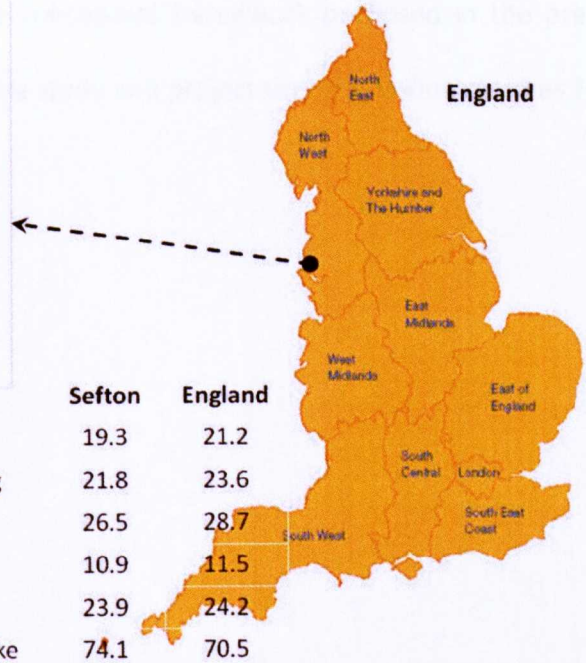
2.4 SETTING

Sefton is a district located in Merseyside County, North West England. The Planning and Economic Regeneration Department of Sefton Council[85] reported population is approximately 283,000, of which 47% was male and 53% was female. The majority of the population (40.6%) are in middle age (30-59 years) while the younger group, aged 16-29 years is the minority (14.9%) and tends to decline. Sefton has a higher rate of unemployment than the England's average.[40] As regards primary health services commissioned by the Sefton PCT, there were fifty-seven GP surgeries, twelve health centres, sixty-five community pharmacies and other range of primary health services reported in 2010.[86] Deprivation in Sefton is higher than the national average. However, it is a socioeconomic diverse area. Therefore, this provides opportunity for the study to obtain views from people living in different areas of deprivation.[40]

The Sefton PCT also has responsibility for tackling local health problems. Figure 2-1 presents the health summary recently published which indicated that Sefton borough has a similar health profile to England in terms of an adult's health and lifestyle, and death rate from heart disease, stroke and cancer.[40] Sefton PCT is enthusiastic in seeking to reduce these health problems,[86] as seen from its health strategies. Moreover, Sefton PCT has funded other primary care providers than GP surgeries to provide public health services, for example, community pharmacy

providing cardiovascular screening.[42] This indicates that Sefton is an appropriate setting in order to research pharmacy public health services.

Figure 2-1 Map of England and Sefton indicating key health profile



Indicator	Sefton	England
Adult smoking	19.3	21.2
Increasing and higher risk drinking	21.8	23.6
Healthy eating adults	26.5	28.7
Physically active adults	10.9	11.5
Obese adults	23.9	24.2
Early deaths: Heart disease & stroke	74.1	70.5
Early deaths: Cancer	117.7	112.1

Source: Adapted from Health profile 2011: Sefton

2.5 METHODLOGIES

The intended methodological approaches designed for this study were selected to generate data from differing perspectives. The research was designed to be conducted iteratively, in a phased approach. This began with a qualitative study, exploring views from the general public and health care providers. Qualitative data was used to develop a survey instrument, which was then administered through a number of different survey modes in order to elicit the general public's views. Data

were then used for multi-purpose analysis to evaluate efficiency and equivalence of different survey modes used and to interpret the overall results of the public's views. The findings generated and analysed were mainly those of the general public and to a lesser extent of health care providers. Further views of health care providers and of policy makers were sought by literature review to enable triangulation of perspectives which correspondingly reflects the conceptual framework proposed in the previous chapter. A flow diagram of the entire study and project timeline is illustrated as Figure 2-2.

Figure 2-2 Summary of methodology

		Purposes	Study design	Participants (N)	
I QUALITATIVE	Aug 2009– Feb 2010	To qualitatively explore the views towards utilisation of pharmacy public health services. Information used to devising a questionnaire	Focus group discussion: three groups undertaken separately based on occupation class (high, middle, low)	General public; High social class (7) Middle social class (5) Low social class (4)	CHAPTER 3
			Semi-structured telephone interview	Community pharmacists (9) GPs (2) Other stakeholders (3)	
		Next phase			
II QUESTIONNAIRE DEVELOPMENT	Mar -Nov 2010	To develop and validate a questionnaire that can measure views of the general public and be applied via a range of marketing survey modes	Face and content validity	LJMU colleagues and friends (10)	CHAPTER 4
			Pilot survey (Reliability and content validity)	General public (100)	
			Cognitive interview to identify any weakness of questionnaire	General public (10)	
		Next phase			
III MAIN SURVEY*	Dec 2010 – Oct 2011	To refine survey modes that can be applied health services research. To evaluate efficiency and equivalence of eight survey modes when applied to health services research.	Cross-sectional study using mixed-mode survey; Street Door-to-door Telephone Double-mailing Single-mailing Postal-OGN Drop-off-OGN Online	General public (200 was targeted for each mode)	CHAPTER 5
		To assess views of the general public towards pharmacy public health services. To assess whether differences in public opinion would depend upon particular factors (demographic, geo-demographic, life style and health conditions)	Cross-sectional study using mixed survey modes; Street Door-to-door Telephone Double-mailing Single-mailing Postal-OGN Drop-off-OGN Online	General public (200 was targeted for each mode)	CHAPTER 6
		Next phase			
IV EVALUATION OF FINDINGS	Jul – Sep 2011	To probe and identify justification to support research findings given by survey respondents	Focus group discussion	Survey respondents (5)	CHAPTER 7

Note: *Four undergraduate students assisted with data collection for the main survey

2.5.1 Qualitative studies

A literature review was first undertaken which included the scope of pharmacy services, public health problems, public perceptions, health behaviours and other related topics. Following this, a qualitative research study was designed to be undertaken in Sefton PCT area, North West England (further details reported in Chapter 3). The aim of the qualitative research was to gather views, opinions and perceptions of the general public, community pharmacists and other stakeholders towards pharmacy public health services. Recently, CVD screening has been promoted as a service through community pharmacy as well as other aspects of lifestyle such as diet, alcohol and smoking habits, all of which are services community pharmacies may provide. Services related to CVD and risk factor was selected to be the focus.

The two qualitative research techniques were employed; focus group discussions (FGDs) and semi-structured telephone interviews. The FGD were considered the most appropriate approach to use with the general public since participants were able to carry on discussions and brainstorm responses among group members. Semi-structured telephone-interview was considered best suited to generate information from community pharmacists and other stakeholder groups because of their limited time availability and specialist knowledge.

a. Focus group discussions

The purpose of the FGDs was to document the views of members of the general public on their perceived need for, and potential utilisation of, pharmacy public health services, and to document their views on factors that facilitate use and other factors that act as barriers. The study involved conducting three FGDs among the

general public. Each group preferably consisted of seven to nine participants with similar occupations, using occupation as a surrogate marker of socioeconomic status.[87] (Table 2-1) This was to form homogeneity within a group to generate dynamic discussion and minimise the effect of domineering participants. Diversity of views was achieved by conducting FGDs from three levels of socioeconomic attributes.[88]

Table 2-1 Occupational classification of focus group participants

Occupation level	Major groups of occupations
Managerial/professional (FGD 1)	Managers and Senior Officials Professional Occupations Associate Professional and Technical Occupations
Skilled manual/administrative (FGD 2)	Administrative and Secretarial Occupations Skilled Trades Occupations Personal Service Occupations
Un-skilled/manual (FGD 3)	Sales and Customer Service Occupations Process, Plant and Machine Operatives Elementary Occupations

Source: Standard Occupational Classification 2000[87]

(1) Focus group guide

A FGD guide was developed based on existing literature[5, 6, 47] to explore views relating to public health service provision in community pharmacy, particularly services related to cardiovascular disease. Face validity was iteratively reviewed and assessed by the research team. A pilot focus group was preliminarily conducted with four non-pharmacist volunteers to assess content validity of the schedule and the methodology.

(2) Recruitment of participants

The announcement of the project and invitations were planned to be distributed by two mechanisms, described as below, to facilitate recruitment of 25-30 participants. Health care professionals (GPs, pharmacists, nurses and others) were

excluded. Written informed consent, including consent for the discussion to be recorded, was obtained from the group members prior to the FGD.

Postal invitation – Households were randomly selected using the post code address file for Sefton of year 2007 which contained 126,156 household addresses including private companies and public organisations. One thousand random numbers were generated by random.org[89] (a website which provides the tool for simple random sampling). Households were selected according to random numbers generated. Addresses of companies and organisations were excluded. Recruitment packs were posted out directly to one thousand selected households to invite eligible persons to take part.

Flyer – If the target number of participants was insufficient by the previous recruitment plan, advertising through a flyer was to be subsequently undertaken to encourage people to participate in FGDs. The flyer was planned to be displayed in up to fifty commercial centres in Sefton.

(3) Conduct of FGD

The FGDs were held in a neutral location. Participants were allowed to freely express their opinions. The research student (an international student with good English skills, but whose mother tongue was Thai), acted as a group-facilitator to steer group discussions, adhering to the FGD guide. The additional assistant, who was a native English speaker, supported discussions to minimise any possibility of language miscommunication and assisted taking notes.

(4) Data analysis

Discussions were digitally audio-recorded. Data obtained from the FGD were transcribed verbatim and analysed using thematic analysis to explore the views of the

general public with regard to health service delivery through their community pharmacies. NVivo Version 8 was software used to assist analysis of qualitative data. The data from the three FGDs were manipulated together in order to create relevant codes and consequently themes. Analysis was additionally performed by other two researchers in the team to ensure coding accuracy and rigour of the results.

b. Semi-structured telephone interviews

Semi-structured telephone interviews were conducted with primary care practitioners including community pharmacists, GPs and other stakeholders involved in public health work. This method was used to explore their personal views and opinions towards capabilities of community pharmacy in providing public health services as well as to its barriers and facilitators.

(1) Interview schedule

An interview schedule was developed with a similar structure to the FGD guide to ensure similar topics were discussed. Face validity was iteratively reviewed and assessed by the research team.

(2) Recruitment of participants

Recruitment of community pharmacists took place by utilisation of the community pharmacy list, obtained from Sefton PCT. Community pharmacies which already provided PCT-funded cardiovascular health checks were excluded to avoid recruiting persons with a known bias. Potential GPs were proposed by Sefton PCT. Other stakeholders who routinely provided public health services were identified by suggestions of research team members together with internet search with key words such as 'health service and Sefton'. This included either private or charitable

organisations providing relevant services within Sefton e.g. Weight Watchers, Alcoholics Anonymous and others. Invitation packs were mailed to primary health practitioners previously identified. A telephone call was subsequently made a few days after posting to assess their interest and to schedule interviews with those who agreed to participate.

(3) Conduct of semi-structured telephone interviews

The research student conducted the interviews by asking questions and allowing the participants to express their opinions independently. The interviews were conducted over the telephone and scheduled dependent upon the participants' availability. Verbal consent was obtained prior to each of the interviews. Written consent forms were returned to the researcher after interviews were completed.

(4) Data analysis

All interviews were digitally audio-recorded, transcribed verbatim and analysed using thematic analysis to identify how community pharmacists and other stake holders view contributions and abilities of providing public health services through community pharmacies. NVivo Version 8 was used, as with the FGDs, to manipulate data obtained by interviews. Analysis was performed by two other research team members to ensure the rigour of findings.

2.5.2 Questionnaire development

A questionnaire was developed for use as a survey instrument. It was initially drafted to cover specific issues regarding pharmacy public health services. Multiple choice questions, open-ended questions and ranking scales were used and applied appropriately to each question set. Questions covering basic demographic data were also included to enable the assessment of differences in views dependent on

demographic and socioeconomic background as well as geodemographic status. The full postcode was thus required to identify the residential location of all participants for geodemographic analysis. The first draft questionnaire was developed by information gathered from a review of the existing literature and the qualitative findings. Content validity was iteratively assessed by the research team. Face validity was tested by experienced health researchers. Ethical approval was sought for the questionnaire before undertaking a pilot survey. Full details regarding how the questionnaire was developed have been described in Chapter 4.

a. Pilot survey

The draft questionnaire was tested in a pilot study among a sample of the general public to assess the reliability and internal validity of the instrument. The sample participants consisted of a variety of persons from differing socioeconomic groups, approached at a range of locations in Liverpool. Potential participants were given an information sheet and asked to either self-complete the questionnaire or to respond to a face-to-face interview, using the questionnaire as a template for questioning. This method enabled an assessment of the questionnaire to see if the same instrument would be suitable for both self-completion and for completion by an interviewer. The pilot was split into two phases since early responses indicated the need for some revision of the content to reduce duplication and length, thus requiring revision during the pilot procedure. A total of 100 participants completed the pilot. The raw data were entered manually for analysis using the Statistical Package for Social Sciences (SPSS; release version 17) software. Analysis of the instrument

reliability was examined using the Cronbach's alpha, using 0.7 as the threshold measure to denote reliability.

b. Cognitive interview

Cognitive interviews were used as the last phase of questionnaire development. This method was chosen as it used a standard methodological approach, developed by psychologists and survey methodologists, to identify problematic items particularly wording and language. This contributes towards validity analysis.[90-93] 'Thinking aloud' is a common technique used to carry out the cognitive interview, which involves participants explaining out loud independently to a researcher whether or not they understand each question asked and how they intend to answer.[90, 91] A few studies, for example health[93] and dietary survey[94] or thyroid outcome measurement,[95] have shown cognitive interview to be an effective methodology to identify ambiguous items/questions, but this has been rarely applied to pharmacy practice research. Consequently, the cognitive interview was chosen to assess content validity to create a high quality and robust questionnaire.

(1) Cognitive interview schedule

An interview schedule was constructed to be a guide for conducting the cognitive interview. The schedule composed of three parts. Firstly, an introduction was to introduce the researcher and objective of the interview. Secondly, a warm up section to assist the participant to be familiar, specifically with the thinking aloud technique. Thirdly, an actual interview, where participants read each question out aloud. They also had to respond to the question aloud, together with providing reasons for why those answers were chosen.

(2) Recruitment of participants

The 'thinking aloud' technique was conducted among 10 subjects. The sampling frame used for this was persons previously sampled for the previous FGDs who were unable to attend due to incompatibility of time schedules for the FGD. Invitation packs were posted to them. Expression of interest was made by completing a participation form and returning to the research team.

(3) Conduct of cognitive interviews

The cognitive interview was undertaken face-to-face, either at a private office at LJMU, or at a venue of the participant's choice. Each interview lasted approximately one hour. Written consent was required prior to the interview and for operating an audio recorder. The research student was the interviewer and followed the interview schedule as well as taking notes on important points/issues which emerged during interviews for further analysis.

(4) Data analysis

All comments/feedback and recorded information were gathered and summarised to identify weaknesses in the questionnaire. The analysis of the weaknesses in the questionnaire was subsequently used to revise and finalise the survey instrument, also taking the results of the pilot survey into account.

2.5.3 Survey design

The main survey had two separate purposes. The first was to evaluate efficiency and equivalence of different survey modes (a mixed-mode survey) concurrently applying to the same survey. The second was to explore overall public views on pharmacy public health services among a statistically significant sample population in the chosen study area of Sefton PCT. A range of survey modes used to

distribute the questionnaires was included as a tangible component of the study investigation, as Allison et al[72] suggested a mixed-mode approach could be applied to one survey. This was because postal surveys have been popular for health service research, despite recognition of their moderate to low response rate.[64, 96] However, the equivalence of findings from different survey modes must be ensured before combining data.[72] Regarding the general public views towards pharmacy public health services, overall results were reported by appropriate descriptive statistics. Subgroup analysis was also essential in order to assess if the public's opinions would depend on different demographics and other health attributes. Here, subgroups analysis regarding the geodemographics was used to identify whether disparity of the public preferences existed among people classified according to MOSAIC™ subgroups.

a. Sample size

The survey was conducted in Sefton area. The sample size was estimated based on the calculation from the formula for descriptive study below;

$$n_1 = \frac{Z \times p \times (1-p)}{d^2}, \quad n = \frac{N \times n_1}{N + n_1}$$

Where, n was a number of sample size required, Z was a standard value of the type I error at alpha (α) of 0.05, p was a probability of the interesting phenomenon, d (or Standard Error; SE) was an acceptable width between value obtained from the sample and the actual population, which can be determined arbitrarily,[97, p.412] and N was a number of total population.

The calculation was based on a previous study which reported the probability (p) of the willingness of customers to discuss 'healthy eating' with pharmacists as

0.32.[47] The total population of Sefton district in 2009 was reported as 282,664.[98] The value d was determined as 0.02. Therefore, parameters input in the above formula were p = 0.32, Z = 1.96, d = 0.02 and N = 282,664. The total sample required would be at least 1,063. Riffenburgh[97, p.397] suggested the principle of sample size calculation was to estimate the number of minimum size that was statistically confident to represent target population. The largest sample size can be chosen based on research limitations such as time, financial support and others. To enhance the power and confidence of estimation, the sample size for this study was therefore inflated by 10% in addition to approximately 1,200, which seemed reasonably capable of achievement under study constraints. Because data collection methods selected were six different survey modes, 200 respondents per method was proposed as the target sample, providing an equal response for each survey mode. Different sampling methods were applied appropriately to each survey mode (detailed in the next section). This was to examine the possibility of using mixed-mode survey to maximise survey response rate, diversity of demographic and socioeconomic factors.

b. Data collection

Data collection was divided into two approaches; interviewer-assisted and self- completion with a range of delivery methods. This initially composed of six survey modes; street, door-to-door, telephone, postal, organisation and online. The two modes regarding postal and organisation were later differentiated into two sub-modes; double- and single-mailing for the postal survey, and postal and drop-off for the organisation survey, details of which are described in the next section. Eligible participants were members of the general public aged 18 years or over and resident in

Sefton. Potential participants were provided with study information prior to their participation. Verbal consent was obtained for all techniques involving interview. Returning a completed questionnaire was regarded as providing consent for the self-completion approach. All data obtained were anonymous.

c. Recruitment of participants

(1) Interviewer-assisted approach

Street survey – questionnaires were administered in a range of commercial centres across Sefton, such as high streets and shopping centres. Quota sampling was used in order to ensure the sample represented the Sefton population regarding gender and age groups. Three researchers approached potential participants purposively who were walking in busy shopping areas, provided them with an information sheet and asked them to complete the questionnaires.

Door-to-door survey – Streets in Sefton were randomly selected from the postcode address file. Every household on the selected streets was approached by three researchers. Potential participants were handed the information sheet and asked to complete the questionnaires on their door steps.

Telephone survey – telephone numbers were selected randomly from British Telecom (BT), a landline telephone provider, phonebooks for Liverpool and Southport, the two relevant phone books for the Sefton area. Selected numbers were contacted and asked to answer a series of questions which were read out one by one from the questionnaire, allowing participants time to answer each question. Prior to completion, participants were given information about the study and their positive response was taken as a verbal consent.

(2) Self-completion approach

Postal survey – the postal survey was delivered using two systems; double- and single-mailing. Households were identified by simple random sampling from the post code address file, as described for FGD recruitment. (Page 45) FGD participants were excluded. Survey packs were randomly posted to 500 of 126,156 households, addressed to the occupier, with a request made to pass the questionnaire on to a household member who had had the most recent birthday, with one inclusion criterion, that the person was aged 18 years or more.

Public and private organisation survey – this survey approach utilised two different delivery methods - a postal survey to public/private organisations (postal-OGN) and questionnaires dropped-off at public/private organisations (drop-off-OGN). A list of public venues and companies was identified from the welovelocal.com[99] website for Sefton (a website which assembles local businesses, but the page for Sefton has been currently inactive). For the postal-OGN, invitation packs were sent to the business or office managers requesting that they pass on the survey packs to their colleagues, either paper or electronic copy. If they agreed to do so, they were required to return a consent form to the research team, the survey packs were then sent either by post or by email, as requested. For drop-off-OGN, potential public organisations were contacted by email to gain permission for using their place of work as the point of distribution for the questionnaires. Once the permission was agreed, twenty copies of survey packs were then physically delivered to each place.

On-line survey – an electronic version of the same questionnaire was designed, using the Bristol online survey programme.[100] It was publicised via a range of websites through public and charitable organisations in Sefton where possible.

d. Data entry and analysis

Raw data were entered for analysis in statistical software, Microsoft Excel 2010 and SPSS version 17. Statistical analysis was run for two purposes; to evaluate efficiency and equivalence of each survey modes, and to examine overall of the general public's views towards pharmacy public health services.

(1) Evaluation of efficiency and equivalence for each survey mode

Efficiency for survey modes was evaluated by the methodological and economic outcomes to determine how each survey mode yields its outcomes in terms of response rate, key findings and financial, and whether or not findings obtained from each survey mode were equivalent. Results regarding efficiency and equivalence of each survey mode are reported in Chapter 5.

Methodological outcomes

This analysis focussed on similarities of findings gathered by each survey mode regarding response rate, demographic characteristic and views towards key questions. The number of people who were approached and agreed to take part was recorded during administration of the questionnaire. These numbers were essential for determining survey response rate. Descriptive statistics were used to describe proportions of all relevant variables. Subgroup analysis was performed by applying appropriate statistical tests including Chi-square (χ^2), Mann Whitney and Kruskal Wallis, in order to examine differences between independent subgroups. In addition, details of disparity in relation to different data collection modes were recorded and summarised to suggest advantages and disadvantages.

Economic outcomes

This analysis was intended to examine total operational costs of each survey mode. The operational costs included cost of materials, postage, travel, calling charge, labour and others. A cost-effectiveness analysis was used to identify the most cost-effective survey mode. This analysis was performed by comparing total cost against response rate as methodological outcome.

(2) Analysis of the general public's views towards pharmacy public health services

Descriptive statistics and subgroup analysis using various statistical tests were carried out including independent samples t-test, one-way ANOVA and chi-square to obtain an overall picture of the whole respondents. Moreover, geodemographic characteristics were included to examine whether views toward pharmacy public health services would depend on different geodemographic classifications. A binary logistic regression analysis was also used to identify the relative effect of different demographic factors on the general public's views. Results regarding the general public's views towards pharmacy public health services are reported in Chapter 6.

2.5.4 Focus group evaluation of survey findings

A final FGD was conducted to explore the public's opinions on the responses generated from the questionnaire surveys. This was carried out to identify and qualify personal opinions on the survey and its findings, whether or not individuals agreed with the findings, and what they thought about those findings. This was to gain a more in-depth understanding of the survey findings and strengthen the rigour of the study.

a. Recruitment of participants

The FGD was intended to involve 7-9 members of the general public who completed and returned the questionnaire in the main survey to discuss in-depth the study findings. Respondents were invited to take part by enclosing a participation form with survey packs (for self-completion approach) or by information verbally given at the end of questionnaire completion (for interviewer-completion approach). The researcher then randomly selected potential participants based on stratified demographic information to ensure group diversity. Postal and/or telephone contact was made to schedule the group meeting once survey findings had been analysed and recorded.

b. Data collection

Only one further FGD was conducted as the final stage of study. The FGD was held in a private local meeting room and lasted approximately one hour. Written consent was required prior to attending the meeting and to being audio recorded. The research student served as a moderator to steer issues for discussion and adhere to the agenda.

c. Data analysis

Discussions were digitally audio-recorded, transcribed verbatim and analysed using thematic analysis. NVivo version 8 was software used to assist manipulating text data and managing codes. Thematic analysis was performed by the research student.

2.6 ETHICAL CONSIDERATIONS

The research protocol was submitted to Liverpool John Moores University (LJMU) Research Degrees Committee in July 2009 and was granted approval on 13th August, 2009. (Ref: 09/PBS/005) It was also granted research governance approval by Sefton PCT in August 2009.

CHAPTER 3 VIEWS OF RELEVANT STAKEHOLDERS TOWARDS PHARMACY PUBLIC HEALTH SERVICES

3.1 INTRODUCTION

As summarised in chapter 1, community pharmacists themselves view public health activities as important and show willingness to take on public health roles.[43] However, the use among the public of pharmacy public health services, such as MUR[101] and other novel services, was lower than anticipated.[102] Reviews of the general public's attitudes toward community pharmacy services indicate that pharmacy is not universally recognised as a source of general health information. They appear to view pharmacies primarily as a source of prescribed and over-the-counter medicines and advice regarding minor health problems.[6, 30, 47] Therefore, research is required to better understand reasons for under-utilisation of pharmacy public health services.

Qualitative research was chosen for this initial phase. This aimed to obtain baseline information from key parties such as the general public, community pharmacists, general practitioners and other stakeholders to explore their views regarding general usage of, and practice in, community pharmacies as well as to identify the key barriers and facilitators of pharmacy public health services. Information obtained from this phase of the research was then used to develop a questionnaire for a large scale survey in the next phase of the study.

3.2 OBJECTIVES

(1) To explore views of the general public towards experience of pharmacy use and factors influencing pharmacy public health service utilisation using focus group discussion.

(2) To explore views of health providers towards service provision and factors influencing pharmacy public health service utilisation using semi-structured interview.

3.3 METHODS

3.3.1 Focus group discussion

FGD was determined to be the most appropriate approach to be used with the representatives of the general public since participants are able to carry on dynamic discussions and brainstorm responses with other group members.

a. Focus group topic guide

A topic guide for the FGDs was developed based on a review of the existing literature[6, 47] with attention placed on four key issues relating to public health services and the community pharmacy. Face validity was iteratively reviewed and assessed by the research team. The FGD topic guide was tested with a group of four non-pharmacist volunteers to assess content validity as well as to hone facilitation skills. The finalised schedule is shown in Table 3-1 which had four main sections; (1) experiences of using community pharmacy; (2) barriers/facilitators for using community pharmacies; (3) increasing community pharmacy utilisation; (4) contribution of community pharmacy to improving public health. A list of public health issues drawn from the most recent Public Health Annual Report for Sefton[41] was also

provided to participants as a prompt to encourage discussion. The FGD topic guide was approved by LJMU Research Ethics Committee prior to conducting the FGDs.

Table 3-1 Focus group topic guide

Issue 1: Experience of using pharmacy
How do you and the others in your family or who you know use the community pharmacy? *Prompts* • How often do you use the community pharmacy? • Why do you visit the pharmacy? • What are the reasons for visiting your community pharmacy?
Issue 2: Factors influencing pharmacy use
What factors do you feel encourage you to use pharmacy and what factors do you feel discourage you from using pharmacy? *Prompts* • What do you think about locations of pharmacies? • What do you think about the facilities provided by pharmacies? • What do you think about the skills and trainings of pharmacists and their staff? • What do you think about the privacy and confidentiality? • What do you think about opening hours of pharmacies? • What do you think about accessibility of pharmacies/pharmacists?
Issue 3: Enhancement of pharmacy utilisation
What do you think it should have done to make people greater use the health services available in pharmacy? *Prompts* • Would it help if these services were to be advertised and promoted? • Do you think there are other ways to promote the use of health services provided by the community pharmacies? Why?
Issue 4: How community pharmacy could help to improve public health
How you feel or what you think about health issues in Sefton? (Health issues including smoking, cardiovascular disease, cancer, respiratory disease, alcohol, infant mortality, mental health) *Prompts* • Do you feel any of these health matters are in your concern? Why you think that? • Are there other health concerns do you feel they are important to you, but not on the list? Why are they important? From these health issues, which we have just discussed - how pharmacy could help to improve people health in Sefton? *Prompts* • Would it help if the pharmacy delivery additional health services like cardiovascular screening, weight management or other services like these? And why you think that? • Are there other health services that you think should be delivered through pharmacy?

b. Recruitment of participants

Each FGD was organised to consist of 7-9 representatives of the public, all of whom held a similar level of occupation; managerial/professional (FGD1), skilled manual/administrative (FGD2) and un-skilled/manual (FGD3).[87] This approach was

chosen in order to minimise the knowledge gap between participants with vastly different educational backgrounds and to ensure that views from all social classes were represented, rather than to differentiate between views of those in different socioeconomic levels. Health care professionals (e.g. GPs, pharmacists, nurses and others) were excluded from the FGDs since their experience of working in the health arena may have introduced bias to the group discussions.

A thousand households were randomly selected from a postcode address file for Sefton. Two hundred recruitment packs were posted each week during August – October 2009 to invite the general public who were aged 18 years and over. These consisted of an advertisement message (Appendix 3-1; page 285), an invitation letter (Appendix 3-2, page 286), a participant information sheet (Appendix 3-3; page 287), a participation form (Appendix 3-4; page 288), a list of job codes[87] (Appendix 3-5; page 289) and a freepost envelope. Distribution of recruitment packs was carried on continuously until the number of confirmed participants was sufficient. In addition, an advertising flyer (Appendix 3-1; page 285) was displayed in public places to encourage interested people to volunteer to participate in an FGD. Volunteers were eventually given a date and time for their FGD meeting. An incentive (a £25 shopping voucher plus £5 cash) was offered to compensate participants for their time as well as their travel expenses.

c. Conduct of focus group discussion

Three FGDs, lasting approximately 45 minutes, were conducted in late October and early November 2009 at a private meeting room in a community facility the Sefton area. The research student served as the group-facilitator adhering to the

prepared topic guide. (Appendix 3-6; page 291) A native English speaker acted as a note taker and was available to clarify any language issues since the facilitator's first language is not English. Written consent (Appendix 3-7; page 293) was obtained from all participants prior to the FGDs, allowing the use of an audio recording device to capture the discussions verbatim.

3.3.2 Semi-structured interviews

A semi-structured interview was selected as the most appropriate method to elicit views of health providers because of participants' time constraints. Interviews were considered appropriate as the health providers, unlike the general public, were well informed in relation to public health and community pharmacy services and there was less benefit to be gained from discussing ideas. Health providers were defined as key healthcare professionals involved with public health including community pharmacists, GPs and other stakeholders.

a. Interview schedule

An interview schedule was developed with a similar structure to the FGD guide to ensure similar topics were discussed. Face validity was iteratively reviewed and assessed by the research team. The final schedule, as shown in Table 3-2, included the four FGD topics described above plus others covering professionals' training needs, the impact of pharmacy services on public health and, for pharmacists only, their willingness to provide public health services. The schedule was approved by LJMU Research Ethics Committee prior to conducting the interviews.

Table 3-2 Interview schedule

Introductory session
Current experience of health services provision
Question to interview community pharmacist
• How have you been involved in delivering public health services in community pharmacies?
Question to interview other health stakeholders
• What public health services have you provided both in the past and at present?
Main session
Awareness of pharmacy services provision (Other stakeholders only)
• How do you think community pharmacies currently help to provide health services to improve public's health?
Appropriateness of health services provision
Question to interview community pharmacist
• Where should people get advice and support for their health issues like cardiovascular disease, diabetes, obesity and other things like this? And why do you think this?
Question to interview other health stakeholders
• Do you think community pharmacies could provide advice and support in related to those health issues?
• If yes, what type of advice and support could they provide?
• If no, why do you think that?
Extension of health services provision
• What barriers do you think stop people from using health services given through community pharmacies? (Hint: Convenience, Facilities, Accessibility, Approachability etc)
Perception of Training needs
• What sort of training would pharmacy staff need to provide public health services such as cardiovascular screening, weight management or other services?
Enhancement of public awareness
• What do you think could encourage people to use health services provided through community pharmacies?
Potential impact of health services provision
• Do you think that delivery of health services through community pharmacy services would have an impact on the overall health of the public in Sefton?
• If yes, how would they have an impact?
• If no, why do you think this?
Willingness of providing health services (To interview community pharmacist only)
• Would you be willing to provide additional services to improve the public's health?
• if yes, what services would you like to provide? And Why?
• If no, why do you think that?
• Which services would you NOT be willing to provide? And why?

b. Recruitment of participants

Potential participants were all healthcare providers as described previously. Recruitment methods used were different to each provider type, as following:

(1) Community pharmacists (PH)

A list of 65 community pharmacies was obtained from Sefton PCT, from which ten pharmacies already providing PCT-funded cardiovascular health checks were excluded owing to potential bias in their views (N=55)

(2) General practitioners (GP)

Staff at Sefton PCT were asked to purposively select potential GPs based on known interest in pharmacy services for inclusion in the study (N=5)

(3) Other stakeholders (ST)

Other stakeholders were representatives from private or charity health organisations that routinely provide public health services, in particular those related to cardiovascular health, e.g. smoking cessation assistance, blood pressure screening. STs were identified from Sefton local government health and social care web pages,[37] and suggestions from the research team. Ones matching this definition were selected. (N=13)

Invitation packs consisting of an invitation letter (Appendix 3-8; page 294), a participant information sheet (Appendix 3-9; page 295), a consent form (Appendix 3-10; page 296) and a free post envelope were directly posted out to all health providers on this list. A telephone follow up was subsequently made a few days after the posting date to assess their interest and to schedule interviews with those who agreed to participate.

c. Conduct of the semi-structure interviews

The interviews, lasting approximately 15 minutes, were conducted according to the interview script (Appendix 3-11; page 297) by the trained research student (KS) either by telephone or face-to-face. Informed consent was obtained verbally from all participants prior to the interview along with their agreement to allow the use of an audio recording device. Written consent forms were returned by post or fax after the interviews completed.

3.3.3 Data analysis

Data obtained from the FGDs and the semi-structured interviews were transcribed verbatim and analysed thematically using the software programme, NVivo version 8. Thematic analyses were undertaken for FGDs and interviews separately to identify themes and compare data to assess differences and similarities in the views of the four stakeholder groups. This procedure was independently performed concurrently by the research student and the other two researchers in order to verify the accuracy of analysis. All codes were subsequently reviewed to ensure appropriateness, consistency and accuracy of codes. Findings obtained from the four participant groups were compared in terms of commonalities and diversities, then to establish themes common to all groups. Results, shown in the next section are presented by discussing findings from the two methods and four different participant groups concurrently at each point in order to demonstrate the commonalities and diversities in viewpoints found among each participant group. This style of presenting qualitative results was suggested by Green and Thorogood[103, p.220] recommending that writing qualitative work is, *'...The very process of writing is part of triggering the sociological imagination and identifying the cross-cutting connections that embed your work within the discipline ...'*

3.4 RESULTS

3.4.1 Participants

Forty-one members of the public (a 4% response to the mailing) indicated interest in joining a FGD of whom 13, recruited by mailing, took part. The small

number was partially due to limitations of time and venue availability, but also a limited response from lower socioeconomic groups. However, three further participants from the lower social class were recruited via the flyer. Discussions comprised of seven, five and four participants in FGD1, FGD2 and FGD3 respectively. About two-thirds (11) of participants were female and just over half (9) were over 60 years of age.

Table 3-3 shows demographic details of participants. Fourteen health providers, nine community pharmacists, two GPs and three other stakeholders (who provided services related to physical activities and cardiovascular screening and advice) agreed to be interviewed by telephone. Of those, half (7) were female and their ages ranged from 41-60 years. Their experience of working in health-related services in the community ranged from 4 months to 37 years.

Table 3-3 Demographic details of participants

Qualitative method/stakeholder group	No. of participants	Gender		Age range		
		M	F	18-40	41-60	>60
Focus group discussion - general public (N=16)						
FGD1 – managerial/professional	7	3	4	0	4	3
FGD2 – skilled manual/administrative	5	1	4	1	0	4
FGD3 – unskilled/manual	4	1	3	0	0	4
Semi-structured interview – health care providers (N=14)						
Community pharmacists	9	3	6	5	4	0
General practitioners	2	2	1	1	2	0
Other stakeholders	3	2	0	0	2	0

Note: M=Male, F=Female

3.4.2 Current situation of community pharmacy provision

Participants of each FGDs were introduced to a list of public health issues reported by the Sefton PCT[41] to help them understand the public health issues faced locally. During the FGDs, participants discussed both the public health issues presented

and spontaneously raised other health problems which they considered needed attention, including sexual health, arthritis, and health in the elderly. Additionally, one FGD mentioned that smoking, drinking excessively and obesity were self-inflicted problems caused by personal health behaviour.

"... smoking and alcohol, ... obesity is another thing ..., they are self-inflicted." [Male1, FGD3]

FGD participants were generally aware of pharmacy's traditional roles; medicine supply and medicine-related problems. They also mentioned a number of pharmacy public health services. However, this recognition of the pharmacy's public health services was not as universal as the recognition of the pharmacy's more traditional roles.

"...Some pharmacies do have a local blood pressure thing that you can have, and they can also do like cholesterol as well..." [Female2, FGD3]

"...I have never heard of that [MUR]..." [Female2, FGD2]

On the other hand, during the interviews community pharmacists reported that they were providing a wide range of public health services in addition to traditional roles, e.g. general health advice, cardiovascular screening (blood pressure, blood sugar and cholesterol check), weight management, MUR service, smoking cessation assistance, sexual health service and warfarin monitoring.

"...We do a full cholesterol and a HDL a LDL blood pressure and blood glucose, and that produces like a Framingham risk assessment..." [PH6]

These findings show that community pharmacists in Sefton have conformed with national policy by providing extended services beyond their traditional medicine-

related roles; MUR service (advanced level) and others (enhanced level). This was first recommended in 2005 in the white paper 'Choosing Health Through Pharmacy'.[5]

3.4.3 Factors affecting pharmacy public health service utilisation

A summary of the results from the four participant groups showing areas of commonality and divergence regarding factors affecting pharmacy public health service utilisation is shown in Table 3-4. Findings from FGDs and interviews are discussed concurrently within each theme in order to present the commonalities and diversities in viewpoints found among the different participant groups. Six key themes relating to factors possibly affecting utilisation of pharmacy public health services were identified. These were: (i) the community pharmacy environment; (ii) the pharmacist and support staff; (iii) service publicity; (iv) the general public; (v) general practitioner services; (vi) health care systems and policies.

a. Factors relating to the community pharmacy environment

A number of positive attributes regarding the community pharmacy environment were highlighted. Accessibility and convenience, frequently cited in national and global policy documents,[2, 5, 104, 105] were the advantages agreed by most participants. All participant groups except GPs also mentioned the approachability of community pharmacists and their availability without an appointment, which was viewed as being greater than that of GPs. There was a suggestion that health centre pharmacies were even more accessible.

"... A lot of surgeries have in house pharmacies now ... so you don't have to go anywhere else ..." [Female1, FGD3]

Issues regarding opening hours emerged during FGDs. Participants mentioned that accessibility to community pharmacy was limited in late evening and Sundays – not every pharmacy is open at these times.

"... I've just come from taking my grandson to the surgery...and I got there about 6:20 pm in Bootle, and the pharmacy next door was still open. But the chemist across the road, the one on Stanley Road itself, was closed..." [Male1, FGD2]

Concerns relating to privacy, as reported by other studies,[6, 46, 47, 55] were clearly an issue. Community pharmacists reported that consulting rooms are generally available to provide individual health advice. Indeed, it has been estimated that ~80% of community pharmacies in England are providing MUR[106] services for which a consultation area is a minimum requirement,[5] thus pharmacists may expect that the public would be aware of them. Unfortunately, some FGD participants did not even know such rooms existed and considered they must be rarely used. One FGD thought the consultation room was used only for clients of drug misuse services.

"... The only people I have seen go in there [a consulting room] are the people on the Methadone. But other than that they [community pharmacists] just take them [patients] to the side of the counter and talk to them ... We definitely haven't got a room ..." [Female4, FGD2]

The potential difficulty of providing a private consultation area within a pharmacy due to limited space was recognised by one GP, while comments in one FGD indicated unwillingness to engage in private discussion without privacy.

"... If there was something not right with my body ... the first thing I would do is make an appointment with the doctor. I wouldn't go and talk to somebody over a pharmacy counter ..." [Female2, FGD3]

Confidentiality was also of concern. One FGD voiced displeasure at the common practice of staff calling out patient's details for identification purposes.

"...What I really don't like is what they [community pharmacists] do when they make you call out your address and you're in a room full of people that's always a concern of mine..." [Female1, FGD1]

Concerns about other personal information remaining confidential have been previously reported,[6, 47] but did not emerge in this study.

Time pressure was raised by some community pharmacists. FGD participants identified an acceptable waiting time for prescribed medicines as 10-15 minutes, which is similar to the findings of one Australian survey.[107] However, they were dissatisfied with the overall busyness within pharmacies, both in terms of the number of customers and busyness of the pharmacist.

High dispensary workload was highlighted by pharmacists as a barrier to providing more public health services. This has risen recently due to the huge increase in prescription numbers,[108] and has also been identified as a barrier in previous work.[6] Workload has been reported to cause stress and desire to leave the pharmacy profession,[109] and may discourage pharmacists' interest in, and ability to deliver, public health services.[110]

A lack of continuity of service provision was raised in one FGD, although not by health providers in interviews. If pharmacy public health services could be provided continuously by all community pharmacies this would probably enhance the public's awareness regarding pharmacy public health roles.

"...They [community pharmacies] used to do the cholesterol but I think that's now stopped..." [Male3, FGD1]

"...I definitely think cholesterol screening should be offered because if they offer diabetes and they offer blood pressure it makes sense. And I know some do but they don't all offer cholesterol..." [Female4, FGD1]

This may be a feature of novel services which frequently commence with limited piloting in some particular pharmacies, and may subsequently not develop further or change, depending on both local and national priorities, e.g. a withdrawal of Chlamydia screening in Scottish pharmacies.[111] This lack of continuity could affect the public's awareness of service provision and is potentially exacerbated by frequent NHS re-organisations and policy changes. [27, 28, 112]

b. Factors relating to community pharmacists and pharmacy staff

FGD participants viewed the customer-pharmacist relationship positively.

"... He [the pharmacist]'s awfully nice, he sits you down and says what's wrong with you ..." [Female3, FGD2]

Some expressed the view that communication skills and patient-centred care could be improved. For example, one participant found her tablet had changed causing a problem, although the pharmacist denied the change had occurred until proven by the patient.

Most pharmacists were confident in their competence to provide public health services, viewing their ability to deliver as being limited mainly by workload. However, this was not the perception of GPs and the general public were also sceptical. This may reflect a lack of awareness of the pharmacist's changing roles which have not yet been sufficiently promoted.[47] One pharmacist expressed the view that

some pharmacists are familiar with routine dispensing tasks and would prefer not to provide new services.

"... We would need to make sure that they [community pharmacists and staff] could competently measure blood pressure and assess cardiovascular risk..." [GP1]

"... They're going to have to have more experienced staff to be able to do that [delivering health services]. For me, I'd go with a minor ailment..." [Female2, FGD2]

" ... Many community pharmacists just won't go outside their comfort zone ... they are hiding behind their checking prescriptions responsibility, and they won't challenge their own skills and knowledge ..." [PH4]

c. Service publicity

There was agreement among all participant groups that pharmacy public health services lacked publicity. This could limit public awareness of pharmacists' roles, as has been highlighted previously.[6, 47] FGD participants were only made aware of pharmacy public health services by 'word of mouth'.

"... I don't think it [pharmacy service] is advertised enough. If it was more advertised people would use the pharmacy a lot more ..." [Male1, FGD3]

A variety of promotional techniques were mentioned as potentially useful, including posters/leaflets, media advertising, and recommendation by GPs. Some had seen a flyer distributed to promote health services, but its appeal was limited because of poor quality.

"...One leaflet came around ... and it wasn't very attractive I don't even think it was in colour ..." [Female2, FGD1]

One of the other stakeholders noted the promotional techniques used should be carefully selected to target specific groups more effectively.

"... Publicising the services ... putting those messages out where they understand and where they are going to access the information ..." [ST3]

d. Factors relating to general practitioners

While in general the public have a high respect for GPs as health professionals, FGD participants were concerned about lack of continuity, GPs' workload, the need for an appointment and poor relationships with GPs.

"... Every time you go to the doctor you see a different doctor so that bond is gone completely..." [Female1, FGD1]

This could result in some favouring public health services from a community pharmacy. However, over-reliance on locum pharmacists (a part-time community pharmacist) could result in similar concerns being expressed about pharmacy staff.[113]

GPs themselves were satisfied with pharmacies providing basic services, e.g. checking prescriptions, counselling about medicines, and so on.

"... [Community pharmacies have provided services] in a multitude of ways. Firstly the primary issue of safety and of double checking my prescription, advising me of patient compliance, any interactions ..." [GP1]

Although GPs saw potential benefits from pharmacies, they lacked confidence in the ability of pharmacists to deliver services for chronic conditions, as reported previously;[114] in particular, skills in using the extensive range of laboratory tests which are necessary from their perspective.

"... If we were monitoring somebody with diabetes I am not sure whether the community pharmacy would be able to order and receive lab tests ... that might pose some barriers to management of long term conditions ..." [GP1]

Studies from a number of countries show that community pharmacists can successfully deliver such services.[4, 38] For example, cardiovascular risk can be simply assessed by using standard tools; such as the Framingham risk score and blood pressure/glucose testing devices.[115] Therefore, negative attitudes may relate to a lack of understanding or appreciation of the skills of pharmacists among GPs and other health professionals. A promotional campaign highlighting these skills may be helpful in garnering support for pharmacist's public health roles.

e. Factors relating to the general public

The awareness and understanding of, and preferences for, public health services among the general public are important factors which affect pharmacy use. This finding was common to all FGDs and interviews. The general public are not aware of changing pharmacy roles in recent years, still perceiving community pharmacies mainly as a source of medicines.[6, 30, 47]

"... The public don't fully understand what the pharmacy has to offer. They see us as a supplier of medicines full stop ..." [PH8]

FGD participants were unsure about pharmacists' role in cardiovascular screening. Comments indicated concerns about competence and demonstrated a lack of understanding about what such screening involves. This is in contrast to a recent study which suggests that the public would be happy to use such a service.[42]

"...Cardiovascular assessment anyway...they [community pharmacists] can tell you if you've got high blood pressure...but they can't tell if you've got heart disease very easily unless you give them [patients] an ECG..." [Male3, FGD1]

FGDs and some pharmacists considered elderly people would be more likely to seek health advice from GPs. Changing the public's attitudes to pharmacists and pharmacy staff is crucial if services are to expand and achieve the necessary utilisation for real viability.

f. Factors relating to health service systems and policy

Financial support, skill mix and local collaboration were identified as key issues involving health service systems and policy. Community pharmacists working in independent and small-chain (fewer than 5 branches) pharmacies strongly expressed the view that delivering public health services lacks financial support.

" ... The pharmacy contract is saying that you have got to do different things to earn the same amount of money that you had before, and that doesn't engage a lot of pharmacists ..." [PH4]

In contrast, the economies of scale of large chains allow centralisation of support for developing the standard operating procedures, promotional material and training packages leading to better support for delivering novel services. Other work reports that independent community pharmacies were unable to attract funding to support public health services.[110] GPs and other stakeholders, perhaps unsurprisingly, made no mention of financial issues.

The need for a significant commitment to dispensary tasks was raised as a major limitation on pharmacist's time by FGD participants and pharmacists due to the

continuing increase in the number of prescriptions.[108] Changes in skill mix are required to tackle this, with accredited pharmacy checking technicians as a key element.[116] Other possible developments, such as robotics, may also reduce dispensing time.

Pharmacists, GPs and other stakeholders all recognised that professional collaboration is required at a local level in primary care, as has been found elsewhere.[45, 55, 117] Such collaboration is important for signposting or for referring into existing systems, ensuring holistic care, avoiding duplication, ensuring targeting of different populations and enabling individuals to select their preferred public health service provider.

" ... There is a little bit of necessary integration between pharmaceutical local committees and the local medical committees, to ensure who's doing what in an area ..." [GP2]

" ... Getting the right encouragement and support from ...the whole community or ... drop-in clinics and stuff. I think that would be a better help in improving the public health service ..." [ST1]

" ... Letting doctors know what services you provide so they can let patients know of anything they will benefit...so working more closely with the doctor's surgeries..." [PH3]

The potential overall impact of community pharmacy services on public health was viewed as limited by all parties. Some felt that, in theory, pharmacy services could have a positive impact on public health, but the extent of their provision is limited by some of the constraints outlined.

"...It would have a very limited impact because I think patients would probably still come to their GP or their GP Practice Nurse for most of their advice..." GP2

Table 3-4 Themes identified from four participant groups

Factors affecting community pharmacy health service utilisation	Summary of views			
	Focus groups	Semi-structured interviews[a]		
	General Public	PH	GP	ST
Community pharmacy environment				
Accessibility	A	A	n/a	A
Convenience	A	A	n/a	A
Approachability				
Location	A	A	n/a	A
No appointment	A	A	n/a	A
Health centre pharmacies	A	n/a	n/a	n/a
Opening hours	D	n/a	n/a	n/a
Privacy: presence of consultation area	D	A	D	D
Confidentiality	D	n/a	n/a	n/a
Waiting time	D	D	n/a	n/a
Lack of services continuity	A	n/a	n/a	n/a
Community pharmacist and staff				
Customer-Pharmacist Relationship	A	A	A	n/a
Competency/expertise	D	A	D	D
Pharmacist's perception to public health roles	n/a	D	n/a	n/a
Service publicity				
Lack of publicity/Need promotion	A	A	A	A
Advertising materials/techniques	A	A	A	A
General practitioner services				
GP Workload	A	A	n/a	n/a
Appointment system	D	D	n/a	n/a
Patient-GP relationship	D	n/a	n/a	n/a
GP's perception to pharmacist's public health roles	n/a	n/a	D	n/a
General public				
Awareness/perception to pharmacist's public health roles	A	A	A	A
Health behaviour	A	n/a	A	A
Demographic: Elderly favour GP	A	A	n/a	n/a
Health service system and policy				
Financial support and remuneration	n/a	A	n/a	n/a
High volume of dispensing	A	A	n/a	n/a
Local inter-professional collaboration	n/a	A	A	A

[a] Note: PH = Community pharmacist, GP = General practitioner, ST = Other stakeholders, 'A' indicates the stakeholder group agree or are satisfied with that issue. 'D' indicates the group disagree or are dissatisfied with that issue. 'n/a' indicates the group did not mention that issue during FGDs or interviews.

3.5 DISCUSSION

3.5.1 Strengths and limitations

This study is the first to bring together the views of the four key participant groups on factors influencing utilisation of community pharmacy public health services. The qualitative approach and limitation to one small geographical area of England were used to allow in-depth exploration of this under-researched area to

inform future work and give initial evidence to support appropriate policy developments. The nature of the study means that the results cannot be generalised, but they do give good indications that may be applicable to the wider health community. While FGDs provided viewpoints of the general public in a group setting, data generated from interviews provided opinions from individual health providers. The differences between the two partly reflect the different approaches which are highlighted in the findings. However, these different sources add to the richness of the information obtained making it more comprehensive, and triangulation from both methods and data sources adds rigor. Public views were obtained through three FGDs of different socioeconomic classes designed to facilitate interaction, avoid imbalances and thus ensure views from all levels were obtained. An unavoidable recruitment bias was recognised regarding the techniques used to identify potential participants for the FGDs. However, the purposive sampling applied to interested parties was to maximise the range of individuals from different social classes. The additional recruitment via the flyer technique was a reflection of this purposive sampling aim to ensure that individuals from lower socioeconomic groups were included. The use of incentives for the focus groups, whilst common practice, may have led to a bias in the recruitment with atypical participants being recruited. However, the scale of the inducements was sufficiently small that it was not considered to be a significant factor in the data obtained. There is a possibility of social desirability bias due to participants' awareness of the study's origin in a School of Pharmacy. The number of GPs and other stakeholders who participated in the interviews was also low because of their limited availability and the topic was not perhaps directly related to their professions,

highlighting the difficulty and importance of developing methodologies to capture their views.

3.5.2 Implications for practice

Community pharmacies have been encouraged to deliver public health services worldwide.[2, 4, 30, 118] The community pharmacists in the study area reported that they currently provide a range of these services. The general public participating in FGDs were aware of some of these public health services provided through community pharmacy, but this was not universal amongst all participants. However, literature reviews and other studies report that the general public lack awareness of pharmacists' public health roles,[6, 30, 42, 47] and that many of these services are underutilised.[102] Other studies, in England,[101] Australia[119] and the US,[120] have shown low use of novel pharmacy services.

This study summarises key obstacles to service utilisation from the perspectives of four participant groups in one locality. It is likely that similar obstacles exist elsewhere, but further work is needed to ascertain this. There were important contrasting views regarding both privacy and expertise between the pharmacists and the public. Community pharmacists confirmed that private consulting areas are provided, as is claimed in a national policy document,[5] but the general public were unaware of this or have misperceptions about their use. This suggests that pharmacists need to publicise their facilities more effectively.

Community pharmacists also felt that they were competent to deliver public health services, whereas the public were uncertain. This finding is in line with a recent systematic review[30] which identified sceptical views of the general public toward pharmacist's abilities to provide clinical roles. A study in Swansea, Wales also reported

the public's perception as a barrier to patient-centred professionalism - *'Professionals say the public do not take pharmacists seriously, see them as professional, or understand their role'*.[46] The present study also found that GPs had reservations about pharmacists' ability to deliver certain services, which is similar to the findings of other studies worldwide. [45, 114, 121] Collectively these findings indicate that the perception of relevant stakeholders is a crucial factor prohibiting pharmacy utilisation and, again, effective promotion of the abilities and skills of pharmacists may be needed among other professions.

Appropriate promotional campaigns both locally and nationally could be an important key to promote pharmacy public health services and to improve perceptions of all stakeholder groups, as has been suggested for the Australian Home Medicines Review (HMR) service.[119] A previous national campaign in England, 'Ask your pharmacist',[28] has been successful in educating the public about seeking help for minor ailments from pharmacies resulting in this role being widely accepted by both the public and health professionals.[47, 114] Further research is needed to determine the most efficient methods of publicising services to potential users as little work has been published in this area. Recent policy changes are likely to reduce NHS marketing activities, therefore it is important that the community pharmacy profession learns to market its services effectively, to ensure that this problem is not exacerbated further.

Concerns about confidentiality also arose from the general public, illustrated by dislike of a commonly used identity verification process. Such concerns need to be recognised and processes improved to improve the public's confidence that pharmacy staff will maintain confidentiality.

Time was also a crucial barrier to service delivery identified by pharmacists. Recent moves towards large 'dispensing factories', internet pharmacies and robotics may not be universally welcomed but these, together with repeat dispensing and greater use of appropriately trained accuracy checking technicians yet to become embedded, could free up pharmacists' time for other services.[116, 119] While acknowledging that lack of time is a barrier perceived by community pharmacists, the desire to stick to familiar tasks, not engage with the public, and failure to be proactive are also important, as has been found in other countries.30, 114 Rapport et al[46] noted specific patient-centred training in communication skills should be included in undergraduate pharmacy courses and better post-registration courses developed, aimed at improving professionalism. Modification of the undergraduate pharmacy curriculum is a long-term strategy which is being addressed in the UK by the Modernising Pharmacy Careers programme.[122] Models found successful in other countries need to be considered, for example, the US[37] and Thailand[123] where modules integrate health promotion programmes to improve student's professional skills and embed positive perceptions towards pharmacy practice. On-line and distance training packages for pharmacists are available in England, produced by the Centre for Pharmacy Postgraduate Education,[124] as well as local training courses, but have been criticised.[46] Such courses need to fully embrace public health principles and consultation skills to help pharmacists develop a holistic approach to public health.

Perhaps the greatest factor may be that GPs frequently do not support pharmacy services, which has been an important issue with the MUR service.[45] Published evidence however confirms pharmacists' competence to deliver public health services.[4, 38, 47] Clearly, if GPs are to help promote pharmacy services, as

advocated by FGD participants, they need to not only agree that pharmacies should deliver those services but also engage in joint working. This is essential for establishing referral procedures between primary care professionals, but this key element of pharmacy public health service provision has often been overlooked in developing services. Inter-professional working may rely on GPs accepting the clinical roles of community pharmacists, which may not be universal,[45, 114, 121] and greater local collaboration was suggested as a way to encourage this. Opportunities for pharmacists and GPs to learn together have been highlighted as a way to increase confidence in each other's skills.[45, 46, 117] However collaboration needs to extend beyond GPs and pharmacists to include other relevant stakeholders, such as those involved in this study.

A recent major NHS re-organisation in England will result in PCTs being replaced by local Clinical Commissioning Groups, mainly consisting of GPs.[112] Pharmacists will have no right to involvement in these groups, and the changes already taking place in preparation for this re-organisation are placing pharmacy public health services at risk of de-commissioning.[125] Pharmacists therefore urgently need to demonstrate their abilities to deliver services and collaborate more effectively with local GPs. Changes in pharmacy contracts, funding and commissioning are likely to be key factors in future pharmacy-based public health services. However since commissioned public health services should be based on the needs of the local population, any pharmacy in areas with high need must be in a position to deliver these.

3.6 CHAPTER SUMMARY

This phase confirms that community pharmacies are currently regarded as a potential source of some public health services, with accessibility and good customer-pharmacist relationships seen as its main strengths. However, crucial obstacles to service utilisation are identified, including perceptions of the general public and other health providers about privacy and confidentiality in pharmacies, pharmacy staff competencies and high dispensary workloads. These could be addressed through greater use of consultation rooms and appropriately skilled pharmacy technicians as well as effective promotion to both the public and other health providers of pharmacy staff competencies. Improved networking and collaboration with local health professionals is needed to enhance their confidence in pharmacists' service delivery, helping to encourage greater general awareness and thus support. Evidence of the impact of pharmacy services on public health is currently lacking, but addressing these issues could be key to help increase utilisation and support further work exploring impact. Further multi-dimensional work is required to identify how use of pharmacy public health services can be maximised.

The findings from this qualitative study were used to develop a questionnaire (see Chapter 4) which has been used in a large survey exploring the general public's views towards community pharmacy provision of services relating to cardiovascular health and identifying promotional strategies. This is reported in Chapter 6.

CHAPTER 4 VALIDATION OF THE QUESTIONNAIRE

4.1 INTRODUCTION

Chapter 3 has demonstrated how background information was elicited by valid qualitative methods in relation to community pharmacy and its contribution to public health, as well as barriers and facilitators of using pharmacy public health services. Only three surveys conducted in England were identified prior to this study which were relevant to the general public's views on pharmacy public health services. Boardman et al[60] and Wazaify et al[59] emphasised surveys on OTC medicines, whilst Krska and Morecroft[6] focused on a wide range of public health services. None of these included topics related to the willingness to use or promotion of the services. Therefore, a new questionnaire was in need in order to achieve the research objective.

The questionnaire was devised by utilising the qualitative findings and relevant literature to specifically explore the general public's views towards pharmacy public health services. Importantly, a questionnaire must be reproducible and be able to gather accurate information from respondents. Part of the process of developing a valid questionnaire is to conduct pilot tests prior to implementation of the survey proper to ensure appropriate scope, content and reliability of the intended questionnaire.[63, 88] This chapter describes in detail the procedures used to validate the questionnaire for the present study.

4.2 OBJECTIVE

To develop and validate a questionnaire that can be applied, via a range of survey modes, to measure the views of the general public on pharmacy public health services.

4.3 METHODS

4.3.1 Questionnaire topics

A list of key questions were identified and formulated into a draft questionnaire between March and May 2010. Questions were derived from qualitative findings, reported in Chapter 3, and existing literature on pharmacy public health services and views of the general public.[5, 6, 47, 82, 84, 126] Pharmacy public health services were defined in this study as health services delivered through community pharmacies aiming to help tackle public health matters at a local level such as smoking cessation assistance, advice on safer alcohol consumption, heart health and others.[41] A decision was made to pay particular attention to services related to CVD, which are significantly associated with a number of risk factors, for example; hypertension, diabetes, smoking, drinking excessively.[37, 127] Consequently, focusing on this key disease can impact on a wider range of health issues. To achieve the study aim, the questionnaire was originally constructed into six themes or domains as follows;

a. Public health concerns

This domain introduced public health issues to participants and explored whether the general public were aware of them. Public health issues proposed were based on the key issues identified as important by the Sefton PCT, including smoking

and alcohol related problems, heart diseases, hypertension, hyperlipidemia, diabetes, and overweight/obesity.[41]

b. Use of community pharmacies

This domain was included in order to determine how frequently respondents visited community pharmacies and the purpose(s) of their visit(s), since such information could reveal factors which influence the public's views towards use of pharmacy public health services. Previous studies found that the more frequent pharmacy users were more supportive of pharmacy services,[6] while other systematic reviews determined that satisfaction with pharmacy public health services were normally high among users who had had experience of these services.[30] The purposes of pharmacy visits included both medicine supply and sales of health products since they are fundamental roles of community pharmacy.[28, 47, 60] Importantly, since services related to CVD risk factors were the study emphasis, as explained in Chapter 1 (see page 11), seven services were incorporated in the questionnaire, including health advice for; stopping smoking, sensible drinking, losing weight and heart health, and health checks; blood pressure check, cholesterol check and blood sugar check.

c. Willingness to use pharmacy public health services

This domain was intended to help ascertain the public's willingness to use pharmacy public health services, and thus predicting the feasibility of service delivery. The same seven services, as identified in the previous section 'Use of community pharmacies', were included in this domain.

d. Factors influencing pharmacy use

This domain was included as the means to examine the general public's opinion on which factors would influence pharmacy use. There were nine potential factors identified which influence pharmacy use, derived from the existing literature and from the qualitative findings reported in Chapter 3, which were judged to be appropriate to be included in the questionnaire;

- Loyalty – Wazaify et al found that the general public in Northern Ireland often use the same pharmacy.[59]
- Type of community pharmacy – Bush et al[110] reported that supermarket and multiple chain pharmacies were able to draw financial support for pharmacy public health activities. In addition, they commonly use locum pharmacist to cover the longer opening hours, thus expanding accessibility.[5]
- Location – The location of the community pharmacy was frequently cited in national and global policy documents[2, 5, 104, 105] as the greatest advantage, consistent with previous qualitative studies (see Chapter 3, page 70).
- Opening time – As mentioned above, a community pharmacy has longer opening hours.[5] However, FGD participants in the previous qualitative study mentioned that longer opening time was not universal (see Chapter 3, page 71). This issue, therefore, needs further investigation.
- Rapport – The previous qualitative study also found that the general public and pharmacists build up good relationships, which potentially influence peoples' preference to use a community pharmacy (see Chapter 3, page 73).

- Pharmacist's gender – Bharat and Mahendra[128] identified that counsellor's gender is one of the challenges to providing services which involve sensitive issues such as sexual or reproductive health which had never been previously addressed in pharmacy public health services reserach. Therefore, it was included in this questionnaire.
- Waiting time – As found in the previous qualitative study, FGD participants expressed dissatisfaction with the waiting time for obtaining prescribed medicines (see Chapter 3, page 72). This issue should be explored in order to improve the quality of pharmacy service.
- Privacy and confidentiality – these two attributes were normally coexisting as crucial barriers for pharmacy use, reported by other studies [6, 46, 47, 55, 129] as well as found in the previous qualitative study (see Chapter 3, page 71-72)

e. Promotion for pharmacy public health service

This domain was identified from the qualitative findings in which participants had suggested a range of advertising techniques which could possibly help promote pharmacy public health services. These suggestions included: recommendations by health professionals/friend and family, use of posters/leaflets, mass media and internet-based advertising (see Chapter 3, page 74)

f. Demography of respondents

This domain included the health, lifestyle, gender, age, ethnicity, education, social status, and postcode of the participants. These indicators are essential to examine if the general public' opinions were associated with any of these demographic factors. Questions in this domain were derived from standard tools such as the AUDIT

C alcohol screening questionnaire[130] and the English National Census 2011.[131] Social class was categorised based on occupation using A-E social class, defined by Chisnall.[132] Full postcode was also required to enable geodemographic segmentation based on MOSAIC™ classification.[9, 10]

The first draft of the questionnaire (Table 4-1) was designed to be clear and easy to follow, covering all domains proposed above. Questions were concise and simplified for a lay person. Content and wording were revised iteratively by the research team. An introductory sheet was included on the first page which introduced the objectives of the study and defined terminology, for example, what is community pharmacy and who is a pharmacist, as some refer to these as the chemists and chemist. The front page also provided brief instructions on how to complete the questionnaire. Question types and scales of measurement were assigned differently to each domain, sub-domain and element, depending on appropriateness, including closed- and open-ended questions, multiple-choice and ranking scales. When the first draft questionnaire was finalised it contained four parts with 28 questions and was 10 pages long.

Table 4-1 First draft of questionnaire structure

	Domains	Dimensions	Elements	Question types/Scale
Introduction			Study objective, terminologies, brief instruction	
Part A	**Public health concerns**		Smoking related problems Alcohol related problems Heart disease Hypertension Hyperlipidemia Diabetes Obesity Other health concerns	Ranking – 3 scales; Very worried, a bit worried, not worried Opened-ended
Part B	**Behaviour of using community pharmacy**	Frequency of visiting community pharmacy		Multiple choice
		Purpose of pharmacy visit	Prescription collection Buy medicines Buy dietary supplements Buy toiletries/beauty products Get advice about minor health problems Get advice for long term health problems	Ranking – 3 scales; Always, sometimes, never
		Experience of pharmacy public health services	Services related to medicines Advice for minor ailments Lifestyle advice services Health checks Other services	Closed-ended; Yes, no Opened-ended
	Willingness to use pharmacy public health services		Services related to medicines Advice for minor ailments Lifestyle advice services Health checks	Ranking – 3 scales; Yes, maybe, no
	Factors influencing pharmacy use		Loyalty, Type of community, Pharmacy location, Opening time, Rapport, Pharmacist's gender, Waiting time, Privacy, Confidentiality	Ranking – 3 scales; Agree, don't mind, disagree
Part C	**Promotion of health services**		Recommendation Poster of leaflet at divergent settings Mass medias Internet-based	Ranking – 3 scales; Yes, maybe, no
Part D	**Demographic**	Health	Self-rate health status Medical histories Other health conditions	Ranking – 5 scales; Very good, good, fair, poor, very poor Closed-ended; Yes, no Opened-ended
		Lifestyle	Smoking, Alcohol consumption, Weight, Physical activity, Fibre intake	Multiple choice Filling answers
		General demographic	Gender, Age, Ethnicity, Education, Social class	Multiple choice
		Geographic	Postcode	Filling answers

4.3.2 Face validity

Face validity is a type of questionnaire validity usually assessed by small numbers of relevant colleagues at early stage in order to validate a questionnaire. This is used to assess whether the questions drafted have the ability to generate the pertinent answers accurately.[88] The first draft preliminary assessment took place in late May 2010. Questionnaires were sent to ten native English-speaking volunteers, most of whom were health researchers at LJMU. They were asked to complete the questionnaires and comment on questions which were ambiguous, had potential for misunderstanding or showed some other weaknesses. Table 4-2 demonstrates preliminary feedback from volunteers. In general, questions were simple, clear and concise. Some ambiguities were identified with suggestions on simplification. The questionnaire was revised following these comments resulting in a second draft containing 28 questions, 8 pages long.

Table 4-2 Summary of comments on the first draft questionnaire

Domains/Dimensions	Question items	Comments	Action
Introduction		Community pharmacy was a confusing term. Two volunteers only thought of the one located in a local community but did not realise to the chain stores e.g. Boots, Lloyds.	Replaced this term with 'pharmacy' and re-clarify terminology in the introduction.
Frequency of visiting community pharmacy	On average, how often did you go to a community pharmacy in the last 6 months?	This was intended to include any reason of visiting community pharmacy. Two volunteers suggested to add 'for any reason' in the question.	On average, how often did you go to a pharmacy for any reason in the last 6 months?
Purpose of pharmacy visit	How often do you do the things below when you go to a pharmacy	This question offered a 3-scale ranking (Always, sometimes, never). One volunteer suggested including two more choices, often and rarely.	Preferred to keep the 3-scale ranking because it was more simplistic.
Factors influencing pharmacy use	For each statement below, please tell us what you think	This question offered a 3-scale ranking (Agree, don't mind, disagree). Two respondents felt the scale 'Don't mind' did not apply to two statements regarding to confidentiality.	Changed this scale to 'don't mind/not sure.
		One volunteer concerned of the term 'a GP/GP surgery'.	Changed this term to 'a doctor'.
Promotion of health services	Would advertising services in this way work for you?	Two volunteers were unsure what this question meant.	Changed to 'Would advertising services in this way encourage you to use pharmacy services?'
	Included on a healthcare website (e.g. NHS choices) or Looking Local TV channel	Three respondents did not know 'Looking local TV channel' This question offered a 3-scale ranking (Yes, maybe, no). One respondent suggested changing to 2-scale, yes and no.	Preferred to keep it because this was specific to Sefton. Preferred to keep the 3-scale ranking
Demographic	On average, how many days per week do you eat 5 portions of fruit or vegetables?	Two volunteers, they consume about 3 portions per day. This may imply that they would not get any point from this question.	To avoid offending respondents, changed this question to 'On average, how many portions of fruit or vegetables do you eat per day?'
	Please tell us your full postcode (we will not contact you or pass your details on to anyone else)	One respondent suggested this was sensitive - perhaps only the first 4 digits of postcode was sufficient.	Full postcode was essential since the study aimed to examine association between geodemographic factors and the general public's opinions.

4.3.3 Reliability

The second draft questionnaire was approved by the LJMU Research Ethics Committee on 7th June 2010 prior to conducting a pilot survey to test its reliability and content validity (reference: 09/PBS/005).

a. Pilot survey I

Pilot survey I was undertaken at a range of locations in Liverpool such as shopping streets, coffee shops and public parks, involving the general public from a range of demographic groups. Eligible participants were aged 18 years or over. Potential participants were given an information sheet for the pilot survey (Appendix 4-12; page 299) and asked to respond to the questionnaire either by themselves or with the interviewer (research student), using the second draft questionnaire. Participants were also asked to comment on the questionnaire. The research student also noted weaknesses and difficulties participants faced when completing the questionnaire. Raw data were entered onto the SPSS database.

Fifty-five participants responded to this first pilot survey. Of those, 39 completed the questionnaire by themselves and 13 chose face-to-face interviewing. The majority of respondents were female (58.2%), in middle age (35-64 years old; 46.3%), had completed primary/secondary school (45.1%) and were of lower occupational class (skilled, semi-skilled and unskilled manual worker; 46.0%).[132] Table 4-3 summarises comments from the pilot survey I. In general, the questionnaire was reported as easy to follow and took approximately 10 minutes to complete. Concern was raised that this was too lengthy for face-to-face completion on the street.

Respondents and the research student identified a few redundant and ambiguous statements.

Table 4-3 Summary of comments on the second draft questionnaire

Domains/Dimensions	Question items	Comments	Action
Public health concerns	Thinking about you and your family, how worried are you about each of following health problems?	It was difficult for respondents to think on behalf of the others	Changed to 'Thinking of yourself, please tell us whether you have been told by your doctor that you have any of the following and how much you are worried about it.'
		This question would be better included in health dimension to eliminate repetitiveness and help the questionnaire flow more smoothly.	Amended as suggested.
Experience of pharmacy public health services	Have you ever done this in a pharmacy?	Some statements under this question were repetitive with previous question regarding the purpose of pharmacy visit.	Statements related to lifestyle advice and health checks were retained in this question. Statements related to medicine-oriented services were included with the previous question

Cronbach's alpha was used to analyse the reliability of question sets which explored opinions using raking scales. Field[133, p. 676-81] recommended that Cronbach's alpha coefficient can indicate consistency of each question set and can be simply analysed by SPSS. Key values in the reliability analysis output are corrected item-total correlation, Cronbach's alpha if item deleted and Cronbach's alpha. *Corrected Item-Total correlation* was used to identify internal consistency of each question sets, with a value of 0.300 or greater used as the cut-off point to represent a good correlation between each question item and the overall score of the question set. *Cronbach's alpha if item deleted* was used to identify an adjusted value of *Cronbach's alpha* if that question item was deleted. Finally, *Cronbach's alpha* was used to identify overall reliability of a question set. A value above 0.800 represents good reliability, however,

0.700 was deemed acceptable. Therefore this study used 0.700 as a cut-off point for assessing reliability of the questionnaire, results are shown in Table 4-4.

Table 4-4 Reliability analysis of the pilot survey I

Question items	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted	Standardised Cronbach's alpha
Concern of public health: Thinking about you and your family, how worried are you about each of following health problems?			
Smoking related problems *(e.g. lung cancer)*	0.416	0.789	0.799
Alcohol related problems *(e.g. hepatitis)*	0.581	0.756	
Heart problems *(Cardiovascular disease)*	0.582	0.754	
High blood pressure *(Hypertension)*	0.603	0.751	
High cholesterol	0.622	0.750	
High blood sugar *(Diabetes)*	0.558	0.760	
Being obese or over weight	0.337	0.801	
Willingness to use pharmacy public health services: Would you do this in a pharmacy in the future?			
Get a prescription dispensed	0.445	0.660	0.698
Get advice about prescribed medicines	0.483	0.629	
Buy medicines *(painkillers, things for hay fever or colds, etc...)*	0.429	0.662	
Get advice about medicines you have bought	0.592	0.552	
Get advice about minor health problems *(skin problems, upset stomach, viruses, etc...)*	0.104	0.665	0.601
Get advice about stopping smoking	0.287	0.576	
Get advice about sensible drinking	0.532	0.449	
Get advice about losing weight	0.366	0.533	
Get advice about keeping your heart healthy	0.525	0.434	
Get your blood pressure checked	0.826	0.874	0.913
Get your cholesterol checked	0.794	0.899	
Get your blood sugar checked	0.855	0.849	
Factors influencing pharmacy use: For each statement below, please tell us what you think			
I prefer to use the same pharmacy every time	0.382	0.713	0.723
I prefer to use a pharmacy owned by a large company	-0.047	0.754	
I prefer to use a pharmacy owned by the pharmacist who works there	0.478	0.702	
I prefer to use a pharmacy in a supermarket	-0.015	0.752	
I prefer to use a pharmacy near to where I live	0.462	0.707	
I prefer to use a pharmacy near to where I work	0.104	0.740	
I prefer to use a pharmacy near to my doctor surgery	0.158	0.735	
I prefer to use a pharmacy that is open late on weeknights	0.600	0.692	
I prefer to use a pharmacy that is open on Saturdays	0.573	0.698	
I prefer to use a pharmacy that is open on Sundays	0.500	0.701	
I prefer to visit a pharmacy where I know the pharmacist	0.540	0.695	
I prefer to visit a pharmacy where pharmacy staff know me	0.467	0.703	
I prefer to talk to a pharmacist who is the same sex as me	0.338	0.718	
I prefer to use a pharmacy where I don't have to wait longer than 15 minutes to see the pharmacist	0.333	0.719	
I prefer to use a pharmacy where I can talk without being overheard	0.304	0.721	
I trust the pharmacist to keep my personal information confidential	0.099	0.734	
I trust the pharmacy staff to keep my personal information confidential	0.060	0.736	
Promotion for pharmacy public health services: Would advertising services in this way encourage you to use them?			
Recommended by my doctor or another health professional	0.440	0.923	0.918
Recommended by my family and friends	0.318	0.926	
Advertised on a poster/leaflet in a pharmacy	0.814	0.905	
Advertised on a poster/leaflet in a doctor surgery	0.736	0.909	
Advertised on a poster/leaflet in a public place	0.837	0.904	
Advertised on a leaflet dropped through my door	0.605	0.916	
Advertised on a local newspaper / local free paper	0.759	0.908	
Advertised on television	0.843	0.904	
Advertised on a local radio station	0.777	0.907	
Advertised by sending information to my email	0.679	0.912	
Included on a healthcare website or Looking Local TV channel	0.697	0.911	

The summary of comments on the second draft and reliability analysis revealed that question sets about the concern of public health and the promotion for pharmacy public health services had internal consistency and good reliability. However, concern about public health was identified as potentially repetitive with the later question set on health conditions. The previous phrase 'thinking about you and your family...' was found to be somewhat complicated for respondents. These two question sets were thus merged and included in a health section and re-worded as 'thinking of yourself...' to enhance simplicity.

Willingness to use advice services and medicine-related questions were repetitive and less reliable, these question sets were therefore revised. The overall Cronbach's alpha was acceptable for factors influencing pharmacy use, however, several items appeared not to correlate well with the overall score of this question set. Those statements were: *"I prefer to use a pharmacy owned by a large company", "I prefer to use a pharmacy in a supermarket", "I prefer to use a pharmacy near to where I work", "I prefer to use a pharmacy near to my doctor surgery", "I trust the pharmacist/staff to keep my personal information confidential"*. This was likely to be because divergent attributes were contained in the set. Nevertheless we retained the set as per the original as it was a key component of the overall research objective.

Following this reliability assessment, the questionnaire was modified a further time by re-wording, the elimination of repetitive phrases/questions, and some re-ordering of question items as suggested during the pilot survey I. The third version was collapsed into three parts (while retaining the six original dimensions), contained 27 questions and was 8 pages long. The three sections were:

Part A: 'Your pharmacy' included three domains, behaviour of using community pharmacy, willingness to use pharmacy public health services and factors influencing pharmacy use;

Part B: 'Advertising pharmacy services' included promotion of health services domain;

Part C: 'About you' included two domains, public health concerns and demographic information.

b. Pilot survey II

The third draft questionnaire was piloted again in Liverpool. The same procedure as pilot survey I was used to approach potential participants, described in the section Pilot survey I. Forty-five members of the general public completed the survey; 27 self-completed and 18 were completed face-to-face with the interviewer. The majority of respondents were male (55.6%) and of young age (18-34 years old; 44.4%), had completed bachelor degree or higher (40.0%) and held higher occupation class (higher and intermediate managerial; 44.2%).[132] The demographics of respondents in the pilot survey II were slightly different from the pilot survey I but differences were not significant, therefore should not affect tests for reliability.

The findings of the reliability analysis (same as that for the pilot survey I) is shown in Table 4-5. The three question sets that measured willingness to use pharmacy public health services, the promotion of services, and concern of public health were reliable. However, the question item on 'Get advice about minor health problems' was less consistent with the overall score of the willingness to use pharmacy public health services. This item was moved to the section of purpose of visiting

pharmacy since it fitted in better with acceptable services already acknowledged by regular pharmacy users.[47] The reliability of the question set on factors influencing pharmacy use was also good. However, the last four items relating to waiting time, privacy and confidentiality had low correlation with other items. A diversity of factors was contained in the question set. Finally, a decision was made to remove the item on waiting times, and to change it to a multiple choice question. In addition, the item on privacy was rephrased to 'I prefer to talk to a pharmacist in a private room'. Nevertheless, two items on confidentiality were retained in this question set because confidentiality is a critical component of the research investigation, as noted in a previous study.[6]

Table 4-5 Reliability analysis of the pilot survey II

Question items	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted	Standardised Cronbach's alpha
Willingness to use pharmacy public health services: Would you do this in a pharmacy in the future?			
Get advice about minor health problems (skin problems, upset stomach, viruses, etc...)	0.190	0.851	0.784
Get advice about stopping smoking	0.765	0.703	
Get advice about sensible drinking	0.743	0.717	
Get advice about losing weight	0.640	0.749	
Get advice about keeping your heart healthy	0.606	0.765	
Get your blood pressure checked	0.747	0.854	0.882
Get your cholesterol checked	0.806	0.801	
Get your blood sugar checked	0.761	0.842	
Factors influencing pharmacy use: For each statement below, please tell us what you think			
I prefer to use the same pharmacy every time	0.497	0.782	0.779
I prefer to use a pharmacy owned by a large company	0.435	0.787	
I prefer to use a pharmacy owned by the pharmacist who works there	0.663	0.769	
I prefer to use a pharmacy in a supermarket	0.387	0.791	
I prefer to use a pharmacy near to where I live	0.429	0.788	
I prefer to use a pharmacy near to where I work	0.542	0.779	
I prefer to use a pharmacy near to my doctor's surgery	0.384	0.791	
I prefer to use a pharmacy that is open late on weeknights	0.320	0.796	
I prefer to use a pharmacy that is open on Saturdays	0.549	0.781	
I prefer to use a pharmacy that is open on Sundays	0.411	0.789	
I prefer to visit a pharmacy where I know the pharmacist	0.627	0.771	
I prefer to visit a pharmacy where pharmacy staff know me	0.489	0.783	
I prefer to talk to a pharmacist who is the same sex as me	0.355	0.793	
I prefer to wait no longer than 15 minutes to see the pharmacist	-0.016	0.810	
I prefer to use a pharmacy where I can talk without being overheard	0.020	0.807	
I trust the pharmacist to keep my personal information confidential	0.279	0.799	
I trust the pharmacy staff to keep my personal information confidential	-0.027	0.810	
Promotion for pharmacy public health services: Would advertising services in this way encourage you to use them?			
Recommended by my doctor or another health professional	0.472	0.916	0.914
Recommended by my family or friends	0.538	0.914	
Advertised on a poster/leaflet in a pharmacy	0.753	0.904	
Advertised on a poster/leaflet in a doctor surgery	0.747	0.903	
Advertised on a poster/leaflet in a public place	0.690	0.906	
Advertised on a leaflet dropped through my door	0.755	0.903	
Advertised in a local newspaper / local free paper	0.780	0.902	
Advertised on television	0.753	0.903	
Advertised on a local radio station	0.731	0.904	
Advertised by sending information to my email	0.481	0.916	
Included on a healthcare website *(e.g. NHS choices)* or Looking Local TV channel	0.663	0.908	
Concern of public health: How worried are you about it?			
High blood pressure (Hypertension)	0.775	0.819	0.867
High blood sugar (Diabetes)	0.760	0.822	
High cholesterol	0.664	0.834	
Overweight or Obesity	0.545	0.858	
Heart disease (Cardiovascular disease)	0.525	0.854	
Smoking related problem (e.g. lung cancer)	0.540	0.851	
Alcohol related problem (e.g. hepatitis)	0.659	0.837	

4.3.4 Cognitive interview

A cognitive interview was included in the process of validating the third draft of the questionnaire. This method had the ability to draw out respondents' thoughts while they were responding to each question item, enabling the interviewer (research student) to identify any further problems with the questionnaire, such as wording and language, and therefore contributed towards the validity analysis. [90-93] The 'thinking aloud' technique allowed participants to explain out loud to the interviewer whether or not they had understood each of the questions asked and how they intended to answer.[90, 91]

a. Recruitment of participants

Ethical approval was granted on 20th July 2010 by LJMU Research Ethics Committee (Ref: 09/PBS/005) prior to recruitment of participants. Twenty five volunteers for the qualitative component, who had been interested in attending previous FGDs but were unable to do so, were identified as potential participants. Invitation packs were posted with an invitation letter (Appendix 4-13; page 300), a participant information sheet (Appendix 4-14; page 301), a participation form (Appendix 4-15; page 302) and a freepost envelope. Participants were offered a £15 shopping voucher to compensate for their time plus travel expenses if necessary.

b. Conduct of cognitive interviews

Ten participants agreed to participate in a face-to-face cognitive interview. Of those, six were male and two were under 40 years old. One interview took place at LJMU, one at a participant's office, and the remainder took place in participants' homes. A series of interviews were lasted approximately one hour. An interview

schedule (Appendix 4-16; page 303) was developed as a guide for conducting the cognitive interviews. Written consent (Appendix 4-17; page 304) to participate and to allow the operating of an audio recorder was taken prior to the interview. Participants were asked to complete the questionnaire by reading it out loud as well as explaining face to face with the interviewer what the reasons were for choosing the answers given. The interviewer noted down important points/issues during the cognitive interviews for further analysis.

c. Data analysis

All comments/feedback relating to the draft questionnaire from notes and audio records were gathered and summarised to identify problems with questions, as shown in Table 4-6. It was subsequently used to revise and finalise the questionnaire.

4.3.5 Finalising of the questionnaire

The questionnaire was finalised iteratively following information gathered from face validity test, reliability analysis, iterative test of content validity and cognitive interviews. Although a few question items were altered on the final version, reliability did not need to be re-tested because only minor changes were made, which did not affect the key question sets. The final version (Appendix 4-18; page 305) was comprised of three parts containing 31 questions, was 8 pages long and covered the six domains from the original draft. This rigorous approach to development provided a reliable and valid questionnaire for use in the subsequent survey. It was anticipated that administration of the questionnaire to the general public could also use different survey approaches (interviewer-assisted and self-completion), since these had previously been tested as part of the questionnaire development. It was decided,

however, that results from the different modes in the final survey phase would be analysed separately first to evaluate equivalence of findings, prior to combining data.

Table 4-6 Problems of the questionnaire identified from cognitive interviews

Domains/Dimensions	Question items	Comments	Action
Experience of pharmacy public health services	Please tell us whether you have ever used each of the services below	A few participants thought that they have used a few of these services but not in a pharmacy.	Included 'in a pharmacy' into this question
Factors influencing pharmacy use	For each statement below, please tell us what you think	This question set covered two pages, one participant suggested that it was too much to repeat a reminder (definition for specific terms).	Removed a reminder from the second page.
Promotion for pharmacy public health services	Included on a healthcare website (e.g. NHS choices) or Looking Local TV channel	Most participants never heard about 'Looking local TV channel'	Preferred to keep it because this was specific to Sefton.
Lifestyle	How often do you exercise per week?	A few participants were wondering if walking counted. Definition and example of exercise might be needed to clarify.	Add definition of exercise
	Question regarding alcohol consumption	This question set had three sub-questions. Most participants took some moments to figure out the meaning of 'one unit' of drinks contained alcohol.	Included definition of 'one unit' of drinks contained alcohol as a figure and re-order it prior to the first question of this set.
Social class	What is your current or most recent job?	One participant felt that her occupation did not match with any option proposed since her was appropriate in between supervisory and skilled manual work.	Changed to use the criteria recommended by the Standard Occupational Classification 2000 [87] and add 'other' for participants who were unable to identify their category.

CHAPTER 5 EFFICIENCY AND EQUIVALENCE OF EIGHT SURVEY MODES APPLIED IN HEALTH SERVICE RESEARCH

5.1 INTRODUCTION

Postal or mail surveys are the most frequently used approach in health service research[62] designed to study the population's perceptions[61] since probabilistic random sampling can be simply applied, thus minimising the possibility of selection bias.[62] The response rate for postal surveys of health professional[64] and on population lifestyles[65] have decreased in recent decades and not even achieved 60% which is the response rate generally regarded as acceptable.[63, p.60-61] Previous studies have suggested ways in which to boost response rates, e.g. reminder letters or telephone calls, and other measures.[64-68] A few studies recommended using mixed-mode surveys to collect data which was of interest for this present study to maximise survey responses.[65, 72, 73] However, researchers do not automatically assume equivalence with multiple modes.[72] Moreover, information on the equivalence of different survey modes in terms of efficiency and cost effectiveness is sparse.

In response, this study of the general public's views towards pharmacy public health services was deliberately planned to use a variety of survey modes in order to evaluate response outcomes and different survey costs. The findings can then be used to formulate recommendations on how to maximise response rates and enhance the validity of generalising results while using methods that are also cost-effective.

5.2 OBJECTIVES

(1) To evaluate methodological outcomes of eight survey modes used in health services research.

(2) To examine the cost-effectiveness of eight survey modes used in health service research

5.3 METHODS

5.3.1 Survey design and sample size

A cross-sectional survey was designed using two survey administration approaches; interviewer-assisted and self-completion, concurrently gathering data within the same population. For the interviewer-assisted approach, three modes were used including street, door-to-door and telephone survey. For the self-completion approach, three modes were initially used, including double-mailing, postal survey to public/private organisations (postal-OGN) and online. Potential participants were selected from the general public and continued to be approached by each mode, until the target of 200 respondents per mode was reached. Most potential participants were provided with written information regarding the study prior to participating, but information was provided verbally when conducting the telephone survey. Verbal consent was obtained for all techniques used involving interviews. For surveys using the self-completion approach, consent was implied through completion and return of the questionnaire.

5.3.2 Interviewer-assisted completion

a. Preparation before survey implementation

(1) Training research assistants

A two-hour training session on interviewer administration of the questionnaire was provided to four undergraduate students, hereafter termed research assistants (RAs). The session was facilitated by experienced researchers, providing the RAs with guidelines for conducting face-to-face and telephone interviews in a professional manner. All RAs practiced administration using role play in both face-to-face and by telephone prior to the survey.

(2) Preparing materials

Materials were prepared, i.e. questionnaires (Appendix 4-18; page 305), participant information sheets (Appendix 5-19; page 314, Appendix 5-20; page 315), flashcards, clipboards, stationery and other necessary information and materials.

b. Survey implementation

(1) Street survey

A street survey was conducted between January and February 2011 which included weekdays and weekends. Three researchers (two RAs and the research student) administered surveys at eight selected commercial centres e.g. town/city centres, shopping streets across Sefton. The survey activities were split into three slots per day and carried on for about one hour at a time. A quota sampling framework was used with regard to gender and age groups, as shown in Table 5-1, in order to ensure the representativeness for Sefton of the respondents' demographics. People who passed by researchers were randomly approached and invited to complete the

questionnaire. At the end of the day the number of participants was summarised by gender and age group to plan which gender and age group was the target for the next day's survey.

Table 5-1 Framework of quota sampling used for street survey

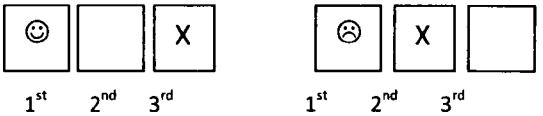
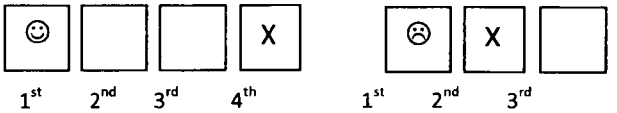
Age groups	Male	Female
15 – 34 years	26	30
35 – 64 years	45	53
Over 65 years	21	25

(2) Door-to-door survey

Twenty postcodes were randomly selected from the postcode address file for Sefton. All addresses in the file were assigned identification numbers individually. Random.org was used to generate twenty random numbers which were then used to select the postcode. For example, if number '5436' was generated, then the postcode of the address assigned with number '5436' was chosen. This selection process was followed until twenty different postcodes were obtained. Of these selected postcodes, the last two letters were removed prior to gathering all streets located in those areas; for example, if 'L22 5PQ' was chosen, all streets located within 'L22 5' were then included. Five streets from each area were randomly selected as target streets for conducting the door-to-door survey. However, any randomly selected street containing less than ten houses was excluded. The door-to-door survey was undertaken during January and February 2011 covering weekdays and weekends. Three researchers (two RAs and the research student) visited households on selected streets, asking whether any occupant would be willing to take part. If refused,

researchers would move on to the next household. If completed, selection of the next household depended upon housing types, shown as Figure 5-1.

Figure 5-1 Protocol for household visits

Housing types	Protocol
Detached	If someone in the first house agreed to take part, then researchers skipped one house (the second one) and moved on to the third house. If they received no answer or a refusal, they then moved on to the next house. 
Semi-detached and terraced	If someone in the first house agreed to take part, then researchers skipped two houses (the second and third ones) and moved on to the fourth house. If they received no answer or a refusal, they then move on to the next house. 

Note: ☺ = completed, ☹ = refusal, X = Next household visit

(3) Telephone survey

Four RAs each created a list of eight hundred telephone numbers by randomly selecting numbers from BT phonebooks 2010/11 for Liverpool and Southport which were relevant to Sefton. (Procedure detailed in Appendix 5-21; page 316) Telephone numbers outside Sefton were excluded. A telephone survey using these telephone lists was undertaken by RAs during January and February 2011. All RAs had to follow the script (Appendix 5-22; page 317) when conducting the survey to ensure consistency of interviews between different RAs. Phone calls were made in the mornings, afternoons and evenings, covering weekdays and weekends. Information about the study was given to potential participants and their consent was obtained verbally, with written information being sent to respondents if they requested it.

5.3.3 Self-completion

a. Preparation before implementing survey

The methods used for self-completion of questionnaires included two main different methods; through postal survey and through an online survey. Survey packs were prepared for all modes involving mailing. Additionally, an electronic questionnaire was developed.

b. Survey implementation

(1) Postal survey

Five-hundred households were randomly selected from the postcode address file. All addresses in the file were individually assigned identification numbers. Random.org was used to generate 1,000 random numbers which were then used to select the address. For example, if number '5436' was generated, then the address assigned with number '5436' was chosen. This selection process was followed until 500 different addresses were obtained. Addresses of companies/organisations were excluded. Survey packs were posted to these selected households in March 2011. Each pack contained an invitation letter (Appendix 5-23; page 318), a participant information sheet (Appendix 5-24; page 319), a questionnaire (Appendix 4-18; page 305) and a freepost envelope. A postcard reminder (Appendix 5-26; page 321) was sent to all recipients one week later. Non-responders were sent a second survey pack and a reminder in the following month. The survey pack plus a postcard reminder was sent twice (the second time sent to non-responders), therefore this mode was named as 'double-mailing'. The survey pack also enclosed an invitation to participate in the focus group discussion which would be conducted once the survey was completed. If a

person was interested in taking part in the focus group, a participation form (Appendix 5-25; page 320) had to be completed and returned to research team (Further details in Chapter 2 and 7). Despite two mailings, the target of 200 completed questionnaires was not reached. Therefore in late April 2011, a further 500 households were sent survey packs (without invitation to a focus group discussion; Appendix 5-27; page 322), followed by one postcard reminder, but no further follow-up questionnaire. The method was thus termed 'single-mailing' survey mode.

(2) Public and private organisation survey

A public or private organisation was defined as any place in which some type of service was provided for members of the public, either operated by a local council or within the commercial sector; e.g. shops, banks, restaurants, libraries, etc. These places were seen as effective gateways for questionnaire distribution. A postal survey to public/private organisations (postal-OGN) was first used to gather data. A list of 377 local businesses in Sefton, (e.g. shops, banks, solicitors, and others) was obtained from the WeLoveLocal website[99] (a website assembled of local businesses). Invitation packs were distributed in March 2011 to all 377 businesses, consisting of an invitation letter (Appendix 5-28; page 323), a participant information sheet (Appendix 5-29; page 324), a consent form (Appendix 5-30; page 325), a questionnaire and a freepost envelope, asking whether the managers of those organisations would be willing to pass the survey packs on to their colleagues. If they agreed to do so, they were asked to complete a consent form and post back to the research team. The research student then contacted those who agreed to take part to arrange delivery of survey packs.

As few questionnaires were completed and returned, a variation on this method was developed. A further list of public organisations was sought, visited in

person and, for those which agreed, a supply of questionnaires was dropped off. This survey mode was thus called 'questionnaires dropped-off at public/private organisations' (drop-off-OGN). Seven public leisure centres and thirteen public libraries ultimately agreed to serve as distribution points. Twenty copies of the questionnaire, together with the participation information sheet (Appendix 5-24; page 319) and freepost envelope, were left with an agreed focal point at each place in late April 2011. In total, 400 copies of the questionnaires were distributed by this method to members of the general public to complete and return to the research team.

(3) Online survey

An online questionnaire was created using Bristol Online Survey. Web-managers of relevant local organisations were contacted by email and by telephone to gain permission for the survey to be uploaded to their websites. Only the Sefton council agreed to post this survey on the webpage for 3 months, from March to May 2011. The survey was therefore additionally distributed through other possible tracks; (i) spreading emails with a link to the survey through friends who were asked to forward to the others, (ii) advertising through the social network, Facebook, which required the payment of a fee, and (iii) advertising through the online-shop, Amazon.co.uk, which was free of charge.

As described in Chapter 2, this cross-sectional survey was originally designed using six survey modes to collect data. Because of an extremely poor survey response from postal surveys, two additional survey modes were added – single-mailing and drop-off-OGN, making eight survey modes used for data collection.

5.3.4 Outcomes and data analysis

Methodological and economic outcomes of all survey modes used were evaluated for two major purposes; (i) to identify whether each survey mode generated similar findings (equivalence) and (ii) to assess efficiency and cost-effectiveness of each survey mode when used to collect information from the general public. Outcomes were compared in terms of demographic aspects, lifestyles, behaviour of pharmacy use and opinions to particular questions. For methodological outcomes, efficiency evaluations were developed under two different circumstances – comparing findings among eight survey modes and comparing between the two overall survey approaches.

a. Methodological outcomes and data analysis

(1) Survey response rate

Response rate was defined as a key measure of survey efficiency and was also used as the effectiveness in economic evaluation (see page 118). Necessary information for response rate calculation was recorded on tally sheets; the number of participants approached, the number of unapproachable participants, the number of denied household/telephone numbers, the number of inactive/engaged telephone numbers, the number of completed questionnaires and others. Table 5-2 describes how response rates were calculated following the principles recommended by the American Association for Public Opinion Research (AAPOR),[134] by taking the number of completed questionnaires and dividing by the number of approachable participants for the interviewed-assisted approach or deliverable survey packs for the self-completion approach. However, the online survey was unable to generate a response rate owing

to the difficulty in determining the number of potential participants. Other factors were considered in addition; demographic, lifestyle and health status of the respondents and the findings of key questions were compared in order to determine if there was any difference in views accounted for by different survey modes.

Table 5-2 Definition of response rate

Survey techniques	Definition of response rate
Street survey	Number of completed questionnaires divided by number of approached participants
Door-to-door survey	Number of completed questionnaires divided by number of approached households less those found to be unoccupied
Telephone survey	Number of completed questionnaires divided by number of phone calls made less invalid lines and no answer or engaged
Postal survey – double mailing	Number of completed questionnaires divided by number of survey packs posted less undelivered
Postal survey – single mailing	Number of completed questionnaires divided by number of survey packs posted less undelivered
Postal OGN	Number of completed questionnaires divided by number of survey packs posted less undelivered
Drop-off OGN	Number of completed questionnaires divided by number of questionnaires distributed
Online survey	Not applicable

Note: Definitions follow the principles of response rates for surveys as recommended by AAPOR.[134]

(2) Demographic

The demographic variables of respondents tested included; gender, age, ethnicity, educational background, working status, socioeconomic status and deprivation level. These were used to examine whether each survey mode was effective or had some limitation when targeting specific demographic groups. Demographic attributes were collapsed into several subgroups in order to enable meaningful interpretation. Age was grouped into three categories; young people (18-34); middle age (35-64); and elderly (≥ 65). Educational background was categorised into three groups; school (respondents completed primary or secondary schools); college/further education; and university (respondents completed bachelor or higher

degree). Respondents who were currently studying were assigned to the highest level of education they had completed, e.g. if they stated 'studying master degree' then 'bachelor degree' was assigned as the highest level of education. Working status was divided into three categories; working (full-time or part-time); retired; and not working. Socioeconomic status was also condensed into three categories based upon the respondents' occupation; lower (un-skilled/manual occupations); middle (skilled manual/administrative occupations); and higher (managerial/professional occupations). Deprivation level was similarly sorted into three groups; more, moderate and less deprived, based upon the Index of Multiple Deprivation data available from Sefton Council.[135] Twenty-two wards in Sefton were assigned individual deprivation scores – from 1 (most deprived) to 22 (least deprived). Deprivation was subsequently collapsed into three levels according to this score – more deprived (score of 1 to 7), moderate deprived (score of 8 to 15) and less deprived (score of 16 to 22).

(3) Lifestyle and health status

Lifestyle attributes including smoking, drinking, weight, fruit/vegetable intake and exercise, were also of interest in the evaluation of the differences among the eight survey modes. Drinking was classified into three groups; using AUDIT-C algorithm, non-drinker, safe (AUDIT-C score < 5) and unsafe drinker (AUDIT-C score ≥ 5).[130, 136] Weight was classed into two groups based on BMI; normal and overweight (BMI ≥ 25 kg/m^2).[137] Fruit/vegetable intake was grouped into 'less than' and 'as standard' recommendation using 5 portions a day (eat well) as the cut-off point.[138] Exercise level was classed into two groups; 'below' and 'as standard' recommendation using three times a week (physically active) as the cut-off point.[139]

Health status focused on the respondents self-rating their current health and whether they were regularly taking medicine. Additionally, respondents were asked if they had cardiovascular related disease (hypertension, diabetes, high cholesterol and/or heart disease) and lifestyle disease (obesity, smoking related and/or drinking related problems).[37]

(4) Key findings

The study focused on the general public's views towards two types of pharmacy public health services; health advice and health checks. (i) health advice included four services; smoking cessation, sensible drinking, weight loss and heart health, where (ii) health checks included three services; blood pressure, blood sugar level and cholesterol monitoring. Key findings were divided into two domains; (i) behaviour of using community pharmacy – results were derived from the frequency of visits to a community pharmacy and respondents' experience with the pharmacy public health services, and (ii) perceptions of those seven services – results derived from willingness to use, views towards factors influencing pharmacy use and views towards the various advertising techniques for pharmacy. Findings relating to the key questions were compared among each of the eight survey modes and between the two survey approaches to determine if there were any differences detected prior to combining data for further analysis.

(5) Data entry and analysis

Data were entered into the SPSS database for statistical analysis. The research hypothesis for this study section was that 'no difference would be found with regard to methodological outcomes among the eight survey modes'. Descriptive analysis was used to describe the findings of each variable. Non-parametric statistics, such as Chi-

square, Kruskal Wallis and Mann Whitney, were used where appropriate to test the research assumption. The level of statistical significance assumed was a *P*-value of 0.05 or less.

b. Economic evaluation

(1) Unit cost analysis

In this study, unit cost was defined as the operating cost per completed questionnaire. Resources or materials used for each survey mode were recorded until we received a total (target) of 200 respondents for each survey mode. The cost of survey implementation was based on direct operational costs, including the actual cost of materials used, labour and travel. Capital and depreciation cost of buildings and durable articles were not included. The cost of material was included, e.g. paper, printing, postage etc. Labour cost was computed based on two levels; skilled and unskilled work, using the hourly rate paid for a research assistant at LJMU. Travel costs included petrol used and train fares. The price of printing, postal service and petrol were based on LJMU standard costs. Telephone calling rate was based on BT Company, a major landline provider in North West England. The total cost of each survey mode was calculated by adding up all relevant expenses. Consequently, the unit cost was determined using the formula below, where x refers to the survey mode;

Formula 5-1 Unit cost per completed questionnaire

$$\text{Unit cost of completed questionnaire}_x = \frac{\text{Total cost of survey mode}_x}{\text{Total numbers of completed questionnaires}_x}$$

(2) Cost-effectiveness analysis

Cost-effectiveness analysis (CEA) is an economic evaluation method used for comparing the incremental cost and the incremental effectiveness (a parameter known as an incremental cost-effectiveness ratio; ICER) of alternative survey modes to a pre-determined benchmark mode. Total operating cost was a financial output, whereas response rate was the key indicator of effectiveness for this CEA. The single-mailing mode was used as benchmark since it has been a technique widely used. ICER was computed by the formula below, where x refers to the survey mode;

Formula 5-2 Incremental cost-effectiveness ratio

$$\mathrm{ICER_x} = \frac{\text{Total cost of survey technique}_x - \text{Total cost of survey technique}_{\text{Single mailing}}}{(\text{Percentage of response rate}_x - \text{Percentage of response rate}_{\text{Single mailing}})/100}$$

(3) Sensitivity analysis

The cost structure of the survey was predominantly composed of variable costs in particular the number of respondents. Response rate, therefore, was a key determinant of the entire survey cost; the more numbers of respondents obtained, the more resources used. Previous literature has reported various response rates, e.g. lifestyle surveys in the UK indicated an average response rate of 45%, ranging from 27% to 70%.[8] In this study, sensitivity analysis was performed by increasing the proportion of completed questionnaires over the range from 10% to 100%. For example, the street survey had obtained 201 respondents (response rate of 34.5%), if this number increased by 10% of the initial response, the new number of respondents would become 221 giving a new response rate of 37.9%. The recalculated total

operational cost was based on the new simulated rate. This simulation was performed by increasing the number of initial respondents by 20%, 30%, 40%,... 100%. This process was repeated for every survey mode and the variation of costs was assessed for all survey modes.

5.4 RESULTS

5.4.1 Survey response

During January to October 2011 approaches were made to more than 4,988 potential participants by using all survey techniques for data collection, of whom 3,596 were available and willing to be approached. Of those, 908 completed the questionnaires plus another 7 respondents took part online, providing a total of 915 questionnaires. Response rates were calculated using the principles described in Table 5-2. Table 5-3 shows the street survey had the highest response rate – about one third (34.5%) of approachable participants agreed to take part, followed next by door-to-door, telephone and drop-off-OGN respectively. However, the door-to-door encountered a high rate of unoccupied and refusals (54.9%) when RAs visited households to invite occupiers to the survey. All surveys related to posting (double-, single-mailing and postal-OGN) obtained a poor response rate, approximately 20% of approachable participants or less agreed to take part. An absence of a denominator prevented ascertainment of the response rate for the online survey. Based on this, street, door-to-door, telephone and drop-off-OGN obtained a relatively high proportion of responders.

Table 5-3 Response rates of each survey mode

	Survey modes								
	Researcher-assisted completion			Self-completion					
	Street	Door-to-door	Telephone	Double-mailing	Single-mailing	Drop-off-OGN	Postal-OGN	Online	P-value
Number of attempts	583	1,310	1,319	500	500	400	376	-	
Approachable participants	583	590	708	488	492	400	335	-	
Number of response	201	199	202	101	82	106	17	7	
Response rate (%)	34.5	33.7	28.5	20.7	16.7	26.5	5.1	-	<0.001[a]

Note: Statistical significance was tested by [a]Chi-square, excluding data from the online survey because a response rate could not be calculated.

5.4.2 Demographic characteristics

The demographic characteristics of respondents gathered in all survey modes are shown in Table 5-4. All survey modes were able to obtain similar proportions in terms of gender, ethnicity, educational background and socioeconomic status. Significant differences were found in age, working status and deprivation level. The street survey was more likely to reach young people (23.2%) compared to other modes (4.0-11.3%). Telephone and single-mailing had less than 10% of respondents who were unemployed, which was below average obtained by other modes (15.0-18.9%). Door-to-door surveys were limited in achieving responses in more deprived areas (9.5%) compared to other survey modes (17.3-36.9%).

Table 5-4 Demographic of respondents, comparing between eight survey modes

	Survey modes								
	Researcher-assisted completion			Self-completion					
	N=201	N=199	N=202	N=101	N=82	N=106	N=17	N=7	
	Street	Door-to-door	Telephone	Double-mailing	Single-mailing	Drop-off OGN	Postal-OGN	Online	*P*-value
Gender									
Male	78	69	88	45	33	36	7	3	0.370[a]
	(39.0)	(35.2)	(44.0)	(44.6)	(40.7)	(34.6)	(41.2)	(42.9)	
Female	122	127	112	56	48	68	10	4	
	(61.0)	(64.8)	(56.0)	(55.4)	(59.3)	(65.4)	(58.8)	(57.1)	
Age									
18-34	46	16	17	4	4	12	2	4	**<0.001**[a]
	(23.2)	(8.1)	(8.5)	(4.0)	(4.9)	(11.3)	(11.8)	(57.1)	
35-64	91	114	111	59	48	51	12	3	
	(46.0)	(57.9)	(55.5)	(58.4)	(59.3)	(48.1)	(70.6)	(42.9)	
≥ 65	61	67	72	38	29	43	3	0	
	(30.8)	(34.0)	(36.0)	(37.6)	(35.8)	(40.6)	(17.6)	(0.0)	
Ethnicity									
White	192	196	195	98	79	99	14	6	0.376[a]
	(97.0)	(99.5)	(98.0)	(97.0)	(98.8)	(96.1)	(82.4)	(85.7)	
Non-white	6	1	4	3	1	4	3	1	
	(3.0)	(0.5)	(2.0)	(3.0)	(1.3)	(3.9)	(17.6)	(14.3)	
Education									
School	82	89	93	36	34	42	5	1	0.713[b]
	(42.3)	(47.8)	(46.5)	(37.1)	(45.3)	(41.6)	(29.4)	(14.3)	
College	61	51	65	40	21	30	9	1	
	(31.4)	(27.4)	(32.5)	(41.2)	(28.0)	(29.7)	(52.9)	(14.3)	
University	51	46	42	21	20	29	3	5	
	(26.3)	(24.7)	(21.0)	(21.6)	(26.7)	(28.7)	(17.6)	(71.4)	
Working status									
Not working	34	36	15	15	6	20	0	0	**0.006**[a]
	(17.2)	(18.3)	(7.5)	(15.0)	(7.8)	(18.9)	(0.0)	(0.0)	
Retired	74	83	95	50	36	53	0	0	
	(37.4)	(42.1)	(47.5)	(50.0)	(44.4)	(50.0)	(0.0)	(0.0)	
Working	90	78	90	35	39	33	17	7	
	(45.5)	(39.6)	(45.0)	(35.0)	(48.1)	(31.1)	(100.0)	(100.0)	
Socioeconomic status									
Lower	53	51	38	15	13	15	2	1	0.225[b]
	(27.7)	(26.8)	(19.1)	(16.5)	(17.6)	(15.8)	(12.5)	(14.3)	
Middle	30	18	37	12	12	21	4	0	
	(15.7)	(9.5)	(18.6)	(13.2)	(16.2)	(22.1)	(25.0)	(0.0)	
Higher	108	121	124	64	49	59	10	6	
	(56.5)	(63.7)	(62.3)	(70.3)	(66.2)	(62.1)	(62.5)	(85.7)	
Deprivation level									
More deprived	28	18	37	18	19	34	3	2	**<0.001**[b]
	(17.3)	(9.5)	(19.3)	(19.4)	(24.1)	(36.9)	(23.1)	(50.0)	
Moderate deprived	57	77	70	47	25	30	6	2	
	(35.2)	(40.7)	(36.5)	(50.5)	(31.6)	(32.6)	(46.2)	(50.0)	
Less deprived	77	94	85	28	35	28	4	0	
	(47.5)	(49.7)	(44.3)	(30.1)	(44.3)	(30.4)	(30.8)	(0.0)	

Note: Data presented in count and valid percentage in the bracket. Statistical significance was tested by [a]Chi-square and [b]Kruskal Wallis, excluding data from the postal-OGN and online survey according to small sample size.

Table 5-5 shows that the proportion of respondents from the lower socioeconomic status was significantly lower when data were gathered through self-completion approaches, while interviewer-assisted completion was less likely to reach people from more deprived areas. ($P < 0.05$) There was no difference between the two approaches for other demographic characteristics including gender, age, ethnicity, and working status.

Table 5-5 Demographics of respondents, comparing between two survey approaches

	Survey approaches		
	Interviewer-assisted (N=602) Count (%)	Self-completed (N=313) Count (%)	*P*-value
Gender			
Male	235 (39.4)	124 (40.0)	0.868[a]
Female	361 (60.6)	186 (60.0)	
Age			
18-34	79 (13.3)	26 (8.3)	0.085[a]
35-64	316 (53.1)	173 (55.4)	
≥ 65	200 (33.6)	113 (36.2)	
Ethnicity			
White	583 (98.1)	296 (96.1)	0.065[a]
Non-white	11 (1.9)	12 (3.9)	
Education			
School	264 (45.5)	118 (39.7)	0.261[a]
College	177 (30.5)	101 (34.0)	
University	139 (24.0)	78 (26.3)	
Working status			
Not working	85 (14.3)	41 (13.2)	0.775[a]
Retired	252 (42.4)	139 (44.7)	
Working	258 (43.4)	131 (42.1)	
Socioeconomic status			
Lower	142 (24.5)	46 (16.3)	**0.039**[c]
Middle	85 (14.7)	49 (17.3)	
Higher	353 (60.9)	188 (66.4)	
Deprivation level			
More deprived	83 (15.3)	76 (27.0)	**<0.001**[c]
Moderate deprived	204 (37.6)	110 (39.1)	
Less deprived	256 (47.1)	95 (33.8)	

Note: Data presented in count and valid percentage in the bracket. Statistical significance was tested by [a]Chi-square test and [c]Mann Whitney.

5.4.3 Lifestyle and health status

The lifestyle and health status of respondents is shown in Table 5-6. Proportions of respondents gathered by all survey modes were similar in terms of smokers, unsafe drinkers and those overweight. The single-mailing survey had the highest proportion of respondents who ate less than the standard recommendation of 5 portions of fruit/vegetables (82.1%), whereas drop-off-OGN was the highest for respondents who met the standard of fruit/vegetables intake (46.5%). Street and drop-off-OGN had almost two-thirds of respondents who exercised at least 3 times per week. Proportions of respondents were also similar in terms of general health and having at least one cardiovascular related disease. Drop-off-OGN had the highest proportion of respondents who were taking medicines regularly (78.2%) and having at least one CVD-related disease (62.8%), whereas double-mailing had the highest proportion of respondents who had at least one lifestyle disease (39.6%).

Table 5-6 Lifestyle and health status, comparing eight survey modes

	Survey modes								
	Researcher-assisted completion			Self-completion					
	N=201	N=199	N=202	N=101	N=82	N=106	N=17	N=7	
	Street	Door-to-door	Telephone	Double-mailing	Single-mailing	Drop-off-OGN	Postal-OGN	Online	*P*-value
Smoker	36	33	48	14	15	15	2	1	0.224[a]
	(18.2)	(16.9)	(24.0)	(14.0)	(18.5)	(14.3)	(11.8)	(14.3)	
Unsafe drinker	90	64	83	41	26	34	4	4	0.232[a]
	(57.0)	(48.1)	(49.1)	(49.4)	(39.4)	(45.3)	(36.4)	(57.1)	
Fruit/vegetable intake									
< 5 portions a	122	139	130	66	64	54	13	6	**0.002[a]**
day	(64.9)	(71.3)	(66.0)	(68.8)	(82.1)	(53.5)	(81.3)	(85.7)	
≥ 5 portions a	66	56	67	30	14	47	3	1	
day	(35.1)	(28.7)	(34.0)	(31.3)	(17.9)	(46.5)	(18.8)	(14.3)	
Exercise									
< 3 times a	72	106	101	50	43	40	9	3	**0.002[a]**
week	(36.7)	(54.1)	(50.8)	(50.0)	(53.1)	(37.7)	(52.9)	(42.9)	
≥ 3 times a	124	90	98	50	38	66	8	4	
week	(63.3)	(45.9)	(49.2)	(50.0)	(46.9)	(62.3)	(47.1)	(57.1)	
Weight									
Normal	83	77	84	37	35	30	6	2	0.266[a]
	(49.1)	(49.7)	(47.2)	(42.0)	(46.1)	(34.9)	(37.5)	(50.0)	
Overweight	86	78	94	51	41	56	10	2	
	(50.9)	(50.3)	(52.8)	(58.0)	(53.9)	(65.1)	(62.5)	(50.0)	
General health									
Poor	13	11	19	8	8	8	0	0	0.071[b]
	(6.7)	(5.6)	(9.5)	(8.2)	(9.8)	(7.8)	(0.0)	(0.0)	
Fair	51	43	41	33	12	33	4	2	
	(26.2)	(21.8)	(20.5)	(33.7)	(14.6)	(32.4)	(23.5)	(28.6)	
Good	131	143	140	57	62	61	13	5	
	(67.2)	(72.6)	(70.0)	(58.2)	(75.6)	(59.8)	(76.5)	(71.4)	
Regularly taking	123	117	124	74	52	79	8	3	**0.008[a]**
medicines	(62.4)	(59.7)	(62.0)	(74.7)	(63.4)	(78.2)	(47.1)	(42.9)	
At least one CVD	82	88	88	45	31	59	3	0	**0.017[b]**
related disease	(42.3)	(45.4)	(44.0)	(46.9)	(38.8)	(62.8)	(17.6)	(0.0)	
At least one	77	54	51	38	20	37	5	3	**0.006[b]**
lifestyle disease	(39.3)	(27.7)	(25.6)	(39.6)	(25.0)	(38.1)	(29.4)	(42.9)	

Note: Data presented in count and valid percentage in the bracket. Statistical significance was tested by [a]Chi-square and [b]Kruskal Wallis, excluding data from the postal-OGN and online survey because of small sample size.

Self-completion was more likely to have a higher proportion of overweight respondents and persons taking medicines regularly than the interviewer-assisted group. (Table 5-7) When looking at weight data, which was hypothesised to be a sensitive question, over one in ten of all respondents (12.0%) indicated they did not know their weight, either in kilograms nor stone and pounds. However, this was not significantly different between the two approaches, though the response was higher in the interviewer-assisted group (13.8%), than the self-completion (9.4%).

Table 5-7 Lifestyle and health status, comparing two survey approaches

	Survey approaches		
	Interviewer-assisted (N=602) Count (%)	Self-completed (N=313) Count (%)	*P*-value
Smoker	117 (19.7)	47 (15.2)	0.091[a]
Unsafe drinker	237 (51.5)	109 (45.0)	0.103[c]
Fibre intake			
< 5 portions a day	391 (67.4)	203 (68.1)	0.837[c]
≥ 5 portions a day	189 (32.6)	95 (31.9)	
Exercise			
< 3 times a week	279 (47.2)	145 (46.6)	0.867[c]
≥ 3 times a week	312 (52.8)	166 (53.4)	
Weight			
Normal	244 (48.6)	110 (40.7)	**0.037**[c]
Overweight	258 (51.4)	160 (59.3)	
General health			
Poor	43 (7.3)	24 (7.8)	0.131[c]
Fair	135 (22.8)	84 (27.5)	
Good	414 (69.9)	198 (64.7)	
Regularly taking medicines	364 (61.4)	216 (70.6)	**0.006**[a]
At least one CVD related disease	258 (43.9)	138 (46.9)	0.389[c]
At least one lifestyle disease	182 (30.8)	103 (34.7)	0.249[c]

Note: Data presented in count and valid percentage in the bracket. Statistical significance was tested by [a]Chi-square and [c]Mann Whitney.

5.4.4 Frequency of visiting community pharmacy

Frequency of visiting the community pharmacy in the last six months was a question in the survey which was used to classify pharmacy user types; non-user; occasional user and frequent user. An occasional user was referred to as a respondent who visited the pharmacy less than once a month, whereas a frequent user was defined as a person who visited the pharmacy more than once a month. As shown in Table 5-8, all survey modes were likely to obtain a similar proportion for all types of pharmacy users. There was no difference between the two survey approaches as regards the types of pharmacy users. (P = 0.451)

Table 5-8 Types of pharmacy users

	Survey modes								
	Researcher-assisted completion			Self-completion					
	N=201	N=199	N=202	N=101	N=82	N=106	N=17	N=7	
	Street	Door-to-door	Telephone	Double mailings	Single mailing	Drop-off-OGN	Postal-OGN	Online	*P*-value
Non-user	13	7	8	3	2	1	0	0	0.077
	(6.5)	(3.6)	(4.0)	(3.0)	(2.5)	(1.0)	(0.0)	(0.0)	
Occasional user	59	66	53	37	36	27	9	3	
	(29.4)	(33.8)	(26.6)	(36.6)	(44.4)	(26.5)	(52.9)	(42.9)	
Frequent user	129	122	138	61	43	74	8	4	
	(64.2)	(62.6)	(69.3)	(60.4)	(53.1)	(72.5)	(47.1)	(57.1)	

Note: Data presented in count and valid percentage in the bracket. Statistical significance was tested by Kruskal Wallis, excluding data from the postal-OGN and online survey because of small sample size.

5.4.5 Experience of pharmacy public health services

Respondents were asked if they have ever used the pharmacy public health services listed in the questionnaire. Descriptive analysis was performed to assess the experience of each pharmacy public health service, comparing the eight survey modes. It was found that most survey modes obtained low proportions of respondents who had experience of pharmacy public health services. The only significant difference found was a higher proportion of street survey participants who had experienced advice from the community pharmacy on sensible drinking ($P < 0.05$).

Responders' experience of health advice was calculated by summing up the number of services for health advice that respondents had ever used. As shown in Table 5-9, street and double-mailing surveys had over a quarter of respondents (26.5% and 28.6%) who had experienced at least one service related to health advice ($P < 0.05$). This was higher than other modes (8.9-19.6%). Responders' experience of health checks was calculated by summing up the number of services for health checks that respondents had ever used. All survey modes were found to have a similar proportion of respondents who had experience of health checks (11.2-18.2%). Table 5-10 reveals that experience level obtained by the two survey approaches was not different.

Table 5-9 Comparison of experience of pharmacy public health services among eight survey modes

	Survey modes								
	Researcher-assisted completion			Self-completion					
	N=201	N=199	N=202	N=101	N=82	N=106	N=17	N=7	
	Street	Door-to-door	Telephone	Double-mailing	Single-mailing	Drop-off-OGN	Postal-OGN	Online	*P*-value
Experience of pharmacy public health service									
Stopping smoking	18 (9.0)	13 (6.6)	19 (9.4)	9 (9.8)	1 (1.2)	7 (6.9)	3 (18.8)	0 (0.0)	0.215[a]
Sensible drinking	11 (5.5)	1 (0.5)	2 (1.0)	1 (1.1)	1 (1.2)	2 (2.0)	1 (6.3)	0 (0.0)	**0.007**[a]
Losing weight	20 (10.0)	11 (5.6)	10 (5.0)	8 (8.6)	2 (2.4)	10 (10.0)	1 (5.9)	0 (0.0)	0.109[a]
Heart health	25 (12.5)	19 (9.7)	19 (9.4)	16 (17.0)	4 (5.0)	12 (12.1)	1 (5.9)	0 (0.0)	0.162[a]
Blood pressure checked	26 (12.9)	19 (9.6)	30 (14.9)	13 (13.5)	6 (7.3)	19 (18.6)	2 (11.8)	0 (0.0)	0.164[a]
Cholesterol checked	11 (5.5)	12 (6.1)	19 (9.4)	13 (13.7)	7 (8.5)	8 (7.9)	1 (6.3)	0 (0.0)	0.187[a]
Blood sugar checked	13 (6.5)	9 (4.6)	14 (6.9)	8 (8.4)	6 (7.3)	5 (5.1)	2 (11.8)	0 (0.0)	0.809[a]
Experience of service for health advice									
No experience	147 (73.5)	168 (86.2)	165 (81.7)	65 (71.4)	72 (91.1)	78 (80.4)	13 (81.3)	7 (100.0)	**0.001**[b]
At least one service	53 (26.5)	27 (13.8)	37 (18.3)	26 (28.6)	7 (8.9)	19 (19.6)	3 (18.8)	0 (0.0)	
Experience of service for health checks									
No experience	171 (85.1)	174 (88.8)	168 (83.2)	78 (82.1)	72 (87.8)	81 (81.8)	14 (87.5)	7 (100.0)	0.461[b]
At least one service	30 (14.9)	22 (11.2)	34 (16.8)	17 (17.9)	10 (12.2)	18 (18.2)	2 (12.5)	0 (0.0)	

Note: Data presented in count and valid percentage in the bracket. Statistical significance was tested by [a]Chi-square and [b]Kruskal Wallis, excluding data from the postal-OGN and online survey because of small sample size.

Table 5-10 Comparison of experience level to pharmacy public health services between two survey approaches

	Survey approaches		
	Interviewer assisted (N=602) Count (%)	Self-completed (N=313) Count (%)	*P*-value
Experience of each pharmacy public health service			
Advice about stopping smoking	50 (8.3)	20 (6.7)	0.404[a]
Advice about sensible drinking	14 (2.3)	5 (1.7)	0.520[a]
Advice about losing weight	41 (6.8)	21 (7.0)	0.916[a]
Advice about heart health	63 (10.6)	33 (11.1)	0.800[a]
Blood pressure checked	75 (12.5)	40 (13.2)	0.779[a]
Cholesterol checked	42 (7.0)	29 (9.6)	0.166[a]
Blood sugar checked	36 (6.0)	21 (7.0)	0.561[a]
Experience of service for health advice			
No experience	480 (80.4)	235 (81.0)	0.823[c]
At least one service	117 (19.6)	55 (19.0)	
Experience of service for health checks			
No experience	513 (85.6)	252 (84.3)	0.588[c]
At least one service	86 (14.4)	47 (15.7)	

Note: Data presented in count and valid percentage in the bracket. Statistical significance was tested by [a]Chi-square and [c]Mann Whitney.

5.4.6 Willingness to use pharmacy public health services

Respondents were asked whether or not they would use pharmacy public health services in the future. Three choices of answer were given; 'yes', 'maybe' and 'no'. Willingness to use pharmacy services was collapsed into two with 'yes' or 'maybe' defined as a positive view, and 'no' as a negative view. Table 5-11 illustrates the percentage of positive views showing a willingness to use pharmacy public health services. Willingness to use pharmacy services was significantly different among survey modes ($P < 0.05$), except for health checks. Respondents who completed the survey by telephone were more likely to seek advice for sensible drinking and heart health, while door-to-door respondents had the highest willingness to use smoking cessation and weight management. Willingness to use health advice services was found to be significantly different among the eight survey modes. The telephone survey showed a

higher proportion of willingness to use at least one health advice service. ($P < 0.05$)

There was no difference found among eight survey modes in relation to health checks.

Table 5-11 Comparison of willingness to use pharmacy public health services among eight survey modes

	Survey modes								
	Researcher-assisted completion			Self-completion					
	N=201	N=199	N=202	N=101	N=82	N=106	N=17	N=7	
	Street	Door-to-door	Telephone	Double-mailing	Single-mailing	Drop-off-OGN	Postal-OGN	Online	*P*-value
Positive view to willingness to use pharmacy public health services									
Stopping smoking	30 (15.1)	60 (31.4)	54 (26.7)	10 (12.2)	14 (18.2)	19 (20.2)	6 (50.0)	2 (28.6)	**<.001**[b]
Sensible drinking	43 (21.6)	53 (27.7)	65 (32.2)	5 (6.0)	9 (11.7)	12 (12.8)	5 (45.5)	2 (28.6)	**<.001**[b]
Losing weight	69 (34.7)	87 (45.8)	84 (42.4)	27 (31.0)	18 (23.1)	36 (39.1)	7 (53.8)	4 (57.1)	**0.005**[b]
Heart health advice	91 (46.0)	106 (56.1)	121 (59.9)	41 (46.6)	33 (42.9)	46 (51.7)	8 (61.5)	5 (71.4)	**0.025**[b]
Blood pressure checked	119 (59.5)	142 (73.2)	137 (67.8)	59 (64.8)	47 (58.8)	64 (66.0)	11 (84.6)	7 (100.0)	0.065[b]
Cholesterol checked	120 (60.3)	137 (71.4)	133 (65.8)	64 (71.1)	47 (58.8)	60 (62.5)	12 (85.7)	7 (100.0)	0.130[b]
Blood sugar checked	117 (58.8)	127 (66.1)	127 (62.9)	59 (65.6)	49 (61.3)	55 (59.1)	12 (85.7)	7 (100.0)	0.682[b]
Willingness to use service for health advice									
Not at all	86 (43.9)	71 (37.8)	58 (29.3)	38 (48.1)	39 (52.0)	35 (39.8)	4 (36.4)	2 (28.6)	**0.003**[b]
Would use at least one service	110 (56.1)	117 (62.2)	140 (70.7)	41 (51.9)	36 (48.0)	53 (60.2)	7 (63.6)	5 (71.4)	
Willingness to use service for health checks									
Not at all	74 (37.2)	46 (24.1)	60 (29.7)	21 (23.3)	27 (33.8)	30 (32.3)	2 (15.4)	0 0.0	0.058[b]
Would use at least one service	125 (62.8)	145 (75.9)	142 (70.3)	69 (76.7)	53 (66.3)	63 (67.7)	11 (84.6)	7 (100.0)	

Note: Data presented in count and valid percentage in the bracket. Statistical significance was tested by [b]Kruskal Wallis, excluding data from the postal-OGN and online because of small sample size.

Differences in willingness to use pharmacy public health services between two survey approaches were determined. As presented in Table 5-12, for willingness to use individual pharmacy public health service, the interviewer-assisted approach was likely to have a higher proportion of positive views. Significant differences were found for sensible drinking advice and losing weight ($P < 0.05$). Moreover, interviewer-assisted respondents were likely to have a higher proportion of the willingness to use at least one health advice ($P < 0.05$). However, no difference was found for health checks.

Table 5-12 Comparison of willingness to use pharmacy public health service between two survey approaches

	Survey approaches		
	Interviewer assisted (N=602) Count (%)	Self-completed (N=313) Count (%)	*P*-value
Positive view to willingness to use each pharmacy public health service			
Advice about stopping smoking	144 (24.3)	51 (18.8)	0.069[a]
Advice about sensible drinking	161 (27.2)	33 (12.1)	**<0.001[a]**
Advice about losing weight	240 (40.9)	92 (33.2)	**0.030[a]**
Advice about heart health	318 (54.0)	133 (48.5)	0.136[a]
Blood pressure checked	398 (66.8)	188 (65.3)	0.658[a]
Cholesterol checked	390 (65.8)	190 (66.2)	0.898[a]
Blood sugar checked	371 (62.6)	182 (64.1)	0.662[a]
Willingness to use service for health advice			
Not at all	215 (36.9)	118 (45.4)	**0.021[c]**
Would use at least one service	367 (63.1)	142 (54.6)	
Willingness to use service for health checks			
Not at all	180 (30.4)	80 (28.3)	0.518[c]
Would use at least one service	412 (69.6)	203 (71.7)	

Note: Data presented in count and valid percentage in the bracket. Statistical significance was tested by [a]Chi-square and [c]Mann Whitney.

5.4.7 Factors influencing pharmacy use

Sixteen statements concerning eight factors hypothesised to influence pharmacy use were included in the questionnaire, covering loyalty, type of community pharmacy, location, opening time, rapport, pharmacist's gender, privacy and confidentiality. Four choices of answer were 'agree', 'disagree' and 'don't mind or not sure'. Table 5-13 illustrates the proportions of respondents from eight survey modes who agreed that those statements would influence pharmacy use. Significantly different views among eight survey modes were found for eleven statements that related to the type of community pharmacy, location, opening hours and privacy ($P < 0.05$). Data gathered by the street survey tended to have the highest proportion of respondents that agreed with most of those statements.

Table 5-13 Comparison of views toward factors influencing pharmacy use among eight survey modes

	Survey modes								
	Researcher-assisted completion			Self-completion					
	N=201	N=199	N=202	N=101	N=82	N=106	N=17	N=7	
	Street	Door-to-door	Telephone	Double-mailing	Single-mailing	Drop-off-OGN	Postal-OGN	Online	*P*-value
Loyalty									
I prefer to use the same pharmacy every time	127 (63.8)	134 (67.3)	134 (66.3)	56 (56.0)	41 (50.0)	72 (67.9)	6 (35.3)	5 (71.4)	0.086
Types of community pharmacy									
I prefer to use a pharmacy owned by a large company	47 (23.6)	31 (15.8)	29 (14.4)	9 (9.2)	4 (5.0)	14 (13.6)	0 (0.0)	3 (42.9)	**<0.001**
I prefer to use a pharmacy owned by the pharmacist who works there	101 (50.8)	91 (46.4)	78 (38.6)	30 (30.6)	20 (24.4)	34 (32.7)	4 (25.0)	3 (42.9)	**<0.001**
I prefer to use a pharmacy in a supermarket	21 (10.6)	27 (13.7)	19 (9.4)	3 (3.1)	1 (1.3)	6 (5.9)	0 (0.0)	1 (14.3)	**0.040**
Location									
I prefer to use a pharmacy near to where I live	175 (87.9)	172 (86.4)	173 (85.6)	89 (89.0)	68 (84.0)	88 (83.8)	13 (81.3)	6 (85.7)	0.867
I prefer to use a pharmacy near to where I work	70 (47.0)	46 (30.7)	41 (30.4)	5 (5.7)	12 (16.2)	15 (18.1)	12 (70.6)	2 (28.6)	**<0.001**
I prefer to use a pharmacy near to my doctor's surgery	148 (74.7)	131 (66.2)	125 (62.2)	57 (58.2)	48 (58.5)	65 (62.5)	7 (43.8)	3 (42.9)	**0.015**
Opening hours									
I need a pharmacy that is open in the evening	115 (58.4)	103 (52.0)	80 (39.6)	40 (41.2)	30 (36.6)	41 (38.7)	10 (62.5)	6 (85.7)	**<0.001**
I need a pharmacy that is open on a Saturday	144 (73.1)	131 (66.2)	118 (58.4)	62 (63.3)	49 (59.8)	66 (62.9)	9 (60.0)	5 (71.4)	**<0.001**
I need a pharmacy that is open on a Sunday	101 (51.3)	88 (45.1)	83 (41.3)	29 (29.6)	28 (34.6)	33 (31.1)	4 (25.0)	2 (28.6)	**0.001**
Rapport									
I prefer to visit a pharmacy where I know the pharmacist	90 (45.7)	92 (46.5)	82 (40.6)	38 (38.4)	19 (23.2)	42 (40.0)	3 (18.8)	3 (42.9)	0.075
I prefer to visit a pharmacy where pharmacy staff know me	92 (46.7)	75 (37.9)	83 (41.1)	39 (39.8)	19 (23.2)	46 (43.8)	5 (29.4)	2 (28.6)	0.085
Privacy									
I prefer to talk to a pharmacist who is the same sex as me	22 (11.2)	21 (10.6)	29 (14.4)	5 (5.1)	5 (6.2)	6 (5.7)	1 (5.9)	1 (14.3)	**<0.001**
I prefer to talk to a pharmacist in a private room	86 (43.9)	74 (37.4)	78 (38.8)	26 (26.3)	17 (20.7)	30 (28.6)	5 (31.3)	2 (28.6)	**0.006**
Confidentiality									
I trust the pharmacist to keep my personal information confidential	177 (89.8)	178 (89.4)	180 (89.1)	94 (94.0)	80 (97.6)	99 (94.3)	17 (100.0)	6 (85.7)	0.077
I trust the pharmacy staff to keep my personal information confidential	169 (85.8)	164 (82.4)	166 (82.2)	88 (88.0)	76 (92.7)	96 (91.4)	16 (94.1)	5 (71.4)	0.067

Note: Data presented in count and valid percentage in the bracket. Statistical significance was tested by Chi square, excluding data from the postal-OGN and online because of small sample size.

Significant differences were found for fourteen statements when comparing the two survey approaches ($P < 0.05$), as shown in Table 5-14. Only views towards loyalty to one particular community pharmacy and rapport with pharmacy staff were the same, regardless of the type of approach used. The interviewer-assisted approach had higher proportions of respondents agreeing to most statements, apart from statements about confidentiality where the proportion was lower.

Table 5-14 Comparison of views toward factors influencing pharmacy use between two survey approaches

	Survey approaches		
	Interviewer-assisted (N=602) Count (%)	Self-completed (N=313) Count (%)	*P*-value
Loyalty			
I prefer to use the same pharmacy every time	395 (65.8)	180 (57.7)	**0.048**
Types of community pharmacy			
I prefer to use a pharmacy owned by a large company	107 (17.9)	30 (9.9)	**0.002**
I prefer to use a pharmacy owned by the pharmacist who works there	270 (45.2)	91 (29.6)	**<0.001**
I prefer to use a pharmacy in a supermarket	67 (11.2)	11 (3.6)	**0.001**
Location			
I prefer to use a pharmacy near to where I live	520 (86.7)	264 (85.4)	0.856
I prefer to use a pharmacy near to where I work	157 (36.2)	46 (17.1)	**<0.001**
I prefer to use a pharmacy near to my doctor's surgery	404 (67.7)	180 (58.6)	**0.022**
Opening hours			
I need a pharmacy that is open in the evening	298 (49.9)	127 (41.2)	**<0.001**
I need a pharmacy that is open on a Saturday	393 (65.8)	191 (62.2)	**0.026**
I need a pharmacy that is open on a Sunday	272 (45.9)	96 (31.2)	**<0.001**
Rapport			
I prefer to visit a pharmacy where I know the pharmacist	264 (44.2)	105 (34.0)	**0.012**
I prefer to visit a pharmacy where pharmacy staff know me	250 (41.9)	111 (35.9)	0.127
Privacy			
I prefer to talk to a pharmacist who is the same sex as me	72 (12.1)	18 (5.8)	**<0.001**
I prefer to talk to a pharmacist in a private room	238 (40.0)	80 (25.9)	**<0.001**
Confidentiality			
I trust the pharmacist to keep my personal information confidential	535 (89.5)	296 (95.2)	**0.009**
I trust the pharmacy staff to keep my personal information confidential	499 (83.4)	281 (90.4)	**0.011**

Note: Data presented in count and valid percentage in the bracket. Statistical significance was tested by Chi square.

5.4.8 Advertising techniques for pharmacy services

Respondents were asked if advertising techniques would work for pharmacy services. Twelve choices of advertising were proposed in the questionnaire along with three answers 'yes', 'maybe', and 'no'. Respondents answering 'yes' or 'maybe', were grouped as positive, and 'no' was defined as negative. Table 5-15 demonstrates that views towards advertising techniques, except advertisements on television, were significantly different among all survey modes ($P < 0.05$). Drop-off-OGN had the highest proportion of positive views towards most of the advertising techniques.

Table 5-15 Comparison of views towards advertising techniques for pharmacy services among eight survey modes

	Survey modes								
	Researcher-assisted completion			Self-completion					
	N=201	N=199	N=202	N=101	N=82	N=106	N=17	N=7	
	Street	Door-to-door	Telephone	Double-mailing	Single-mailing	Drop-off-OGN	Postal-OGN	Online	*P*-value
Recommendation									
By a doctor or another health professional	173 (87.4)	190 (96.0)	187 (92.6)	87 (87.9)	74 (91.4)	90 (91.8)	16 (94.1)	6 (100.0)	**0.046**
By family or friends	157 (80.1)	185 (93.4)	171 (84.7)	84 (84.8)	75 (92.6)	93 (94.9)	15 (93.8)	6 (100.0)	**<0.001**
Poster/Leaflet									
Poster/leaflet in a pharmacy	119 (60.7)	152 (76.8)	138 (68.3)	68 (69.4)	61 (75.3)	81 (81.8)	11 (64.7)	5 (83.3)	**0.001**
Poster/leaflet in a doctor surgery	132 (67.7)	159 (80.7)	159 (78.7)	78 (78.8)	66 (81.5)	84 (85.7)	14 (87.5)	5 (83.3)	**0.005**
Poster/leaflet in a public place	100 (51.0)	122 (61.6)	102 (50.5)	57 (58.2)	47 (58.8)	71 (72.4)	12 (70.6)	5 (83.3)	**0.003**
Leaflet dropped through a door	81 (41.1)	129 (65.2)	98 (48.5)	46 (46.9)	41 (51.3)	65 (65.7)	9 (56.3)	4 (66.7)	**<0.001**
Mass media									
Local newspaper/ free paper	96 (48.7)	123 (62.8)	105 (52.0)	54 (55.1)	42 (53.8)	65 (65.7)	11 (64.7)	5 (83.3)	**0.023**
Television	98 (49.7)	113 (57.4)	107 (53.0)	49 (50.0)	40 (50.6)	58 (58.6)	11 (68.8)	5 (83.3)	0.539
Local radio station	88 (44.7)	111 (56.3)	92 (45.5)	41 (41.8)	33 (41.8)	56 (56.6)	14 (82.4)	5 (83.3)	**0.029**
Local TV channel	76 (38.8)	99 (50.8)	81 (40.3)	43 (45.3)	25 (31.6)	45 (45.5)	9 (56.3)	5 (83.3)	**0.001**
Internet-based									
Sending information to email	52 (26.4)	71 (36.8)	67 (36.4)	30 (30.9)	16 (20.3)	35 (36.1)	2 (12.5)	3 (50.0)	**0.031**
Healthcare website *e.g. NHS choices*	85 (43.1)	122 (62.9)	112 (60.5)	53 (54.6)	48 (60.8)	61 (63.5)	10 (58.8)	4 (66.7)	**0.044**

Note: Data presented only in positive views. Statistical significance was tested by Kruskal Wallis, excluding data from postal-OGN and online because of small sample size.

Further analysis was undertaken to examine the difference between the two survey approaches. Table 5-16 indicates that positive views towards advertising by family or friend recommendation, poster/leaflet in a pharmacy or a doctor surgery, were significantly higher among self-completion respondents ($P < 0.05$). Analysis of all data revealed few differences, although respondents educated to college/further education and university level were more likely to have positive views towards advertising by poster/leaflet in a doctor's surgery ($P < 0.05$). There was no difference between two survey approaches for other advertising techniques.

Table 5-16 Comparison of views towards advertising techniques for pharmacy services between two survey modes

	Survey approaches		
	Interviewer assisted (N=602) Count (%)	Self-completed (N=313) Count (%)	*P*-value
Recommendation			
By a doctor or another health professional	550 (92.0)	273 (90.7)	0.517
By family or friends	513 (86.1)	273 (91.0)	**0.034**
Poster/Leaflet/flyer			
Poster/leaflet in a pharmacy	409 (68.6)	226 (75.1)	**0.045**
Poster/leaflet in a doctor surgery	450 (75.8)	247 (82.3)	**0.025**
Poster/leaflet in a public place	324 (54.4)	192 (64.2)	**0.005**
Leaflet dropped through a door	308 (51.6)	165 (55.2)	0.310
Mass media			
Local newspaper/local free paper	324 (54.5)	177 (59.4)	0.161
Television	318 (53.4)	163 (54.7)	0.704
Local radio station	291 (48.8)	149 (49.8)	0.776
Local TV channel	256 (43.2)	127 (43.1)	0.237
Internet-based			
Sending information to email	190 (33.1)	86 (29.2)	0.228
Healthcare website e.g. NHS choices	319 (55.4)	176 (59.7)	0.957

Note: Data presented only in positive views. Statistical significance was tested by Mann Whitney, excluding data from postal OGN and online because of small sample size.

5.4.9 Economic evaluation

a. Resource used and price reference

Resources used and price references were shown in Table 5-17. Each mode used different materials and labour. Interviewer-assisted completion involved greater expenses for skilled-work, travel and calling charges. The self-completion approach had greater expenses for use of paper, printing and postage.

Table 5-17 Resources used and price reference

		Interviewer-assisted completion			Self-completion				
	Unit price (£)	Street	Door-to-door	Telephone	Double-mailing	Single-mailing	Drop-off-OGN	Postal-OGN	Online
Survey pack									
Questionnaire	0.145	♦	♦	♦	♦	♦	♦	♦	
Participant information sheet	0.017	♦	♦	♦	♦	♦	♦	♦	
Invitation letter	0.017				♦	♦	♦	♦	
Free post envelope	0.030				♦	♦	♦	♦	
Blank envelope	0.010				♦	♦		♦	
Label	0.015				♦	♦		♦	
Consent form+ Information sheet for gatekeeper	0.034							♦	
Postage fee second class - outward	0.280				♦	♦		♦	
Postage fee second class - return	0.390				♦	♦	♦	♦	
Postcard reminder	0.009				♦	♦			
Postage fee for postcard reminder second class - outward	0.280				♦	♦			
Labour									
Unskilled work - packing envelopes	6.860				♦	♦	♦	♦	
Skilled work - fieldwork survey	18.670	♦	♦	♦					
Skilled work - Creating an electronic questionnaire	18.670								♦
Other materials									
Flashcard	3.150	♦	♦						
Clipboard	1.000	♦	♦						
Pen	0.152	♦	♦	♦					
Magazine file	3.590						♦		
Travels									
Petrol (per mile)	0.400	♦	♦					♦	
Train fare* (average fare per return journey)	2.714	♦	♦						
Others									
Calling charge	0.076			♦					
Advertising fee on social network	4.390								♦

Note: ♦ indicates for which resources were used. *Train fare was presented in average value; actual fare was used to perform cost analysis.

b. Unit cost analysis

The total operating cost of survey implementation was computed for each survey mode. In addition, the survey implementation period and man-hours were recorded. The unit cost of completed questionnaires was performed by the formula mentioned previously (Formula 5-1), as shown in Table 5-18. Drop-off-OGN had the least unit cost per completed survey comparing to other modes but its implementation period was the longest. The unit costs performed by interviewer-assisted completion were relatively higher than that of the drop-off-OGN, but much lower than that of the postal surveys. The postal-OGN was the most expensive mode. The online survey had a small unit cost but the least number of respondents, and the added disadvantage of no denominator and uncertainty about respondent selection bias.

Table 5-18 Unit cost per completed questionnaire

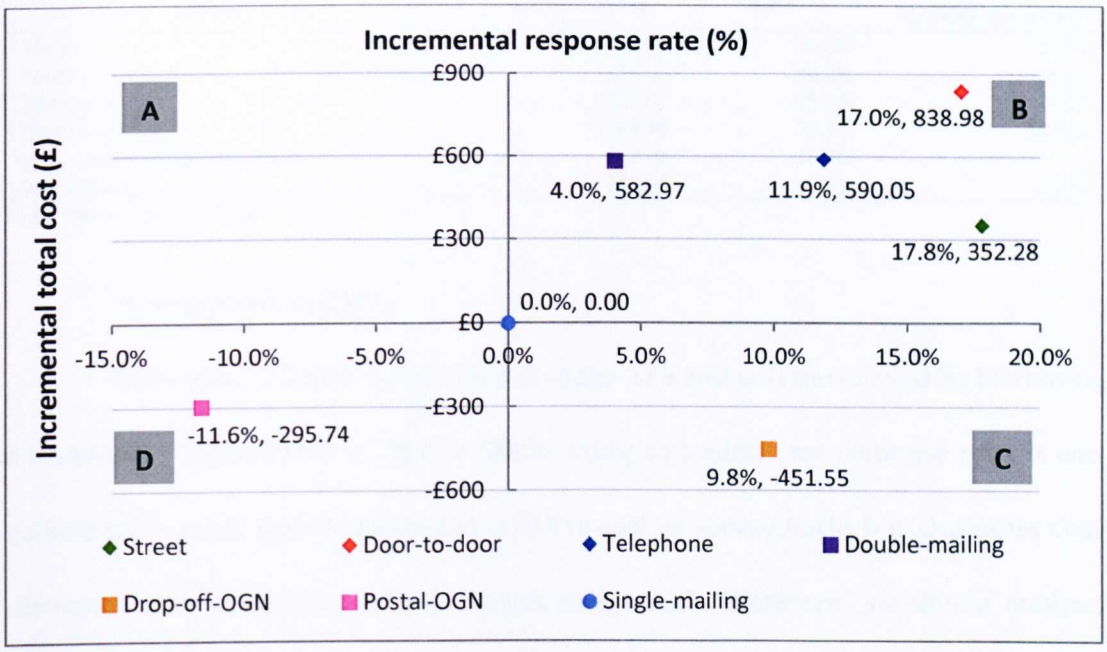
	Survey modes							
	Interviewer-assisted completion			Self-completion				
	Street	Door-to-door	Telephone	Double mailings	Single mailing	Drop-off OGN	Postal OGN	Online
Number of respondents	201	199	202	101	82	106	17	7
Implementation period (month)	1	1	1	3	1.5	6.5	1.5	3
Man-hours	50	76	55	63	35	7	28	1
Total cost (£)	1069.76	1556.46	1307.53	1300.45	717.48	265.93	421.74	23.06
Unit cost* (£)	5.32	7.82	6.47	12.88	8.75	2.51	24.81	3.29

Note: *Unit cost is calculated per completed questionnaire.

c. Cost-effectiveness analysis

The single-mailing survey, used as a benchmark, had a total cost of £717.48 (Table 5-18) and a response rate of 16.7% (Table 5-3). Base case scenario is a term that refers to the analysis of actual circumstances. The incremental cost and incremental effectiveness of all survey modes against the single mailing comparator is illustrated in the cost-effective plane (Figure 5-2). Quadrant A indicates that the survey mode had a higher cost-lower response. Quadrant B indicates a higher cost-higher response. Quadrant C is the desired outcome which indicated higher response-lower cost. Quadrant D indicates a lower cost-lower response. The online survey was not included in this analysis due to the very low response rate. Results show the postal-OGN had a lower response rate than the single-mailing mode (data fell in Quadrant D), therefore it was not considered to be effective to use and was excluded from the ICER analysis which is shown in the next section. The drop-off-OGN was the only survey mode that had a low total operating cost and a high response rate. The double-mailing survey obtained a higher response rate, however, it accrued a far higher operating cost, as did the interviewer-assisted approaches.

Figure 5-2 Cost-effective plane of the base case scenario illustrating incremental cost and incremental effectiveness of survey modes



As described in the Cost-effectiveness analysis (CEA) methodology; page 119, Incremental cost-effectiveness ratio (ICER) was a key indicator to perform CEA. The ICER was computed following Formula 5-2, the results are as shown in Table 5-19. The base case scenario of this study shows that the drop-off-OGN saved £45.92 per 1% increase in response rate. Street, telephone, door-to-door and double-mailing mode, by contrast, have additional costs over the single-mailing comparator; £19.78, £49.25, £49.73, and £144.66 respectively.

Table 5-19 Incremental cost-effectiveness ratio of base case scenario for all survey modes

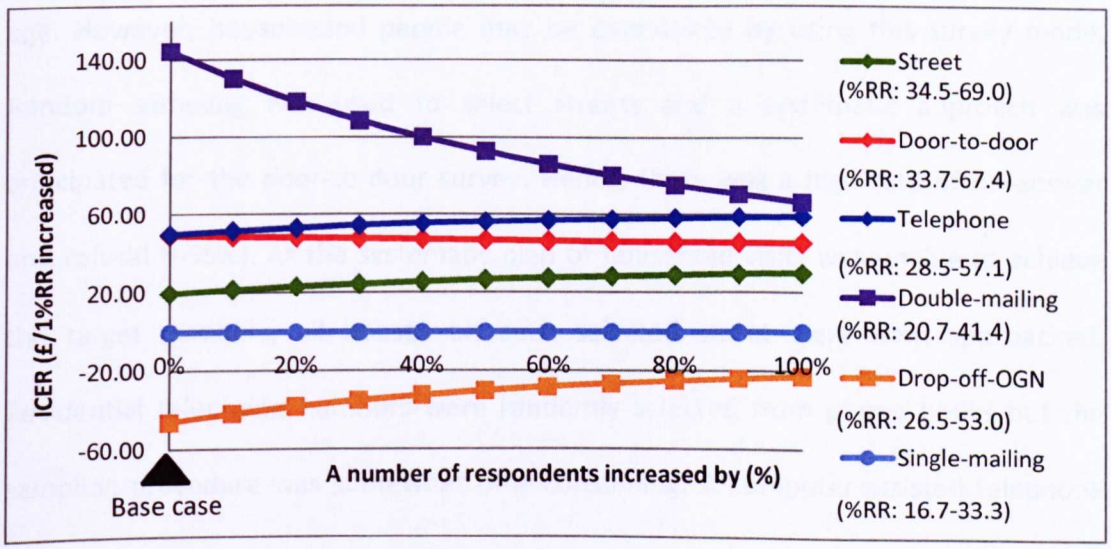
Survey mode	Total cost (£)	% RR*	ICER (£/1%RR increase)
Street	1069.76	34.5%	19.78
Door-to-door	1556.46	33.7%	49.25
Telephone	1307.53	28.5%	49.73
Double-mailing	1300.45	20.7%	144.66
Single-mailing (Comparator)	717.48	16.7%	-
Drop-off-OGN	265.93	26.5%	-45.92

Note: *RR = Response rate

d. Sensitivity analysis

Sensitivity analysis is described on page 119 and was performed by increasing a number of respondents by 10% to 100%. Using this additional response rate, it was estimated to subsequently affect not only the cost of survey packs but also other cost elements such as labour, calling charges and travel. Therefore, sensitivity analysis included those additional costs. Figure 5-3 reveals that at the higher response rate, cost-savings achieved by drop-off-OGN diminished. Additional costs decreased considerably for the double-mailing, but increased slightly for the other survey modes.

Figure 5-3 Sensitivity analysis when response rate increased varying by 10% to 100%



5.5 DISCUSSION

5.5.1 Methodology

McColl et al[62] found seventeen health surveys, published during 1975-96, which compared the efficiency of several survey modes. However, none of these compared more than three modes simultaneously. This study is therefore the first attempt in health service research to compare eight survey modes, concurrently obtaining views from the same population of general public. According to the results taken from the different procedures, each mode had unique strengths and limitations of which researchers should be aware, summarised in Table 5-20. The interviewer-assisted approach required skilled-research work in order to administer the questionnaire professionally. This included how to approach and interview potential participants. Developing an electronic questionnaire required specific IT skills for the online survey, while other self-completion modes required unskilled-work to implement, e.g. packing envelopes and posting. In relation to the sampling techniques, the street survey was able to use quota sampling, therefore enhanced representativeness of sample in term of visual demography in particular gender and age. However, housebound people may be overlooked by using this survey mode. Random sampling was used to select streets and a systematic approach was anticipated for the door-to-door survey. Hence, there was a high rate of no-answer and refusal (~55%). As the systematic plan of household visits was unable to achieve the target numbers, all houses on each selected street were then approached. Residential telephone numbers were randomly selected from phone books but the sampling procedure was somewhat time-consuming. A computer-assisted telephone

interview (CATI) using random digit dialling may resolve this problem but the cost may be another constraint.[140, 141] Furthermore, households without landline and the ex-directory residents were not incorporated in the sampling frame. This is highlighted as another challenge for a telephone survey.[142] Random sampling was used for postal surveys, both single- and double-mailing. However, this had a lower response rate which may induce non-responder bias. The postal-OGN could be an ideal method of gathering the views of employed people but the business manager, as a gatekeeper, may affect this method thus prohibiting the response. In relation to the drop-off OGN, a broad range of places should be proposed and organisation selection not be too cautious, otherwise, selection bias may be encountered. Internet accessibility affected the ability to complete an online questionnaire.

A mixed-mode survey design was chosen to ensure inclusion of a broad range of the population and to maximise the response rate, as had been suggested in other reports.[62, 65, 72] In this study three survey modes, door-to-door (known as a household survey), postal-OGN and drop-off-OGN, were included, which have rarely been used in health service surveys. The results show that positive views of willingness to use pharmacy public health services and agreement on factors influencing pharmacy use were slightly higher when data was gathered by interviewer-assisted approaches. This may be a phenomenon of social desirability bias.[72] Therefore, findings obtained by all survey modes must be compared to determine whether the social desirability bias was detected. If not, data from multiple survey modes can be combined.

As regards the financial costs of the survey implementation, two previous Australian studies had previously performed a cost-effectiveness analysis for follow-up contact by telephone after postal questionnaires were distributed.[69, 70] However,

limited evidence of economic benefits was found and further investigation is still required. The results from this present study were used to supplement this knowledge of survey design and the related cost of the various methods when used in health service research. This will be discussed later in this chapter.

Table 5-20 Summary of strengths and limitations of each survey modes

	Interviewer-assisted completion			Self-completion				
	Street	**Door-to-door**	**Telephone**	**Double-mailing**	**Single-mailing**	**Drop-off-OGN**	**Postal-OGN**	**Online**
Population frame	A list of town or shopping centres	Postcode address file	Phone book (Lack data of mobile-phone-dependence and ex-directory residents)	Postcode address file	Postcode address file	A list of public organisation	A list of local businesses	A list of local businesses/organisation websites
Sampling method	Quota sampling	Stratified random sampling	Random sampling	Random sampling	Random sampling	Purposive sampling		
Specific training/knowledge	Questionnaire administration	Questionnaire administration	Questionnaire administration	No	No	No	No	Creating online questionnaire
Type of labour work	Skilled	Skilled	Skilled	Unskilled	Unskilled	Unskilled	Unskilled	Skilled
Implementation period	Short	Short	Short	Long	Long	Long	N/A	N/A
Survey response	Good	Good	Fair	Poor	Poor	Fair	Very Poor	Very Poor
Major resource	Labour Travel	Labour Travel	Labour Calling charge	Labour Printing Postage	Labour Printing Postage	Printing Postage	Labour Printing Postage	Internet-based system
Unit cost per completed questionnaire	Moderate	Moderate	Moderate	High	Moderate	Low	Extremely high	Low
Social desirability bias	May occur with interviewer-assisted approaches when asking question exploring opinions directly related to pharmacy services (e.g. willingness to use and factors influencing pharmacy use)			May be less likely to occur with self-completion approaches				
Ability to obtain sensitive information	May be limited			Yes				

Note: *N/A = Not applicable

5.5.2 Main findings

The response rate obtained from all the survey modes ranged from approximately 5% (postal-OGN) to 35% (street). The online survey was unable to ascertain the response rate because of a lack of denominators. Hence, while only seven respondents completed the survey online, it was unknown how many people visited the webpage where the questionnaire was posted. In this study, interviewer-assisted approaches obtained higher response rates than the self-completion approach. This finding was in line with other studies, reported as one of the advantages of interviewer-assisted approaches.[62, 65] In terms of the research methodology aspect, generally, the higher the response the higher the confidence in result interpretation due to less non-respondent bias. Magione[63, p.60-61] suggested that a response rate higher than 70% is excellent, however, 60 to 70% is acceptable. McColl et al[62] reported that in reality, medical surveys yielded a lower response rate. Papers published in American journals stated that the average response rate was 60%[96] and this has become the current standard marker.[8, 143] Cook et al[64] found that the response rate to postal surveys of health professionals has been declining. Owen-Smith et al[8] also stated that the lifestyle survey has encountered this problem and noted that even a 60% response rate can only be accomplished with difficulty. They also noted that an average rate for lifestyle surveys would range from 27% to 70%. As found in this study, the response rates from all survey modes remained lower than 60%, however, they were aligned in the range suggested by Owen-Smith et al.[8] This reiterates that the low response rate in health surveys persists and that non-respondent bias should be of concern when results are interpreted.

Demographic attributes, apart from age, working status and deprivation level, were found to be equivalent among all modes. The street survey had the highest response from the young people, perhaps because of the advantage of quota sampling. In this study, proportions of gender and age were determined according to Sefton's population (see Table 5-1). Quota sampling, however, was applied only to street surveys since RAs were able to identify the gender of respondents and estimate their age. The quota sampling could be also applied to other survey modes but may need additional questions verifying whether people approached were in the quota. This would make the survey a little more complicated, therefore in this study the quota was not used for other survey modes. The telephone survey had the lowest response of unemployed people. This may be due to the fact that the unemployed are more likely to rely on mobile phones, as found in the US and Australia.[140, 142] The door-to-door survey obtained the lowest response from people living in the more deprived areas. A higher response was obtained from this subgroup when data were gathered by the self-completion approach. This was probably limited by safety concern for researchers when visiting the deprived areas. A previous study has reported that poorer areas are more likely to have a higher rate of violence.[144]

There was a variation amongst all survey modes regarding fruit/vegetable intake, exercise and medical histories. From subsequent analysis, the self-completion approach was likely to have a higher proportion of respondents in relation to the more sensitive issues, in particular, where participants were overweight or taking medicines regularly. Analysing the disclosure of weight data, a sensitive question, no statistical difference was found between the two approaches, although the response was higher in the interviewer-assisted group than of the self-completion group. Therefore, it may

be suggested that interviewer-assisted approaches could have difficulty in obtaining sensitive information, the previous study was unsure on this point.[62]

As described in Methodological outcomes and data analysis section, page 117, the key findings were divided into two aspects; (i) behaviours relating to using community pharmacy and (ii) perceptions of pharmacy public health services. All survey modes attained similar proportions of all types of pharmacy users. With experience of pharmacy public health services, there was a variation among all modes – probably because the number of respondents who had experienced these services was low. However, experience of services use was found to be similar between the two approaches. This could imply that different survey modes may not affect results in relation to behaviours concerning using community pharmacy.

Willingness to use service for health checks was found to be similar amongst all modes, but was varied for health advice services. The interviewer-assisted approaches were more likely to have higher positive views, especially in relation to health advice. In relation to factors influencing pharmacy use, the interviewer-assisted completion method tended to have a higher proportion in agreement. In particular, the street survey attained the highest proportion of agreement to most of the factors proposed. It is likely that the higher positive views and agreement were an effect of social desirability bias. Views towards advertising techniques for community pharmacy were generally similar between the two approaches, apart from the poster and leaflet technique, where the self-completion method had a higher proportion of positive views. McColl et al[62] explained that the more literate people are, the more likely they are to respond to the postal survey (which is one of the self-completion approaches). Furthermore, this study found that the more highly educated respondents had more

positive views regarding the poster and leaflet advertising technique, especially when distributed through a doctor's surgery. This may be a characteristic of more highly educated people in that that they would be more willing to become involved in the self-completion survey as well as preferring to seek information from the printed media.

The results may indicate the phenomenon of social desirability bias, which is believed to appear when the interviewer assists in administering the survey.[61, 62] However, it was notable that the social desirability bias was found when eliciting perceptions towards issues directly related to community pharmacy, e.g. willingness to use and factors influencing pharmacy use, but do not appear with indirectly related ones like advertising issues. The topic of questions could be a potential factor inducing bias, e.g. asking the core question, which respondents were informed is the purpose of the survey, may potentially induce social desirability bias by interviewer-assisted completion. Therefore, questions that are used should be designed carefully.

McColl et al[62] summarised that the interviewer-assisted approaches may be more costly than others by citing Hinkle and King[145] which was reported several decades ago. Notably, evidence relating to this aspect is still absent and needs further investigation. In Australia, Silva et al[70] found that telephone reminders improved response rate of postal survey among women and were also cost-effective. Breen et al[69] recently performed a cost-effectiveness analysis for a postal survey with telephone reminders and concluded in contrast that a follow-up phone call was not a cost-effective method of improving survey response. In this study, CEA was performed differently. The CEA compared the entire operational cost of eight survey modes and used response rate yielded as a key effectiveness. As mentioned previously,[62] the

interviewer-assisted approaches included labour costs for interviewing, whereas the self-completion ones were associated with paper materials and postage. The postal-OGN and online surveys were inefficient because of yielding very low response rates. The drop-off-OGN generated the lowest unit cost of £2.51 per completed questionnaire, while other self-completion approaches, double- and single- mailing, were more costly. Street-, door-to-door- and telephone survey were subsequently higher than drop-off-OGN but less than other self-completion modes, ranging from £5 to £8 per completed questionnaire. This finding reveals that postal survey is more expensive than other modes, which is in contrast with previous reports.[67, 62, 145] This was probably because of a fairly low response rate obtained, perhaps people receiving questionnaires were not particularly interested in the subject area. If the postal mode had more respondents the cost per completed questionnaire would be less. A number of techniques have been suggested in order to boost the response rate of postal survey, e.g. reminders, questionnaire printed in colour, incentives etc.[63] Nonetheless, these additional techniques increase cost. The cost-effectiveness plane (Figure 5-2) and results presented in Table 5-19 shows drop-off-OGN was cost-effective, compare to the single-mailing, while double-mailing and all interviewer-assisted approaches had additional-cost per 1% response rate gained from the single mailing. The drop-off-OGN was the cheapest alternative but its implementation period was the longest. Therefore, it perhaps merits consideration for use when longer periods are allowed for survey research. The cost-effectiveness data, here, was based on the environment of this study. Results might be different if the survey was undertaken elsewhere, e.g. in other areas of England or other countries.

Sensitivity analysis was essential for the CEA study to estimate cost outcomes when resources were changed. In this CEA, the response rate was the key effectiveness and it determined resources used. Therefore, simulated sensitivity analysis was performed by varying the response rate.[69, 134, 146] Results indicate that cost-saving by using drop-off-OGN diminished as the response rate increased. For other modes, additional costs of the double-mailing decreased considerably with increasing response rates, but increased slightly for the other survey modes. This means the interviewer-assisted approaches may have the ability to maintain the additional-cost per 1% response rate gained from the single mailing, better than drop-off-OGN and double-mailing, therefore they would be more cost-effective when response rates are higher.

5.5.3 Implication for research practice

Although researchers have suggested many possible strategies to improve the response rates of postal surveys, e.g. through repeat-mailing, follow-up contacts, using incentives and so on, the low response rates to surveys still persist, and were also found in this study. Breen et al[69] suggested greater focus on initial responses since they found follow-up telephone contact was not cost-effective but this was also hard to achieve. Attention should be paid to manipulating data from divergent survey modes since similarity was found among all survey modes for most of the key findings – suggesting three alternatives to be combined including; single-mailing, drop-off-OGN and street survey which are cost-effective. Although each mode has different strengths and limitations, however combining them could perhaps enhance overall response rate and complement each other, in particular for some minority subgroups. For

example, the mail survey and drop-off-OGN may be able to reach the more deprived areas. Housebound people would have better chance of receiving and responding to the postal questionnaire. The street survey could convince people with low literacy to take part as well as controlling the demographic mix such as gender and age. These could consequently increase the possibility of generalisation. However, it is important that researchers need to be aware of issues in relation to particular topics, since face to face surveys, such as street surveys, may induce social desirability bias. Additionally, a robust questionnaire is needed, as well as ensuring equivalence of results between modes prior to combining data. Further research may need to investigate how to equalise findings gathered by both approaches, e.g. determining a weighting factor which could adjust the results obtained from interviewer-assisted techniques to render them equivalent to those from self-completion techniques.

5.6 CHAPTER SUMMARY

Low response rates to health related questionnaires in health service research are a significant concern, and reduce the ability to generalise findings. Interviewer-assisted and self-completion approaches obtain similar findings in terms of demographics and behaviours of using community pharmacy. A social desirability bias may occur with interviewer-assisted completion, but this phenomenon was mainly highlighted when topics directly related to community pharmacy were asked; including willingness to use lifestyle advice services and factors influencing pharmacy use. Apart from the single-mailing, which is a common survey methodology used in health service research, the drop-off-OGN is novel and the most cost-effective option if not limited by

its long implementation period. Otherwise, the street survey is also an efficient method that can be applied to health service research but needs careful construction to minimise social desirability bias. Using a mixture of survey modes should be considered in order to gain maximum benefit from the divergent modes, however, care is needed to ensure equivalence of findings prior to interpretation.

CHAPTER 6 VIEWS OF THE GENERAL PUBLIC ON PHARMACY PUBLIC HEALTH SERVICES

6.1 INTRODUCTION

As summarised in Chapter 1, the role of community pharmacists has broadened recently to include a contribution towards health benefits for the population. Community pharmacists currently provide a range of public health services, for example, smoking cessation assistance, emergency contraception, cardiovascular risk screening and other services.[5, 82] Health policy makers in England have greatly supported and promoted these roles for community pharmacies[5, 83] with a high expectation that doing so would help to narrow health inequalities. However, this idea will not be successful if there is a lack of cooperation from the general public, the key service users. A systematic review, published in 2004, identified that pharmacy users perceived community pharmacists as drug experts.[47] A more recent systematic review, published in 2011, reported slightly different opinions in that consumers viewed community pharmacists to be appropriate health service providers, although their competency was in doubt.[30] However, both reports were based on studies conducted among pharmacy service users (i.e. among persons already acquainted with and utilizing pharmacy services). In addition, both reports suggested that pharmacy public health services still need promotion in order to improve the general public's awareness. This is in line with the results from the qualitative studies in the early phase.

This chapter describes the research which investigated the views of the general public towards pharmacy public health services, which has been neglected to date, generated from community-based surveys. The survey also includes a section exploring the appropriate advertising techniques that can be used to promote pharmacy provision.

6.2 OBJECTIVES

(1) To quantitatively assess the views of the general public in Sefton, North West England, with regard to their experience of, and willingness to use, pharmacy public health services, factors influencing their pharmacy use, and opinions on advertising techniques for promoting pharmacy public health services.

(2) To evaluate whether the general public's views differ according to particular demographics, deprivation, lifestyle, health and geodemographic status.

6.3 METHODS

6.3.1 Survey design and sample size

As described in Chapter 2, eight different survey modes were used in the main survey to administer questionnaires concurrently in the same population for two purposes; (i) evaluating methodological and financial outcomes of survey modes used, and (ii) assessing views of the general public towards pharmacy public health services. The eight survey modes used were street, door-to-door, telephone, double-mailing, single-mailing, postal-OGN, drop-off-OGN and online. Chapter 5 presented results on purpose (i) of the main survey, evaluating the methodological and financial outcomes

of survey modes used. In this Chapter, all data obtained from all survey modes is pooled to illustrate the overall views of the general public towards pharmacy public health services, thus achieving purpose (ii) of the main survey. Therefore, the survey design and sample size used for this chapter were as same as described in Chapter 5.

6.3.2 Data analysis

a. Data entry

The data source corresponds to that described in Chapter 5, with the same mathematical and statistical software, Microsoft Excel 2010 and SPSS Version 17.

b. Independent variables

Data analysis performed for this chapter mainly involved the examination of associations between independent variables and outcome variables. An independent variable, or predictor variable, is a variable which may determine outcome; for example, Boardman et al[60] found that women were more likely to seek health advice from the community pharmacy than men. This means that 'female' is a determining factor in the use of health advice service and that gender is an independent variable. In social science research, independent variables commonly include demographics and health variables.[9] Therefore, it is essential to define all variables included in the analysis. Independent variables in this survey were demographics, deprivation, lifestyle, health status, chronic health conditions and pharmacy user type.

(1) Demographics

Demographic variables included gender, age, ethnicity, educational background, work status and socioeconomic status which were categorised by the same process as described in Chapter 5, see page 115.

(2) Deprivation

The Office for National Statistics officially reports national deprivation quintiles based on the Index of Multiple Deprivation (IMD) 2007 by Lower Super Output Area (LSOA), a small level geographical area designed for the collection and publication of small area statistics, for all areas across England. The national quintiles are scored as follows, 1 – least deprived, 2 – less deprived, 3 – average deprived, 4 – more deprived and 5 – most deprived. However, this deprivation level is not available specifically for each ward area.[40] Sefton Council use the aggregated Super Output Areas (SOAs), a larger geographical area, to obtain a deprivation score for each independent ward.[135] The Sefton borough has 22 wards which were assigned individual deprivation scores – from 1 (most deprived) to 22 (least deprived). It was necessary for the structure of deprivation tiers from the survey to be as similar as possible to the local and national statistics, thus the survey data were comparable to that of Sefton (local) and that of England (national). The deprivation scores for all wards was converted and created into the local IMD quintiles. IMD quintiles were used to describe the level of deprivation of the survey population compared to local and national statistics but were inappropriate to use for subgroup analysis because of the inadequate sample size in each tier. Therefore, in the subgroup analysis, deprivation was collapsed into three tiers according to the original deprivation scores assigned by the Sefton Council – more deprived (score of 1 to 7), moderately deprived (score of 8 to 15) and less deprived (score of 16 to 22). The process of creating local quintiles of IMD and classifying deprivation levels used in subgroup analysis is shown in Table 6-1.

Table 6-1 Quintiles of IMD and deprivation level used in subgroup analysis

Ward	Overall IMD[a]	Converted Overall IMD	IMD range for each quintile*	Deprivation level[b]	Deprivation level used in subgroup analysis
Harington	22 (Least deprived)	1 (Least deprived)	1st quintile Score range 1-4.4	Least deprived	Less deprived (Overall IMD 15-22)
Ravenmeols	21	2			
Meols	20	3			
Blundellsands	19	4			
Sudell	18	5	2nd quintile Score range 4.5-8.8	Less deprived	
Birkdale	17	6			
Ainsdale	16	7			
Park	15	8			
Victoria	14	9	3rd quintile Score range 8.9-13.2	Average deprived	Moderate deprived (Overall IMD 8-15)
Norwood	13	10			
Manor	12	11			
Molyneux	11	12			
Kew	10	13			
Cambridge	9	14	4th quintile: Score range 13.3-17.6	More deprived	
Dukes	8	15			
Church	7	16			
Ford	6	17			
Netherton and Orrell	5	18	5th quintile: Score range 17.7-22.0	Most deprived	More deprived (Overall IMD 1-7)
St Oswald	4	19			
Litherland	3	20			
Derby	2	21			
Linacre	1 (Most deprived)	22 (Most deprived)			

Note: *A fifth of 22 equalled to 4.4, therefore the width for one quintile of IMD was 4.4. [a] Sefton Indices of Multiple Deprivation (IMD) 2007[135] [b] Sefton Health Profile 2011[40]

(3) Lifestyle

Lifestyle as a health related variable was demonstrated in this study using smoking, alcohol consumption, fruit/vegetable intake, exercise and weight. Lifestyle variables were categorised into subgroups as described in Chapter 5, see page 116.

(4) Health status

Health status as a health related variable was included in this study using self-rated general health (good, fair and poor), taking medicines regularly, and reporting of chronic health conditions. Seven chronic conditions were defined in the survey, within two categories - (i) cardiovascular related diseases such as hypertension, diabetes, high

cholesterol and heart disease, and (ii) lifestyle diseases such as obesity, smoking related problems and alcohol related problems.

(5) Pharmacy user type

Pharmacy user type was defined by the frequency of pharmacy visits in the last 6 months. A frequent user was defined as an individual who had visited a pharmacy more than once a month while an infrequent user visited less than once a month and included non-users.

(6) Geodemographic status

Geodemographic segmentation is utilised by public health organisations in England at national and local level. Geodemographic segmentation, widely used in commercial marketing, is a way of classifying populations into small specific subgroups according to where (and how) they live. Geodemographic segments or classes are generally established by cluster analysis utilising multiple factors such as age, occupation, income, housing and so on – providing a narrative profile. This concept considers that people within the same segment may have similar needs, attitudes and behaviours. This facilitates multi-faceted and in-depth understanding through subgroup analysis, compared with just using individual demographics and health status as independent variables.[9] Thus, it was of interest to incorporate this into this study as an independent variable.

A number of geodemographic tools are currently available by various providers in the marketplace; summary details of each tool were described in Chapter 1. The MOSAIC™ classification for the United Kingdom (supplier named Experien) was chosen for use because its classifications were created based on deprivation and lifestyle, as used in this study. Moreover, classifications were generated by postcode,

which already existed in this database. Importantly, MOSAIC™ is used by Sefton PCT, in common with many NHS primary care organisations, and is free of charge for academic use.[9, 10] The MOSAIC™ classifications used were published in 2004, composing 11 groups and 61 types of geodemographic segments.[80] (Table 1-5)

c. Dependent variables

A dependent variable, or outcome variable, is an expected outcome of the study. In this chapter dependent variables were the findings obtained from key questions, as used for the analysis in Chapter 5. Dependent variables included experience of and willingness to use the seven pharmacy public health services, factors influencing pharmacy use, and advertising techniques for pharmacy services. This study focused on seven pharmacy public health services in relation to cardiovascular disease and risk factors which were clustered into two subgroups - (i) health advice, which included advice on stopping smoking, sensible drinking, losing weight and heart health, and (ii) health check, which included blood pressure checks, cholesterol checks and blood sugar checks.

(1) Experience of pharmacy public health services

Respondent's experience of using pharmacy public health services was obtained by asking whether respondents have ever used any of the seven services listed. Responses were dichotomous ('Yes' or 'No'). The experience level of services was then calculated for three types; overall pharmacy public health services, services for health advice and services for health check respectively. The experience level was calculated by summing the number of services that respondents had ever used. This

was classed into two levels; (i) no experience (respondents never used any of services proposed) and (ii) experienced at least one service.

(2) Willingness to use pharmacy public health services

Willingness to use pharmacy public health services was obtained by asking if respondents would use the seven services in the future. The responses were dichotomised to positive (answered 'yes' and 'maybe') and negative (answered 'no), see more details in Chapter 5; page 130. Level of willingness to use services was calculated for three types; overall pharmacy public health services, services for health advice and services for health check, as for experience level. The summed scores of positive views (response of yes and maybe) were determined and graded into two levels; (i) would not use any service and (ii) would use at least one service.

(3) Factors influencing pharmacy use

Seven factors influencing pharmacy use included in the questionnaire were loyalty, type of pharmacy, location, opening time, rapport, privacy and confidentiality. These variables were transformed into sixteen statements and respondents were asked whether or not they agreed with each statement. Respondents were asked to rate whether they agreed, did not mind/not sure, or disagreed with these statements.

(4) Advertising techniques for pharmacy services

Twelve potential advertising techniques were included in the survey. Respondents were asked if they thought these advertising techniques would encourage them to use pharmacy services. The responses were dichotomised to positive (answered 'yes' and 'maybe') and negative (answered 'no'), see more details in Chapter 5; page 136.

d. Other outcome variables

The survey incorporated additional questions to explore pharmacy use, including the main reasons for pharmacy visit, waiting times considered appropriate and the acceptability of establishing an appointment system within the pharmacy.

e. Analysis plan

(1) Descriptive analysis

Descriptive analysis was performed to illustrate the overall results of all variables, including independent variables, dependent variables and other outcome variables. Results were presented in numbers and percentages for all categorical variables. A mean score of agreement was used for results of factors influencing pharmacy use. A rating scale for this question set was scored as: agree = 1.00, don't mind/not sure = 0.00 or disagree = -1.00. The mean score of agreement ($\bar{x}$) was computed and ranged from -1.00 to 1.00. A mean score greater than 0.50 indicated agreement with the statement. A mean score less than -0.50 denoted disagreement. The mid-way score of -0.50 to 0.50 indicated a neutral opinion towards the statement.

(2) Subgroup analysis

Subgroup analysis was conducted to show the outcomes for each independent variable subgroup. Results were presented descriptively using numbers and percentages for the categorical outcome variables and mean scores for the scale variables. Chi-square was used to identify an association between independent variables and categorical outcome variables, including the experience of, and willingness to use pharmacy public health services, and views towards advertising techniques for pharmacy services. Independent t-test and one-way ANOVA were used

to examine associations between independent variables and scale variables, which were factors influencing pharmacy use. A *P*-value less than 0.05 was the cut-off point used to depict the significance level for all statistical tests.

(3) Multivariate analysis

Binary logistic regression was used to determine associations between multiple independent variables and categorical outcome variables: experience of, and willingness to use, pharmacy public health services and views towards advertising techniques for pharmacy services. An odds ratio (OR) and its 95% confidence interval (95% CI) were used to interpret the significance of an association, using a *P*-value of less than 0.05 as the cut-off point for significance. Multivariate analysis was not used to examine the association between independent variables and the outcome factors influencing pharmacy use since the scale was not continuous.

(4) Geodemographic

The analysis between all outcome variables and the geodemographic variable was performed separately, since this is a conceptually new application for pharmacy practice research and contains unique details (see Chapter 1). However, only descriptive analysis was performed due to an inadequate sample size for most groups.

6.4 RESULTS

6.4.1 Descriptive analysis of independent variables

a. Demographics and deprivation

At least 4,988 members of the general public were approached using eight different survey modes, and, of that, 430 were approached twice by using the double-

mailing mode. Of those 5,418 attempts, 915 questionnaires were completed. Demographic details of respondents compared to the local and national statistics are demonstrated in Table 6-2. The majority of respondents were female (60.4%), middle aged (53.9%), white (97.5%), school educated (43.6%), retired (43.2%) and with a high socioeconomic status (62.7%). Not quite half (42.6%) of respondents were from less deprived areas. Several demographics for local and national statistics were used for comparison against the survey data generated. This survey obtained views mostly from females similar to the average of Sefton and England which is dominated by the female gender. The age group and ethnicity was also similar to data in Sefton. GCSEs achieved and economic activity were equivalent to education and work status in this study. School education was the highest educational level of the majority of respondents, while employment was slightly lower than the statistics for Sefton and England.

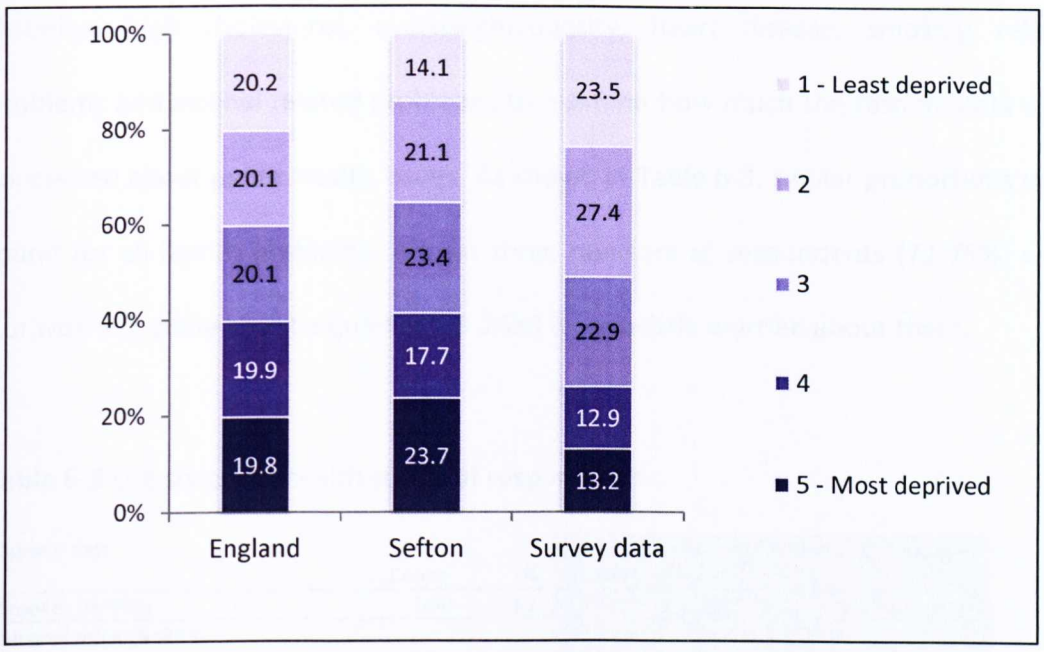
Table 6-2 Demographics and deprivation of respondents

Survey data	Count	%	Local and national statistics (%) Sefton	England	
Gender (N=906)					**Gender**[a]
Male	359	39.6	47.0	49.1	Male
Female	547	60.4	53.0	50.9	Female
Age (N=907)					**Age**[a]
Young (18- 34)	105	11.6	18.3	21.9	16-29
Middle (35 – 64)	489	53.9	50.9	51.9	30-59
Elderly (≥ 65)	313	34.5	30.8	26.2	≥60
Ethnicity (N= 902)					**Ethnicity**[a]
White	879	97.5	98.4	90.9	White
Non-white	23	2.5	1.6	9.1	Non-white
Education (N=877)					**Education**[b]
School (primary or secondary school)	382	43.6	59.5	58.4	GCSE achieved
College/Further education	278	31.7			
University (bachelor/postgraduate)	217	24.7			
Work status (N=906)					**Economic activity**[a]
Not working	126	13.9	10.5	5.7	Unemployed
Retired	391	43.2			
Working (Full time/Part time)	389	42.9	55.7	60.6	Employed
Socioeconomic status (N=863)					
Lower	188	21.8			
Middle	134	15.5			
Higher	541	62.7			
Deprivation (N=824)					
More deprived	159	19.3			
Moderate deprived	314	38.1			
Less deprived	351	42.6			

Note: [a]Sefton Socioeconomic data[85], [b]Sefton Health Profile 2011[40]

Figure 6-1 shows quintiles of IMD of the survey data, comparing to local and national statistics. England has about 20% of population evenly for all quintiles of IMD. Almost a quarter of Sefton residents (23-24%) live in the most deprived and average deprived areas and less than 15% live in the least deprived area.[147] About a quarter of respondents were from the least deprived (1st quintile) and less deprived areas (2nd quintile). The survey was thus relatively limited in obtaining views from people in the most deprived areas (5th quintile) which constitutes the majority of Sefton's population.

Figure 6-1 Quintiles of Index of Multiple Deprivation



b. Life style, health status and chronic health conditions

Table 6-3 demonstrates that about one in five of respondents (18.2%) were smokers. Two in five (39.2%) were unsafe drinkers. Over two-thirds (67.7%) ate less than five portions of fruits/vegetables a day. Just over half (53.0%) exercised at least three times a week, and 54.1% were overweight. About two-thirds (68.2%) self-rated as having good health, while a similar proportion (64.5%) were taking medicines regularly. The top three chronic diseases respondents reported they were diagnosed with were hypertension (31.2%), obesity (28.5%), and high cholesterol (24.9%). Lifestyle and health status for local and national statistics were retrieved on these variables. The proportion of smokers and the distribution of general health status in the survey respondents were similar to both, but the proportion of unsafe drinkers, those eating well (≥ 5 portions of fruit/vegetables), taking adequate physical activity and being overweight, was higher compared with data from Sefton and England.

Seven public health problems were listed in the questionnaire; hypertension, diabetes, high cholesterol, overweight/obesity, heart disease, smoking related problems and alcohol related problems, to examine how much the respondents were concerned about public health issues. As shown in Table 6-3, similar proportions were found for all health problems. Almost three quarters of respondents (72-75%) were not worried, while about a quarter (23-26%) were a little worried about them.

Table 6-3 Life style and health status of respondents

Survey data	Count	%	Local and national statistics (%) Sefton	England	
Smoker (N=903)	164	18.2	19.3	21.2	Adult smoking[b]
Alcohol drink (N=883)					
No	181	20.5			
Safe drinker	356	40.3			
Unsafe drinker	346	39.2	21.8	23.6	Higher risk drinking[b]
Fruit/vegetable intake (N=878)					
< 5 a day	594	67.7			
≥ 5 a day	284	32.3	26.5	28.7	Healthy eating[b]
Exercise (N=902)					
< 3 times a week	424	47.0			
≥ 3 times a week	475	53.0	10.9	11.5	Physically active[b]
Weight (N=772)					
Normal	354	45.9			
Overweight	418	54.1	23.9	24.2	Obese adults[b]
General Health (N=898)					**General health[a]**
Poor	67	7.5	11.2	9.2	Not good
Fair	219	24.4	21.7	22.2	Fairly good
Good	612	68.2	67.0	68.6	Good
Taking medication regularly (N=899)	580	64.5			
Chronic conditions					
Hypertension (N=894)	279	31.2			
Diabetes (N=891)	98	11.0			
High Cholesterol (N=886)	221	24.9			
Obesity (N=892)	254	28.5			
Heart Disease (N=893)	107	12.0			
Smoking related problem (N=891)	47	5.3			
Alcohol related problem (N=889)	23	2.6			

Note: [a]Sefton Socioeconomic data[85], [b]Sefton Health Profile 2011[40]

c. Pharmacy use

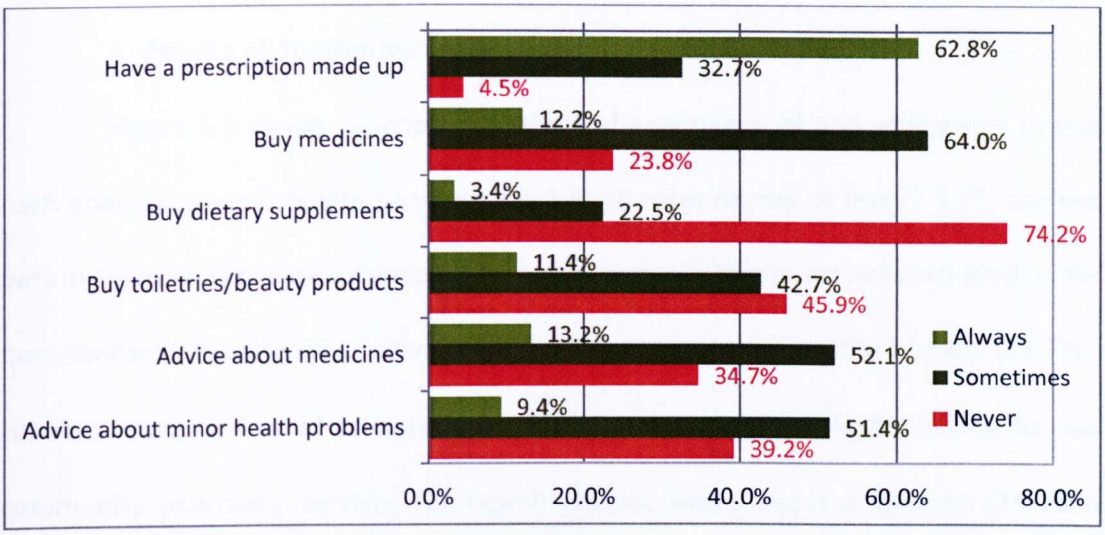
Table 6-4 illustrates that most respondents (~96%) were pharmacy users. About 4% of respondents had never visited a community pharmacy in the last 6 months. About two-thirds were frequent users while only a third were infrequent pharmacy users.

Table 6-4 Pharmacy user type

Pharmacy user type	Count (N=903)	%
Infrequent users	324	35.9
Non user (never visited a pharmacy in the last 6 months)	34	3.8
Occasional user (had visited a pharmacy less than once a month in the last 6 months)	290	32.1
Frequent user (had visited a pharmacy more than once a month in the last 6 months	579	64.1

The reasons for visiting the community pharmacy which were rated by pharmacy users are shown in Figure 6-2. About two-thirds (62.8%) always visited the community pharmacy for prescription collection and the same proportion (64.0%) sometimes visited to buy medicines. About half of pharmacy users sometimes visited to seek advice about medicines, minor health problems and to buy toiletries/beauty products. About a quarter visited to buy dietary supplements.

Figure 6-2 Reasons given to visit a community pharmacy



In addition, 86 respondents also provided further responses to one of the open-ended questions concerning their use of a community pharmacy for other purposes. As presented in Table 6-5, services mentioned most frequently included general health advice (34.9%; 30 of 86) and services for reproductive and sexual health (14.0%; 12 of 86).

Table 6-5 Other purposes to visit community pharmacy

Other services/purposes for pharmacy visit	Count (N=86)	%
General health advice (e.g. head lice, sore eyes, weight check)	30	34.9
Sexual health products and advice	12	14.0
Care in the chemist	8	9.3
Service related to medical products (e.g. a pill box)	7	8.1
Service related to non-medical products (e.g. photograph)	7	8.1
Medicine advice/ MUR	7	8.1
Service for drug addicts	3	3.5
Vaccination	2	2.3

6.4.2 Experience of, and willingness to use, pharmacy public health services

a. Results of descriptive analysis

Figure 6-3 shows descriptive analysis of experience of and willingness to use each pharmacy public health service. Only 1 in 10 respondents or less (2-13%, see red bars in Figure 6-3) had experienced the pharmacy public health services included in the questionnaire. Experience of having a blood pressure check was the highest (12.7%). However, two in five of respondents (~40%) stated they would be willing to use community pharmacy services for health checks, while about a quarter (24-26%) stated that they would maybe use them. Fewer respondents were willing to use services giving out health advice. About a quarter of respondents (~26%) said that they would seek or maybe seek advice in relation to a healthy heart from a community pharmacy, but less than 20% of respondents stated they would seek specific lifestyle advice in relation to smoking cessation, sensible drinking or losing weight. Over two-thirds (63-67%) were positively willing to use all three services for a health check. Over half (52.3%) were positively willing to use the heart health advice. About two-fifths (38.4%) were positively willing to seek advice for losing weight, but a lower proportion were willing to use pharmacy for advice for stopping smoking and for sensible drinking.

Figure 6-3 Experience of and willingness to use pharmacy public health services

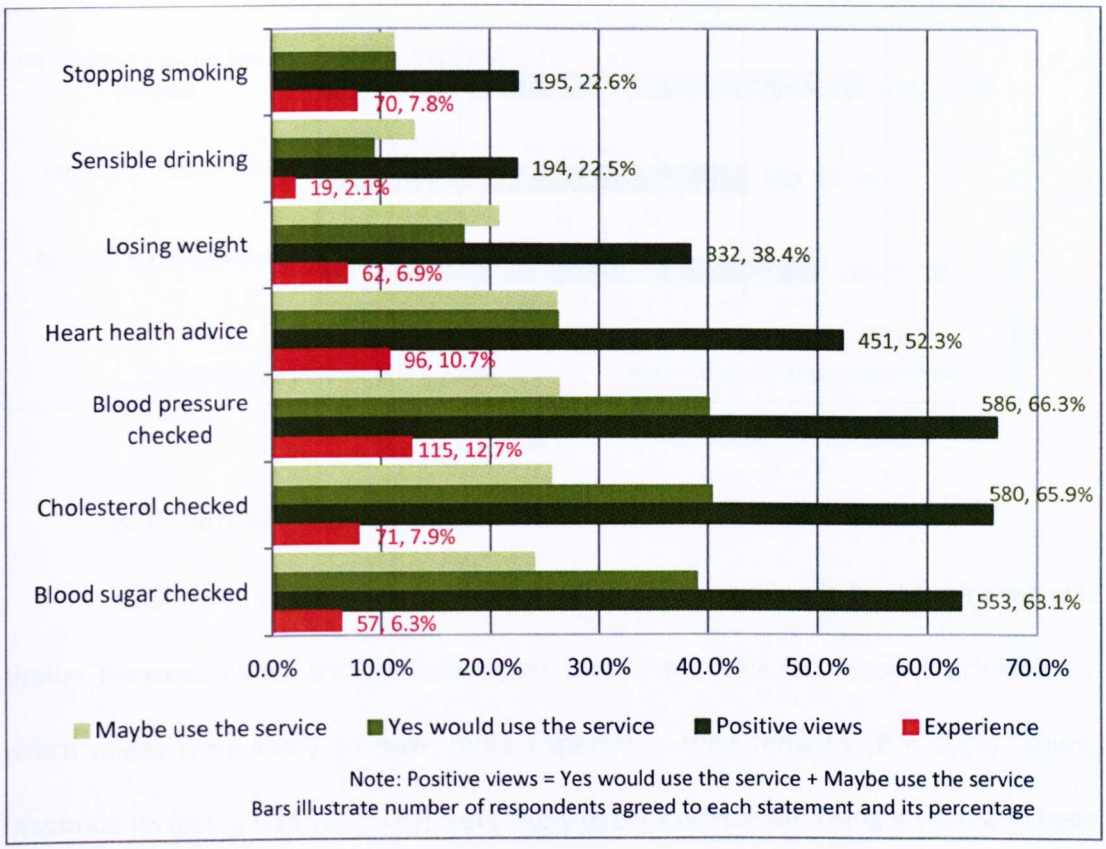
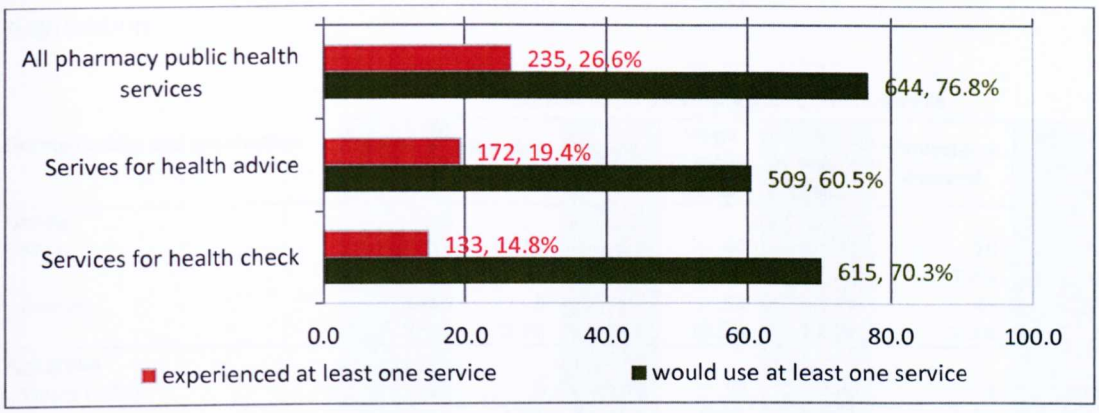


Figure 6-4 shows that about a quarter of respondents (26.6%) had experienced at least one pharmacy public health service. Less than 20% had experienced at least one service for health advice and health check. It is interesting, however, that the willingness to use pharmacy public health services was fairly positive. About three quarters (76.8%) would use at least one pharmacy public health service. Respondents were more likely to use at least one service for health check (70.3%) than use at least one service for health advice (60.5%). However, the willingness to use both types of services was relatively high, compared to the experience of service use.

Figure 6-4 Overall experience and willingness to use pharmacy public health services



b. Results of subgroup analysis

As shown in Table 6-6, experience of all pharmacy public health services was similar between males and females, apart from the advice for sensible drinking for which males were likely to have more experience than females ($P < 0.05$). Young respondents (age 18-34 years old) were likely to seek advice for losing weight and have their blood pressure and blood sugar checked more than the elderly ($P < 0.05$). No difference was found between ethnicity and experiences of all services, apart from advice on sensible drinking, where non-white respondents were likely to have more experience than the white subgroup ($P < 0.05$). School educated respondents and those in the middle socioeconomic group, were more likely to experience seeking advice for stopping smoking, losing weight and heart health, compared to other subgroups ($P < 0.05$). Unemployed respondents were more likely than others to seek advice in relation to stopping smoking as well as for sensible drinking ($P < 0.05$). Respondents living in the more deprived areas were more likely to use all services ($P < 0.05$), apart from advice in relation to losing weight and a blood sugar check, whereas no difference was found by deprivation level.

Table 6-6 Experience of pharmacy public health services by demographics and deprivation

Demographics and deprivation	Experience of pharmacy public health service						
	Stopping smoking	Sensible drinking	Losing weight	Heart health advice	Blood pressure check	Cholesterol checked	Blood sugar check
Gender							
Male	26	14	20	40	44	26	18
	7.4%	4.0%*	5.7%	11.4%	12.4%	7.4%	5.1%
Female	44	5	42	56	71	45	39
	8.20%	0.9%	7.8%	10.5%	13.1%	8.3%	7.2%
Age group							
Young (≤ 34)	11	5	13	10	20	4	11
	10.6%	4.8%	12.4%*	9.6%	19.0%*	7.6%	10.5%*
Middle (35 – 64)	40	9	24	43	50	32	19
	8.2%	1.9%	5.0%	8.9%	10.3%	6.6%	3.9%
Elderly (≥ 65)	19	5	25	42	40	30	26
	6.3%	1.7%	8.3%	14.0%	14.4%	9.9%	8.6%
Ethnicity							
White	68	17	61	93	113	69	55
	7.9%	2.0%	7.1%	10.8%	13.0%	8.0%	6.4%
Non-white	2	2	1	2	1	1	1
	8.7%	8.7%*	4.3%	8.7%	4.3%	4.3%	4.3%
Education							
School completed	42	12	34	45	57	35	24
	11.2%*	3.2%	9.1%*	12.2%*	15.1%	9.3%	6.4%
College/Further education	16	5	19	33	35	23	22
	5.9%	1.8%	6.9%	12.0%	12.7%	8.4%	8.0%
University (bachelor/post graduate)	9	1	7	11	18	10	7
	5.9%	1.8%	6.9%	5.1%	12.7%	8.4%	8.0%
Work status							
Not working	19	8	10	12	14	8	8
	15.1%*	6.3%*	8.0%	9.8%	11.1%	6.3%	6.3%
Retired	22	7	26	48	52	33	26
	5.8%	1.9%	6.9%	12.7%	13.6%	8.7%	6.9%
Working (full time/part time)	29	4	26	34	47	28	22
	7.5%	1.0%	6.7%	8.8%	12.1%	7.2%	5.7%
Socioeconomic status							
Lower	20	7	19	23	26	16	16
	10.9%	3.8%	10.2%	12.8%	13.9%	8.6%	8.6%
Middle	22	4	16	22	20	8	6
	16.8%*	3.1%	12.2%*	16.8%*	15.3%	6.1%	4.6%
Higher	27	6	23	40	58	38	28
	5.1%	1.1%	4.3%	7.5%	10.9%	7.1%	5.2%
Deprivation							
More deprived	25	9	15	26	32	19	12
	16.7%*	6.0%*	9.9%	17.4%*	20.9%*	12.6%*	8.0%
Moderate deprived	21	3	21	24	22	18	13
	6.8%	1.0%	6.8%	7.8%	7.4%	5.8%	4.2%
Less deprived	17	4	19	35	43	24	21
	4.9%	1.2%	5.5%	10.1%	12.4%	6.9%	6.0%

Note: Table presents number of respondents who had ever used pharmacy public health services and its percentage within categories. Statistical test between subgroups was Chi-square, *P-value < 0.05.

Table 6-7 shows smokers were more likely to seek advice for stopping smoking, sensible drinking, and heart health, than non-smokers. ($P < 0.05$) Experience of all services was not different depending on alcohol consumption level. Experience of all services was similar between the physically active and the physically inactive respondents, apart from the cholesterol check where the physically active group was more likely to have experience of this service ($P < 0.05$). Advice for losing weight was likely to be used by overweight respondents ($P < 0.05$). This was in contrast to advice for stopping smoking, where respondents of normal weight were more likely to have experienced the service ($P < 0.05$). Respondents who self-rated themselves as having fair to poor health were more likely to have sought advice from community pharmacy rather than persons considering themselves to have good health ($P < 0.05$). Respondents who were taking medicines regularly were more likely to seek advice for stopping smoking, losing weight and heart health ($P < 0.05$). Frequent pharmacy users were more likely to seek advice for losing weight, heart health, and having their blood pressure and blood sugar checked, compared to less frequent users ($P < 0.05$).

Among respondents with chronic conditions, as shown in Table 6-8, experience of each service was likely to be associated with several chronic conditions. It appeared that the association was stronger when the service was able to specifically support a respondents' health condition, for example, respondents who were obese were more likely to have sought advice for losing weight ($P < 0.05$). A similar association was found for other services, except for blood pressure checks.

Table 6-7 Experience of pharmacy public health services by lifestyle, health status, and pharmacy user type

Lifestyle, health status and pharmacy user type	Experience of pharmacy public health service						
	Stopping smoking	Sensible drinking	Losing weight	Heart health advice	Blood pressure check	Cholesterol check	Blood sugar check
Smoking							
No	29	7	48	70	89	56	44
	4.0%	1.0%	6.6%	9.7%	12.2%	7.7%	6.1%
Yes	41	12	14	25	23	13	11
	25.0%*	7.3%*	8.5%	15.5%*	14.0%	8.0%	6.7%
Alcohol drinking							
No	17	2	15	21	25	13	15
	9.7%	1.1%	8.6%	12.0%	14.2%	7.4%	8.6%
Safe drinker	23	6	22	36	44	31	21
	6.6%	1.7%	6.3%	10.2%	12.4%	8.8%	6.0%
Unsafe drinker	29	10	23	37	42	25	19
	8.5%	2.9%	6.7%	10.9%	12.2%	7.3%	5.5%
Fruit/vegetable intake							
< 5 portions a day	46	14	41	53	62	41	33
	7.9%	2.4%	7.0%	9.1%	10.5%	7.0%	5.6%
≥ 5 portions a day	21	7	16	35	45	23	20
	7.5%	0.7%	5.7%	12.6%	16.1%*	8.2%	7.2%
Exercise							
< 3 times a week	36	8	29	43	47	24	24
	8.7%	1.9%	7.0%	10.4%	11.2%	5.7%	5.7%
≥ 3 times a week	34	11	33	50	66	45	32
	7.2%	2.3%	7.0%	10.7%	14.0%	9.6%*	6.8%
Weight							
Normal	33	8	10	32	39	24	25
	9.5%*	2.3%	2.9%	8.9%	11.1%	6.8%	7.1%
Overweight	22	7	38	47	58	35	23
	5.4%	1.7%	9.3%*	11.5%	14.1%	8.6%	5.7%
General Health							
Poor	10	3	6	12	6	4	3
	16.1%*	4.8%	9.4%	19.0%*	9.5%	6.3%	4.8%
Fair	25	12	23	34	33	17	14
	11.7%	5.6%*	10.8%*	16.1%	15.3%*	7.9%	6.5%
Good	35	4	33	48	73	49	39
	5.8%	0.7%	5.4%	7.9%	12.0%	8.1%	6.4%
Taking medicines regularly							
No	17	3	9	13	33	23	18
	5.3%	0.9%	2.8%	4.1%	10.3%	7.2%	5.6%
Yes	53	16	52	80	78	46	37
	9.4%*	2.8%	9.2%*	14.3%*	13.7%	8.1%	6.5%
Pharmacy user type							
Infrequent user	21	3	8	15	29	23	10
	6.5%	0.9%	2.5%	4.7%	9.0%	7.1%	3.1%
Frequent user	49	16	54	80	86	48	47
	8.7%	2.8%	9.6%*	14.2%*	15.1%*	8.5%	8.3%*

Note: Table presents number of respondents who had ever used pharmacy public health services and its percentage within categories. Statistical test between subgroups was Chi-square, *P-value < 0.05.

Table 6-8 Experience of pharmacy public health services by self-reported chronic health conditions of respondents

Chronic health conditions	Experience of pharmacy public health service						
	Stopping smoking	Sensible drinking	Losing weight	Heart health advice	Blood pressure check	Cholesterol check	Blood sugar check
Hypertension							
No	44	10	34	50	67	47	36
	7.2%	1.7%	5.6%	8.3%	10.9%	7.7%	5.9%
Yes	26	8	26	42	42	22	19
	9.6%	2.9%	9.6%*	15.7%*	15.4%	8.1%	7.0%
Diabetes							
No	60	13	45	73	91	57	39
	7.7%	1.7%	5.7%	9.4%	11.6%	7.3%	5.0%
Yes	9	5	15	18	17	12	16
	9.8%	5.5%*	16.3%*	19.6%*	18.1%	12.6%	16.8%*
High cholesterol							
No	44	11	36	50	65	42	33
	6.7%	1.7%	5.5%	7.7%	9.8%	6.4%	5.0%
Yes	24	6	23	41	41	24	19
	11.1%*	2.8%	10.7%*	19.1%*	19.0%*	11.1%*	8.8%*
Obesity							
No	50	9	24	56	82	50	37
	8.0%	1.4%	3.8%	9.0%	13.0%	8.0%	5.9%
Yes	19	8	35	35	26	18	17
	7.6%	3.2%	14.1%*	14.2%*	10.4%	7.2%	6.8%
Heart disease							
No	60	13	48	68	92	62	49
	7.7%	1.7%	6.2%	8.8%	11.8%	8.0%	6.3%
Yes	9	5	12	25	18	7	6
	8.9%	5.0%*	11.8%*	24.5%*	17.5%	6.9%	5.9%
Smoking related problems							
No	48	7	52	80	98	60	47
	5.8%	0.8%	6.3%	9.7%	11.8%	7.2%	5.7%
Yes	22	11	8	12	10	8	7
	48.9%*	24.4%*	17.4%*	26.7%*	21.3%	17.0%*	14.9%*
Alcohol related problems							
No	61	11	55	88	105	65	50
	7.2%	1.3%	6.5%	10.4%	12.3%	7.6%	5.9%
Yes	9	7	5	4	3	3	3
	39.1%*	30.4%*	21.7%*	19.0%	13.0%	13.0%	13.0%

Note: Table presents number of respondents who had ever used pharmacy public health services and its percentage within categories. Statistical test between subgroups was Chi-square, *P-value < 0.05.

Subgroup analysis indicated that respondents of a younger age, lower educational level and being of middle socioeconomic status were more likely to have experienced using several pharmacy public health services. Male gender, non-white ethnicity and an unemployed status were more likely to have used a pharmacy advice service for stopping smoking and for sensible drinking. Those respondents living in

more deprived areas were more likely to have used all pharmacy public health services, except for advice on losing weight and for blood sugar checks. Smoking, poor to fair general health, taking medicines regularly, and frequent pharmacy use were more likely to have experienced several pharmacy public health services. Those respondents with weight issues were more likely to seek advice for losing weight. Those respondents with a good diet (appropriate fruit/vegetable intake) and exercise were more likely to be associated with a blood pressure check and cholesterol check, respectively, while alcohol drinking was not found to have an association with any service. Respondents with chronic health conditions were likely to have experienced several pharmacy public health services, in particular, those supporting the specific health condition, e.g. diabetic respondents were more likely to have experienced blood sugar check.

Table 6-9 demonstrates that female respondents were more likely to use all pharmacy public health services than males ($P < 0.05$), apart from seeking advice for stopping smoking and for sensible drinking. Younger respondents were more likely to use all services ($P < 0.05$). There was no statistical difference between ethnicity or educational background and reported willingness to use pharmacy services. Unemployed respondents were more willing to use all services, except for the cholesterol check, but employed respondents were more likely to use this service ($P < 0.05$). Respondents classified in the middle to lower socioeconomic status level were more willing to use services for advice ($P < 0.05$) rather than health checks, and this was similar to views from respondents living in the more deprived areas.

Table 6-9 Willingness to use pharmacy public health services by demographics and deprivation

Demographics and deprivation	Willingness to use pharmacy public health service						
	Stopping smoking	Sensible drinking	Losing weight	Heart health advice	Blood pressure checked	Cholesterol checked	Blood sugar checked
Gender							
Male	73	82	108	167	208	202	198
	21.2%	23.9%	31.7%	48.7%	59.3%	58.2%	57.2%
Female	121	112	224	284	374	376	353
	23.7%	21.9%	43.6%*	55.6%*	71.4%*	71.8%*	67.6%*
Age group							
Young (≤ 34)	39	45	54	70	84	83	81
	38.6%*	44.1%*	52.4%*	70.0%*	82.4%*	81.4%*	79.4%*
Middle (35 – 64)	126	116	194	255	324	327	315
	26.8%	24.7%	41.5%	54.5%	68.4%	68.8%	66.5%
Elderly (≥ 65)	30	33	84	126	174	168	155
	10.5%	11.6%	29.4%	43.9%	58.0%	56.9%	52.9%
Ethnicity							
White	188	185	322	439	564	560	534
	22.7%	22.3%	38.9%	53.1%	66.5%	66.4%	63.5%
Non-white	7	9	9	10	15	15	14
	30.4%	39.1%	39.1%	43.5%	65.2%	65.2%	60.9%
Education							
School completed	88	93	138	187	235	228	214
	24.3%	25.9%	38.3%	51.9%	63.9%	62.5%	59.0%
College/Further education	54	52	106	139	186	184	179
	21.0%	20.1%	40.8%	53.9%	69.4%	68.9%	67.0%
University (bachelor/post graduate)	43	43	77	107	143	148	139
	20.8%	20.7%	37.0%	51.2%	67.8%	70.1%	66.2%
Work status							
Not working	40	38	63	71	88	86	84
	32.5%*	31.1%*	52.1%*	60.2%*	72.1%*	70.5%	69.4%*
Retired	45	47	112	162	221	218	206
	12.5%	13.1%	30.9%	44.5%	58.8%	58.8%	55.8%
Working (full time/part time)	110	109	157	217	272	273	260
	29.6%	29.2%	42.2%	58.3%	72.1%*	72.2%*	68.8%
Socioeconomic status							
Lower	49	59	84	110	128	129	126
	27.4%	33.3%*	46.7%*	62.5%*	70.3%	71.3%	69.6%
Middle	42	35	55	71	88	86	82
	33.6%*	28.2%	44.0%	56.8%	68.8%	67.2%	64.6%
Higher	98	94	182	251	339	338	322
	19.0%	18.1%	35.3%	48.5%	64.6%	64.6%	61.7%
Deprivation level							
More deprived	47	48	67	91	106	103	97
	32.4%*	33.1%*	46.5%*	63.6%*	72.1%	70.1%	66.9%
Moderate deprived	56	55	100	148	198	202	192
	18.7%	18.3%	33.4%	49.0%	64.5%	66.2%	63.0%
Less deprived	66	70	129	169	227	223	213
	19.8%	21.0%	38.6%	50.6%	66.4%	65.6%	62.6%

Note: Table presents number of respondents who would be willing to use (yes and maybe) pharmacy public health services and its percentage within categories. Statistical test between subgroups was Chi-square, *P-value<0.05.

Table 6-10 shows that smokers were more willing to seek health advice from community pharmacy, and unsafe drinkers reported they were more willing to seek advice for stopping smoking and sensible drinking ($P < 0.05$). Fruit/vegetable intake had no association with willingness to use any services. Physically inactive respondents (exercise less than 3 times a week) would seek only advice for stopping smoking, while overweight respondents would get advice for losing weight ($P < 0.05$). Respondents self-rated as fair to good health were more willing to seek advice for heart health and to use services for health check ($P < 0.05$). Respondents not taking medicines regularly were more willing to have blood pressure and cholesterol checked ($P < 0.05$). Frequent users were more willing to seek advice for losing weight ($P < 0.05$).

Table 6-11 shows respondents without chronic health conditions were more willing to use services for health checks ($P < 0.05$), whereas, respondents with diabetes and obesity were more willing to seek advice for losing weight. Respondents with smoking and alcohol related problems were more likely to seek advice both for stopping smoking and sensible drinking ($P < 0.05$).

Table 6-10 Willingness to use pharmacy public health services by lifestyle, health status and pharmacy user type

Lifestyle, health status and pharmacy user type	Willingness to use pharmacy public health service						
	Stopping smoking	Sensible drinking	Losing weight	Heart health advice	Blood pressure check	Cholesterol check	Blood sugar check
Smoking							
No	84	122	255	349	468	463	437
	12.1%	17.6%	36.7%	50.1%	65.5%	65.2%	61.8%
Yes	110	71	76	100	111	112	111
	68.8%*	44.7%*	47.5%*	64.1%*	69.8%	70.4%	69.8%
Alcohol drinking							
No	38	24	69	86	106	102	98
	22.5%	14.2%	40.8%	50.6%	61.3%	59.0%	56.6%
Safe drinker	60	51	113	167	228	227	216
	18.2%	15.5%	34.0%	50.0%	66.5%	66.8%	64.1%
Unsafe drinker	91	112	142	186	233	236	226
	27.0%*	33.1%*	42.3%	56.4%	68.7%	69.6%	66.7%
Fruit/vegetable intake							
< 5 a day	132	135	225	293	379	374	357
	23.2%	23.8%	39.9%	51.8%	65.6%	64.8%	62.1%
≥ 5 a day	57	52	97	143	187	185	178
	21.7%	19.7%	36.5%	54.2%	68.2%	68.8%	66.2%
Exercise							
< 3 times a week	108	98	170	213	274	267	259
	26.9%*	24.6%	42.2%	52.9%	66.5%	65.4%	63.8%
≥ 3 times a week	87	96	161	235	305	308	290
	19.3%	21.2%	35.9%	52.6%	66.4%	67.1%	63.3%
Weight							
Normal	77	80	87	173	225	224	217
	23.0%	23.8%	25.7%	50.9%	65.6%	65.5%	63.5%
Overweight	73	75	177	205	269	268	249
	18.6%	19.1%	45.4%*	52.2%	66.7%	66.7%	62.4%
General Health							
Poor	16	10	21	24	30	30	30
	25.8%	16.1%	33.3%	37.5%	46.9%	46.9%	46.9%
Fair	54	51	90	114	139	138	132
	26.3%	24.9%	44.3%	55.9%*	66.2%	67.0%	64.1%
Good	124	132	219	310	409	408	387
	21.3%	22.6%	37.5%	53.4%	68.7%*	68.6%*	65.3%*
Taking medicines regularly							
No	69	80	113	169	221	223	209
	22.4%	25.8%	36.5%	54.7%	70.6%*	71.0%*	66.8%
Yes	123	111	216	278	356	352	339
	22.7%	20.5%	39.9%	51.4%	63.9%	63.8%	61.5%
Pharmacy user type							
Infrequent user	63	65	101	149	202	205	192
	20.3%	20.8%	32.4%	48.1%	64.3%	65.3%	61.1%
Frequent user	128	124	226	294	376	367	353
	23.6%	23.0%	41.8%*	54.3%	67.4%	66.2%	64.1%

Note: Table represents number of respondents who would be willing to use (yes and maybe) pharmacy public health services and its percentage within categories. Statistical test between subgroups was Chi-square, *P-value < 0.05.

Table 6-11 Willingness to use pharmacy public health services by chronic health conditions

Chronic health conditions	Willingness to use pharmacy public health service						
	Stopping smoking	Sensible drinking	Losing weight	Heart health advice	Blood pressure check	Cholesterol check	Blood sugar check
Hypertension							
No	136	136	221	314	410	410	393
	23.2%	23.2%	37.8%	53.6%	69.0%*	69.3%*	66.5%*
Yes	59	56	108	133	166	165	155
	22.6%	21.4%	41.1%	51.0%	60.8%	60.9%	57.4%
Diabetes							
No	181	171	280	400	520	521	496
	23.9%*	22.6%	37.0%	52.9%	67.5%*	67.9%*	64.8%*
Yes	12	21	48	46	52	50	49
	13.5%	23.6%	52.7%*	51.1%	55.9%	54.3%	53.3%
High cholesterol							
No	148	155	245	338	429	434	417
	23.3%	24.4%*	38.6%	53.3%	66.6%	67.6%	65.1%
Yes	46	37	83	107	142	136	127
	22.1%	17.7%	39.7%	51.2%	65.7%	63.6%	59.3%
Obesity							
No	147	140	202	317	417	413	393
	24.3%	23.1%	33.4%	52.3%	67.5%	67.0%	63.9%
Yes	48	52	127	130	158	161	155
	19.8%	21.5%	52.3%*	53.9%	63.7%	65.4%	63.0%
Heart disease							
No	173	172	295	392	510	515	492
	23.2%	23.0%	39.5%	52.5%	66.8%	67.9%*	64.9%*
Yes	21	20	34	56	65	59	56
	21.2%	20.2%	33.7%	56.0%	63.7%	57.8%	54.9%
Smoking related problems							
No	171	174	313	420	546	546	520
	21.3%	21.7%	39.1%	52.5%	66.8%	67.2%	64.0%
Yes	24	18	16	25	27	26	26
	55.8%*	40.9%*	35.6%	56.8%	58.7%	56.5%	56.5%
Alcohol related problems							
No	182	180	320	435	561	561	535
	22.2%	21.9%	38.9%	52.9%	66.9%	67.2%*	64.1%
Yes	13	11	9	9	11	10	10
	56.5%*	50.0%*	42.9%	45.0%	50.0%	45.5%	45.5%

Note: Table represents number of respondents who would be willing to use (yes and maybe) pharmacy public health services and its percentage within categories. Statistical test between subgroups was Chi-square, *P-value<0.05.

c. Results of multivariate analysis

Binary logistic regression was used to identify independent variables that potentially affected experience of and willingness to use pharmacy public health services. The analysis was controlled by fourteen independent variables (confounders);

gender, age, education, work status, socioeconomic status, deprivation, smoking, alcohol drinking, fruit/vegetable intake, exercise, weight, general health, taking medicine regularly and pharmacy user types. Ethnicity was not included in this multivariate analysis because the subgroup analysis showed that ethnicity was unlikely to be associated with experience of and willingness to use pharmacy public health services, see Table 6-6 and Table 6-9.

Table 6-12 shows that smokers had a 5-fold higher odds of experiencing an advice service for stopping smoking (OR=5.47, 95%CI 2.58-11.60) and those from middle socioeconomic group nearly a 4-fold higher odds (OR=3.73, 95%CI 1.31-10.56). Respondents in good health were less likely to have sought advice (OR=0.16, 95%CI 0.05-0.53). This indicates that the respondents in most need sought advice for cessation of smoking. Smokers also sought more advice for sensible drinking, almost 13-times higher odds than the non-smokers (OR=12.57, 95%CI 2.35-67.22). This might because of the fact that smoking frequently co-exists with drinking alcohol and vice versa.[148] Overweight respondents had over a 4-fold higher odds of having sought advice for losing weight (OR=4.12, 95%CI 1.79-9.52) and the odds were over 5-fold higher for those taking medicines regularly (OR=5.02, 95% CI 1.48-17.01). Younger respondents and people from lower socioeconomic status were more likely to seek advice for losing weight. Respondents who were employed had a 4-fold higher odds of having sought advice for heart health (OR=4.73, 95% CI 1.42-15.77) and this was over 3-fold higher among persons who took medicines regularly (OR=3.58, 95% CI 1.45-8.79). Respondents living in more deprived areas were more likely to experience seeking advice for heart health. Respondents who reported eating well had a 2-fold higher odds of experiencing a blood pressure check (OR=2.01, 95% CI 1.16-3.51).

Younger people and those living in more deprived areas were more likely to experience having blood pressure checked. Respondents living in more deprived areas were more likely to have their cholesterol checked. Frequent pharmacy users had a 3-fold higher odds of experiencing a service for blood sugar check (OR=2.94, 95%CI 1.18-7.36).

Table 6-12 Associations between experience of pharmacy public health services and independent variables

Independent variables	Odds ratio (95% CI) of Experience of pharmacy public health service						
	Stopping smoking	Sensible drinking	Losing weight	Heart health advice	Blood pressure check	Cholesterol check	Blood sugar check
Gender							
Male	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Female	1.46 (0.67-3.16)	0.25 (0.05-1.24)	1.49 (0.68-3.24)	1.03 (0.56-1.90)	1.23 (0.70-2.17)	1.14 (0.58-2.23)	1.42 (0.64-3.15)
Age group							
Young (≤ 34)	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Middle (35 – 64)	0.60 (0.19-1.87)	0.16 (0.01-2.41)	0.10 (0.03-0.34)*	0.41 (0.14-1.26)	0.31 (0.13-0.70)*	0.81 (0.29-2.29)	0.50 (0.15-1.66)
Elderly (≥ 65)	0.80 (0.17-3.84)	0.04 (0.00-1.32)	0.27 (0.06-1.21)	0.56 (0.15-2.15)	0.35 (0.11-1.06)	1.03 (0.25-4.15)	1.65 (0.33-8.15)
Education							
School completed	1.00	1.00	1.00	1.00	1.00	1.00	1.00
College/Further education	0.74 (0.33-1.62)	0.31 (0.06-1.75)	0.96 (0.42-2.17)	1.09 (0.57-2.10)	0.91 (0.50-1.68)	0.90 (0.45-1.81)	1.89 (0.86-4.15)
University (bachelor/post graduate)	0.46 (0.14-1.51)	0.00	0.51 (0.14-1.88)	0.59 (0.23-1.53)	0.62 (0.29-1.36)	0.39 (0.15-1.05)	0.50 (0.14-1.78)
Work status							
Not working	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Retired	0.71 (0.18-2.78)	3.07 (0.25-38.46)	0.64 (0.16-2.55)	2.81 (0.75-10.58)	1.76 (0.59-5.30)	1.00 (0.29-3.45)	1.18 (0.23-6.10)
Working (full time/part time)	1.47 (0.49-4.41)	0.68 (0.06-7.41)	1.95 (0.65-5.80)	4.73 (1.42-15.77)*	2.01 (0.78-5.14)	1.05 (0.38-2.89)	2.22 (0.57-8.64)
Socioeconomic status							
Lower	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Middle	3.73 (1.31-10.56)*	0.84 (0.09-8.14)	0.74 (0.29-1.88)	1.22 (0.52-2.83)	0.96 (0.41-2.24)	0.60 (0.21-1.73)	0.56 (0.17-1.84)
Higher	1.51 (0.54-4.22)	0.92 (0.11-7.37)	0.30 (0.12-0.75)*	0.66 (0.30-1.44)	1.06 (0.51-2.21)	0.95 (0.41-2.19)	0.78 (0.31-1.99)
Deprivation level							
More deprived	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Moderate deprived	1.09 (0.43-2.75)	0.68 (0.09-5.13)	1.06 (0.40-2.83)	0.44 (0.20-0.96)*	0.24 (0.11-0.49)*	0.43 (0.19-1.00)*	0.56 (0.20-1.56)
Less deprived	0.82 (0.32-2.12)	1.16 (0.18-7.52)	1.28 (0.47-3.43)	0.73 (0.35-1.55)	0.57 (0.30-1.09)	0.55 (0.24-1.25)	0.72 (0.27-1.96)

Note: Odds ratio of 1.00 indicates a reference category. *P-value < 0.05

Table 6-12 (Continued)

Independent variables	Odds ratio (95% CI) of Experience of pharmacy public health service						
	Stopping smoking	Sensible drinking	Losing weight	Heart health advice	Blood pressure check	Cholesterol check	Blood sugar check
Smoking							
No	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Yes	5.47 (2.58-11.60)*	12.57 (2.35-67.22)*	1.13 (0.44-2.91)	1.30 (0.60-2.81)	1.21 (0.59-2.48)	1.31 (0.56-3.04)	1.71 (0.67-4.34)
Alcohol drink							
No	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Safe drinker	0.59 (0.25-1.41)	0.96 (0.14-6.47)	0.65 (0.27-1.58)	0.83 (0.39-1.77)	1.03 (0.50-2.13)	1.30 (0.52-3.22)	0.65 (0.25-1.68)
Unsafe drinker	0.43 (0.16-1.17)	0.58 (0.07-5.01)	0.40 (0.14-1.15)	0.77 (0.33-1.80)	1.02 (0.46-2.26)	1.18 (0.45-3.15)	0.68 (0.24-1.89)
Fruit/vegetable intake							
< 5 a day	1.00	1.00	1.00	1.00	1.00	1.00	1.00
≥ 5 a day	1.22 (0.56-2.66)	0.41 (0.04-4.43)	1.18 (0.53-2.64)	1.71 (0.92-3.15)	2.01 (1.16-3.51)*	1.47 (0.75-2.88)	1.34 (0.61-2.91)
Exercise							
Less than 3 times a week	1.00	1.00	1.00	1.00	1.00	1.00	1.00
At least 3 times a week	1.19 (0.58-2.44)	0.89 (0.19-4.14)	1.00 (0.50-2.03)	1.65 (0.92-2.97)	1.32 (0.78-2.23)	1.64 (0.86-3.12)	1.68 (0.80-3.52)
Weight							
Normal	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Overweight	0.56 (0.27-1.17)	0.28 (0.06-1.38)	4.12 (1.79-9.52)*	1.32 (0.72-2.43)	1.45 (0.84-2.49)	1.13 (0.59-2.15)	0.85 (0.41-1.77)
General Health							
Poor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Fair	0.60 (0.20-1.82)	2.01 (0.25-16.45)	2.21 (0.54-9.02)	0.82 (0.31-2.16)	1.81 (0.55-5.93)	1.91 (0.39-9.37)	1.22 (0.23-6.52)
Good	0.16 (0.05-0.53)*	0.20 (0.02-2.66)	1.29 (0.32-5.21)	0.50 (0.19-1.29)	1.63 (0.52-5.18)	1.98 (0.42-9.33)	1.71 (0.35-8.40)
Taking medicines regularly							
No	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Yes	1.40 (0.57-3.46)	3.73 (0.27-52.03)	5.02 (1.48-17.01)*	3.58 (1.45-8.79)*	1.33 (0.68-2.61)	0.84 (0.39-1.80)	0.74 (0.31-1.79)
Pharmacy user type							
Infrequent user	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frequent user	0.59 (0.27-1.30)	4.04 (0.37-43.52)	2.31 (0.90-5.90)	1.73 (0.86-3.48)	1.77 (0.98-3.21)	0.96 (0.49-1.88)	2.94 (1.18-7.36)*

Note: Odds ratio of 1.00 indicates a reference category. *P-value < 0.05

Table 6-13 shows that smokers (OR=16.22, 95% CI 8.86-29.25), respondents in the middle socioeconomic (OR=2.50, 95% CI 1.08-5.77) and frequent pharmacy users (OR=1.74, 95% CI 1.00-3.04) were more willing to seek advice for stopping smoking. Younger respondents were more likely to seek advice for stopping smoking than older ones. Unsafe drinkers were less likely to seek this service (OR=0.32, 95% CI 0.16-0.65). Smokers (OR=1.99 95% CI 1.16-3.42), unsafe drinkers (OR=1.92, 95% CI 1.01-3.65), persons in good health (OR=3.56, 95% CI 1.13-11.22) and frequent pharmacy users (OR=2.20, 95% CI 1.34-3.61) were more willing to seek advice for sensible drinking. Female (OR=1.93, 95% CI 1.30-2.86), overweight (OR=2.67, 95% CI 1.82-3.91), fair health (OR=2.49, 95% CI 1.13-5.50) and good health (OR=2.29 95% CI 1.06-4.92) were more willing to seek advice for losing weight. People in fair health (OR=2.53, 95% CI 1.22-5.26), good health (OR=2.47, 95% CI 1.22-4.98) and frequent pharmacy users (OR=1.66, 95% CI 1.14-2.41) would be more willing to seek advice in relation to heart health. Female (OR=1.72, 95% CI 1.17-2.51), fair health (OR=2.68, 95% CI 1.30-5.50), good health (OR=3.47, 95% CI 1.73-6.95) and frequent pharmacy users (OR=1.61, 95% CI 1.08-2.39) would be more willing to have blood pressure checked. Female (OR=1.88, 95% CI 1.28-2.76), safe drinker (OR=1.67, 95% CI 1.03-2.71), fair health (OR=2.64, 95% CI 1.28-5.44) and good health (OR=2.75, 95% CI 1.38-5.50) were more willing to have cholesterol checked. Female (OR=1.54 95% CI 1.06-2.23), safe drinker (OR=1.61, 95% CI 1.00-2.58), fair health (OR=2.37, 95% CI 1.15-4.87) or good health (OR=2.70, 95% CI 1.35-5.38) and frequent pharmacy user (OR=1.66, 95% CI 1.13-2.45) were more willing to have blood sugar checked.

Table 6-13 Associations between willingness to use pharmacy public health services and independent variables

Independent variables	Odds ratio (95% CI) of Willingness to use pharmacy public health service						
	Stopping smoking	Sensible drinking	Losing weight	Heart health advice	Blood pressure check	Cholesterol check	Blood sugar check
Gender							
Male	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Female	0.94 (0.55-1.61)	0.81 (0.51-1.29)	1.93 (1.30-2.86)*	1.13 (0.79-1.62)	1.72 (1.17-2.51)*	1.88 (1.28-2.76)*	1.54 (1.06-2.23)*
Age group							
Young (≤ 34)	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Middle (35 – 64)	0.40 (0.19-0.87)*	0.55 (0.29-1.07)	0.80 (0.43-1.48)	0.75 (0.41-1.37)	0.73 (0.37-1.45)	0.80 (0.40-1.59)	0.73 (0.38-1.42)
Elderly (≥ 65)	0.27 (0.09-0.82)*	0.39 (0.15-1.01)	0.56 (0.25-1.27)	0.54 (0.24-1.18)	0.52 (0.22-1.22)	0.50 (0.21-1.20)	0.44 (0.19-1.01)
Education							
School completed	1.00	1.00	1.00	1.00	1.00	1.00	1.00
College/Further education	0.69 (0.37-1.27)	0.66 (0.39-1.13)	1.14 (0.73-1.78)	0.97 (0.64-1.46)	1.23 (0.80-1.90)	1.27 (0.82-1.96)	1.42 (0.93-2.17)
University (bachelor/post graduate)	0.80 (0.40-1.63)	0.83 (0.44-1.54)	1.28 (0.76-2.16)	1.04 (0.64-1.68)	1.33 (0.80-2.22)	1.56 (0.93-2.63)	1.54 (0.93-2.53)
Work status							
Not working	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Retired	0.59 (0.22-1.59)	0.75 (0.32-1.78)	0.55 (0.28-1.11)	0.84 (0.43-1.63)	0.66 (0.32-1.35)	0.80 (0.39-1.65)	0.67 (0.33-1.37)
Working (full time/part time)	1.59 (0.73-3.49)	1.15 (0.59-2.27)	0.76 (0.42-1.36)	1.27 (0.72-2.23)	0.91 (0.48-1.71)	1.04 (0.56-1.95)	0.76 (0.41-1.41)
Socioeconomic status							
Lower	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Middle	2.50 (1.08-5.77)*	1.01 (0.51-2.02)	1.10 (0.60-2.03)	0.95 (0.53-1.73)	1.14 (0.60-2.16)	0.92 (0.49-1.74)	0.85 (0.46-1.58)
Higher	1.80 (0.84-3.86)	0.68 (0.37-1.26)	0.74 (0.44-1.26)	0.75 (0.45-1.24)	0.85 (0.50-1.45)	0.71 (0.42-1.22)	0.69 (0.41-1.16)
Deprivation level							
More deprived	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Moderate deprived	0.93 (0.46-1.89)	0.62 (0.33-1.15)	0.65 (0.38-1.11)	0.61 (0.37-1.02)	0.70 (0.41-1.20)	0.98 (0.58-1.68)	1.08 (0.64-1.82)
Less deprived	1.33 (0.66-2.68)	1.01 (0.55-1.85)	1.05 (0.61-1.79)	0.81 (0.49-1.36)	0.96 (0.56-1.66)	1.13 (0.66-1.94)	1.18 (0.70-2.00)

Note: Odds ratio of 1.00 indicates a reference category. *P-value < 0.05

Table 6-13 (Continued)

Independent variables	Odds ratio (95% CI) of Willingness to use pharmacy public health service						
	Stopping smoking	Sensible drinking	Losing weight	Heart health advice	Blood pressure check	Cholesterol check	Blood sugar check
Smoking							
No	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Yes	16.22 (8.86-29.69)*	1.99 (1.16-3.42)*	0.93 (0.56-1.55)	1.32 (0.81-2.16)	0.90 (0.54-1.51)	0.83 (0.49-1.40)	0.84 (0.51-1.40)
Alcohol drink							
No	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Safe drinker	0.49 (0.26-0.94)*	0.91 (0.48-1.72)	0.84 (0.51-1.38)	1.12 (0.71-1.77)	1.60 (0.99-2.59)	1.67 (1.03-2.71)*	1.61 (1.00-2.58)*
Unsafe drinker	0.32 (0.16-0.65)*	1.92 (1.01-3.65)*	0.94 (0.55-1.60)	1.09 (0.66-1.79)	1.41 (0.84-2.37)	1.49 (0.88-2.51)	1.37 (0.82-2.29)
Fruit/vegetable intake							
< 5 a day	1.00	1.00	1.00	1.00	1.00	1.00	1.00
≥ 5 a day	1.18 (0.67-2.09)	1.02 (0.62-1.67)	0.99 (0.66-1.48)	1.40 (0.96-2.04)	1.22 (0.81-1.83)	1.26 (0.83-1.90)	1.24 (0.84-1.85)
Exercise							
Less than 3 times a week	1.00	1.00	1.00	1.00	1.00	1.00	1.00
At least 3 times a week	0.75 (0.45-1.24)	0.74 (0.48-1.14)	0.75 (0.52-1.09)	1.00 (0.71-1.41)	0.88 (0.61-1.27)	0.97 (0.67-1.40)	0.87 (0.61-1.24)
Weight							
Normal	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Overweight	1.12 (0.66-1.87)	0.75 (0.48-1.17)	2.67 (1.82-3.91)*	1.23 (0.87-1.75)	1.33 (0.92-1.93)	1.28 (0.88-1.86)	1.11 (0.78-1.60)
General Health							
Poor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Fair	1.78 (0.61-5.23)	3.08 (0.96-9.92)	2.49 (1.13-5.50)*	2.53 (1.22-5.26)*	2.68 (1.30-5.50)*	2.64 (1.28-5.44)*	2.37 (1.15-4.87)*
Good	1.79 (0.63-5.13)	3.56 (1.13-11.22)*	2.29 (1.06-4.92)*	2.47 (1.22-4.98)*	3.47 (1.73-6.95)*	2.75 (1.38-5.50)*	2.70 (1.35-5.38)*
Taking medicines regularly							
No	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Yes	1.53 (0.81-2.89)	0.95 (0.56-1.61)	1.32 (0.84-2.08)	1.08 (0.71-1.64)	1.15 (0.73-1.80)	0.94 (0.59-1.48)	1.04 (0.67-1.61)
Pharmacy user type							
Infrequent user	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frequent user	1.74 (1.00-3.04)*	2.20 (1.34-3.61)*	1.74(1.16-2.59)*	1.66 (1.14-2.41)*	1.61 (1.08-2.39)*	1.48 (0.99-2.21)	1.66 (1.13-2.45)*

Note: Odds ratio of 1.00 indicates a reference category. *P-value < 0.05

Chronic health conditions were included in the separate multivariate analysis because they seemed to have strong associations with experience of and willingness to use pharmacy public health services, in particular the service related to the condition reported. As shown in Table 6-14, not surprisingly, smoking related problems were highly associated with the experience of advice for stopping smoking (OR=15.92, 95% CI 7.17-35.34). However, experience of advice for sensible drinking was even more strongly associated with smoking related problems, with a 23-fold higher odds (OR=22.98, 95% CI 6.39-21.76) as well as a 5-fold higher odds for the more directly associated alcohol related problems (OR=5.17, 95% CI 1.23-21.76). Similarly, respondents reporting overweight were 3-fold more likely to have experience of advice for losing weight (OR=3.38, 95% CI 1.90-6.00), and experience of advice for heart health was strongly associated with high cholesterol (OR=1.84, 95% CI 1.06-3.18) and heart disease (OR=2.21, 95% CI 1.24-3.92). Importantly a significant association was also noted for smoking related problems (OR=2.64, 95% CI 1.15-6.06). An inter-relationship was also found between heart-related health checks, for example, persons experiencing a blood pressure check had a 2-fold higher odds of having a high cholesterol (OR=2.16, 95% CI 1.30-3.60), however, respondents with obesity were half as likely to have experienced checking blood pressure (OR=0.57, 95% CI 0.34-0.95). Experience of cholesterol checks was equally as strongly associated with high cholesterol (OR=2.31, 95% CI 1.23-4.33) as with smoking related problems (OR=2.64, 95% CI 1.03-6.77). Respondents with diabetes were 3-times more likely to have used a service for checking blood sugar (OR=3.06 95% CI 1.43-6.70).

Table 6-14 Associations between experience of pharmacy public health services and chronic conditions

Independent variables	Odds ratio (95% CI) of Experience of pharmacy public health service						
	Stopping smoking	Sensible drinking	Losing weight	Heart health advice	Blood pressure check	Cholesterol check	Blood sugar check
Hypertension							
No	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Yes	1.03 (0.54-1.96)	0.77 (0.19-3.13)	1.01 (0.53-1.93)	1.19 (0.70-2.03)	1.03 (0.62-1.69)	0.67 (0.35-1.28)	0.65 (0.31-1.34)
Diabetes							
No	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Yes	0.57 (0.21-1.54)	1.10 (0.18-6.69)	1.75 (0.84-3.67)	1.22 (0.62-2.38)	1.04 (0.52-2.06)	1.13 (0.49-2.59)	3.09 (1.43-6.70)*
High cholesterol							
No	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Yes	1.86 (0.94-3.65)	0.84 (0.17-4.20)	1.20 (0.60-2.37)	1.84 (1.06-3.18)*	2.16 (1.30-3.60)*	2.31 (1.23-4.33)*	1.79 (0.87-3.68)
Obesity							
No	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Yes	0.70 (0.36-1.33)	1.22 (0.35-4.21)	3.38 (1.90-6.00)*	1.19 (0.73-1.96)	0.57 (0.34-0.95)*	0.74 (0.40-1.35)	0.89 (0.46-1.72)
Heart disease							
No	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Yes	0.67 (0.28-1.60)	1.87 (0.45-7.86)	1.25 (0.58-2.69)	2.21 (1.24-3.92)*	1.20 (0.65-2.21)	0.66 (0.28-1.58)	0.65 (0.24-1.72)
Smoking related problems							
No	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Yes	15.92 (7.17-35.34)*	22.98 (6.39-82.65) *	1.72 (0.59-4.99)	2.64 (1.15-6.06)*	2.09 (0.90-4.84)	2.64 (1.03-6.77)*	1.70 (0.56-5.19)
Alcohol related problems							
No	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Yes	1.52 (0.47-4.96)	5.17 (1.23-21.76)*	2.02 (0.52-7.83)	0.73 (0.19-2.78)	0.76 (0.19-3.01)	1.27 (0.30-5.33)	2.04 (0.45-9.25)

Note: Odds ratio of 1.00 indicates a reference category. *P-value < 0.05

Table 6-15 demonstrates multivariate analysis for willingness to use the seven services and chronic health conditions. Respondents with smoking related problems had over 4-times the odds of a willingness to seek advice for stopping smoking (OR=4.48, 95% CI 2.29-10.21). Persons with alcohol related problems had about 3-times the odds of a willingness to seek advice for sensible drinking (OR=2.83, 95% CI 1.03-7.78). Respondents who reported having diabetes (OR=1.78, 95% CI 1.09-2.89) and being obese (OR=2.23, 95% CI 1.62-3.07) were more willing to seek advice for losing weight. Willingness to seek advice for heart health and to have a blood sugar check was not associated with any chronic health conditions. Unexpectedly, respondents with hypertension were less likely to be willing to have a blood pressure check (OR=0.68, 95% CI 0.48-0.95). Respondents with diabetes were less likely to have either a blood pressure check (OR=0.61, 95% CI 0.38-0.99) or a cholesterol check (OR=0.58, 95% CI, 95% CI 0.36-0.94).

Table 6-15 Associations between willingness to use pharmacy public health services and chronic health conditions

Independent variables	Odds ratio (95% CI) of Willingness to use pharmacy public health service						
	Stopping smoking	Sensible drinking	Losing weight	Heart health advice	Blood pressure check	Cholesterol check	Blood sugar check
Hypertension							
No	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Yes	1.03 (0.69-1.54)	1.00 (0.67-1.50)	0.99 (0.70-1.40)	0.88 (0.63-1.23)	0.68 (0.48-0.95)*	0.73 (0.52-1.03)	0.72 (0.51-1.01)
Diabetes							
No	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Yes	0.42 (0.20-0.84)*	1.15 (0.64-2.06)	1.78 (1.09-2.89)*	0.88 (0.55-1.42)	0.61 (0.38-0.99)*	0.58 (0.36-0.94)*	0.66 (0.41-1.06)
High cholesterol							
No	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Yes	1.08 (0.69-1.68)	0.64 (0.40-1.02)	0.86 (0.58-1.25)	0.93 (0.64-1.33)	1.29 (0.88-1.89)	1.12 (0.77-1.65)	1.01 (0.70-1.47)
Obesity							
No	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Yes	0.77 (0.51-1.14)	0.93 (0.64-1.37)	2.23 (1.62-3.07)*	1.11 (0.81-1.53)	0.94 (0.68-1.31)	1.09 (0.78-1.52)	1.12 (0.81-1.56)
Heart disease							
No	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Yes	0.81 (0.46-1.43)	0.87 (0.50-1.53)	0.65 (0.40-1.06)	1.19 (0.76-1.87)	0.97 (0.61-1.55)	0.73 (0.46-1.16)	0.75 (0.48-1.17)
Smoking related problems							
No	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Yes	4.84 (2.29-10.21)*	1.93 (0.90-4.12)	0.68 (0.32-1.46)	1.34 (0.67-2.71)	1.00 (0.49-2.07)	1.01 (0.49-2.08)	1.13 (0.55-2.33)
Alcohol related problems							
No	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Yes	2.04 (0.74-5.59)	2.83 (1.03-7.78)*	1.16 (0.41-3.33)	0.59 (0.22-1.60)	0.50 (0.19-1.35)	0.41 (0.15-1.13)	0.44 (0.16-1.19)

Note: Odds ratio of 1.00 indicates a reference category. *P-value < 0.05

In summary, the multivariate analysis illustrated that experience of and willingness to use pharmacy public health services depended on age, socioeconomic status, smoking, weight, general health and pharmacy user type. On the other hand, working status, deprivation level, fruit/vegetable intake and taking medicine regularly only influenced experiences of service use. Gender and alcohol consumption in contrast affected willingness to use services. (see Table 6-12, Table 6-13) Experience of pharmacy public health services was likely to depend on chronic health conditions that people had e.g. respondents with smoking related problems were more likely to have sought advice for stopping smoking. Exceptionally, respondents who had hypertension were less likely to have their blood pressure checked in community pharmacies. (Table 6-14) Multivariate analysis indicated that people with smoking related problems, alcohol related problems and being obese were more willing to seek advice for stopping smoking, sensible drinking and losing weight, respectively. Respondents with diabetes were more willing to seek advice for losing weight, but not willing to seek advice for heart health and any health checks, see Table 6-15.

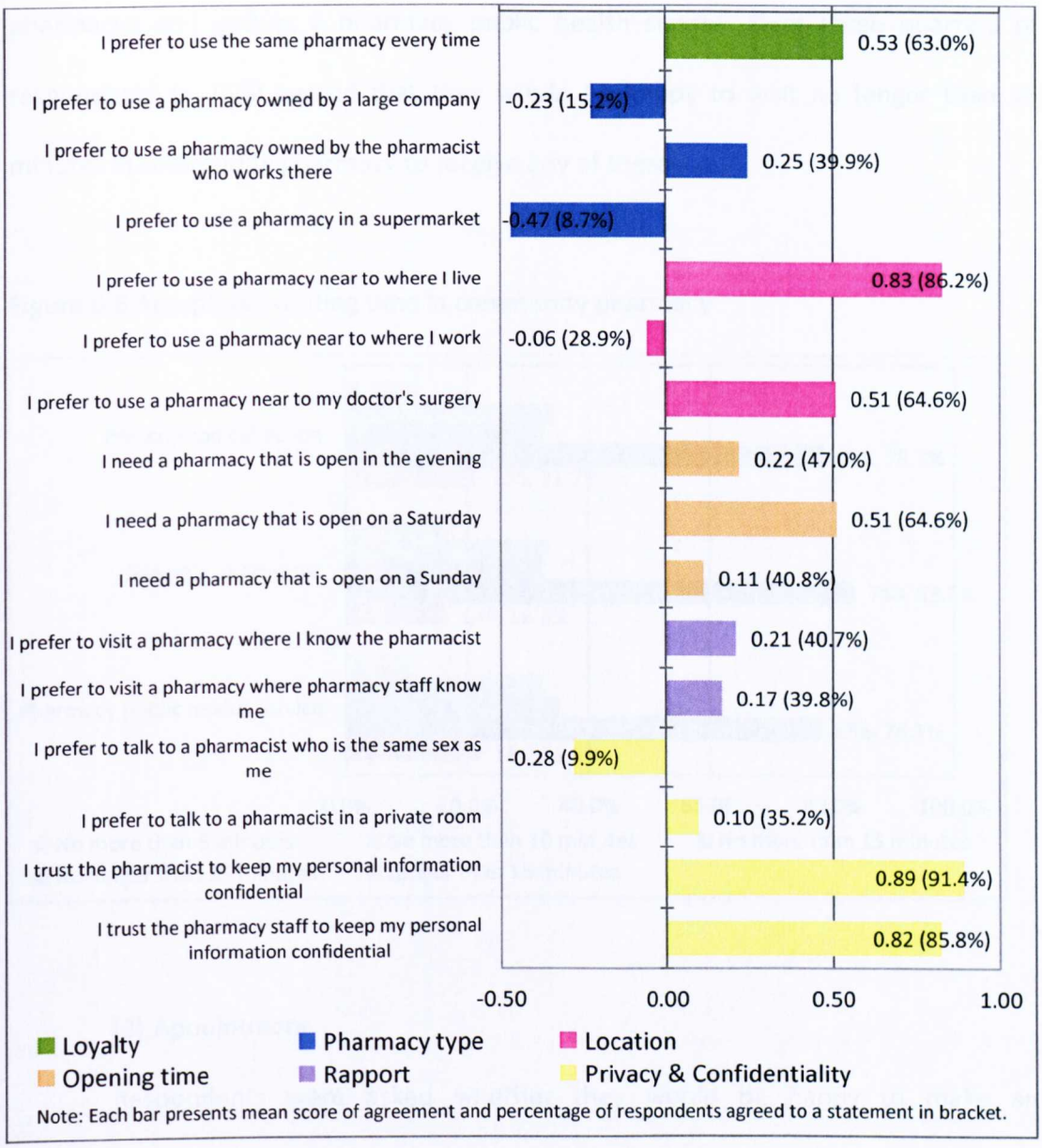
6.4.3 Factors influencing pharmacy use

a. Results of descriptive analysis

(1) Mean score of agreement of factors influencing pharmacy use

Figure 6-5 illustrates that respondents preferred to use a pharmacy in their local neighbourhood ($\bar{x} = 0.83$) as opposed to one near work. They trusted pharmacists and other staff to keep their personal information confidential ($\bar{x} > 0.80$). Moderate agreement was found on preferences for using one particular pharmacy, one near to a doctor's surgery and one open on Saturdays ($\bar{x} = \sim 0.50$). They were less likely to want a pharmacy open in the evening or on Sundays ($0.00 < \bar{x} < 0.50$). Respondents were less supportive of supermarket pharmacies ($\bar{x} = -0.47$) but had no preference for either chain- or independent-pharmacies ($-0.5 < \bar{x} < 0.5$). Rapport with a pharmacist and other staff and privacy did not appear to influence pharmacy use ($-0.5 < \bar{x} < 0.5$), although almost two in five (~40%) of respondents agreed with these statements. The pharmacist's gender was unlikely to be a factor influencing pharmacy use ($\bar{x} = -0.28$). Overall, the data suggest that the general public appear to have a loyalty to a particular pharmacy and that location and accessibility on Saturday were very important factors influencing pharmacy use.

Figure 6-5 Factors influencing pharmacy use

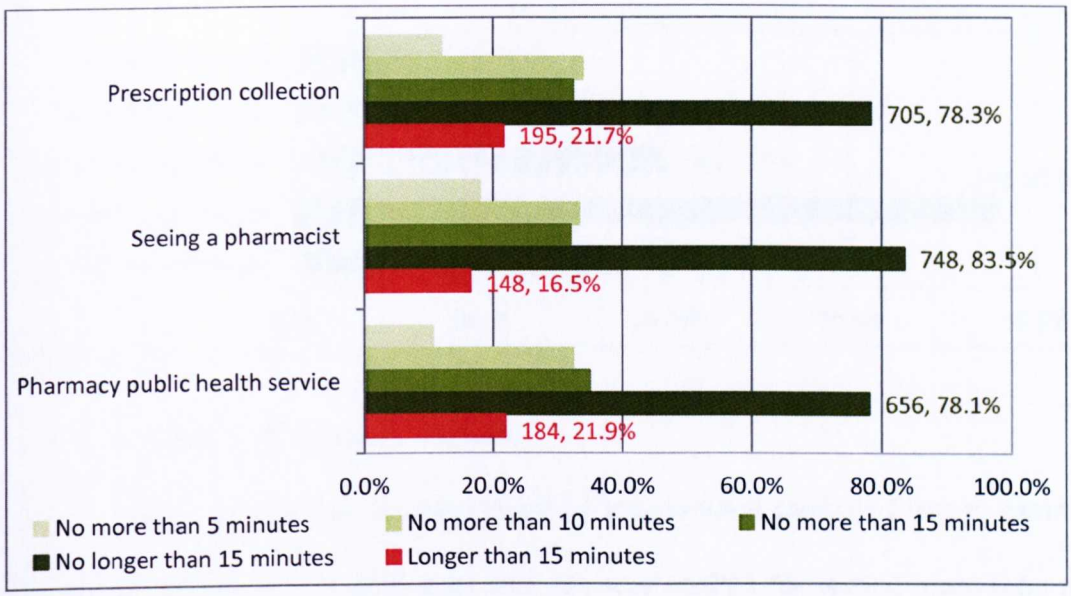


(2) Waiting time

Questions on desirable waiting times for pharmacy services were also included in the questionnaire. Results are shown in Figure 6-6. Respondents were asked about the longest time that they expected to wait in community pharmacy prior

to receiving three types of services; obtaining prescribed medicines, seeing a pharmacist and getting a pharmacy public health service. Over three quarters of respondents (> 75%) agreed that they would be happy to wait no longer than 15 minutes in community pharmacy to receive any of these.

Figure 6-6 Acceptable waiting time in community pharmacy

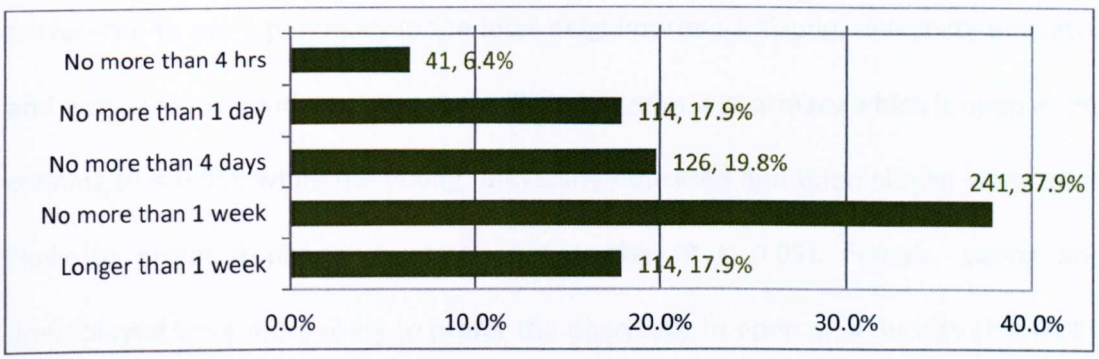


(3) Appointment

Respondents were asked whether they would be happy to make an appointment prior to obtaining pharmacy public health services. If so, they were subsequently asked their views on an appropriate time to get an appointment. Figure 6-7 shows that three quarters of respondents (647 of 864, 74.9%) would be happy to make an appointment for a pharmacy public health service. Less than 20% of respondents would be willing to wait longer than one week for an appointment to obtain a pharmacy public health service. Almost 20% preferred to have an

appointment booked within 1 day, while over one-third (37.9%) agreed that they would be happy to wait no more than one week for an appointment for pharmacy public health services.

Figure 6-7 Acceptable waiting time for an appointment for pharmacy public health services



b. Results of subgroup analysis

Subgroup analysis was performed by independent samples t-test to examine the mean difference for two groups and one-way ANOVA for testing more than two groups. Independent variables for demographics, deprivation and pharmacy user type were included in this analysis. Independent variables on health; lifestyle, health status and chronic health conditions, were not considered because the outcome variable did not relate to health aspects. Four outcome variables had a negative mean score of agreement ($\bar{x} < 0.00$); such survey respondents stated 'I prefer to use a pharmacy owned by a large company', 'I prefer to use a pharmacy in supermarket', 'I prefer to use a pharmacy near to where I work' and 'I prefer to talk to a pharmacist in a private room'. Consequently, subgroup analysis was not performed for these outcomes because most respondents tended to disagree with them. As shown in Table 6-16,

elderly, persons with lower educational status, retired and frequent pharmacy users were more likely to be loyal to one particular pharmacy ($P < 0.05$). The elderly, the retired and respondents living in less deprived areas were more likely to prefer an independent pharmacy ($P < 0.05$). The unemployed and respondents with a lower socioeconomic status were more likely to prefer a pharmacy near to a doctor's surgery ($P < 0.05$), whereas no significant differences were found between subgroups for the preference to use a pharmacy in the local neighbourhood. Young, university-educated and employed respondents were more likely to prefer a pharmacy which is open in the evening ($P < 0.05$), while the young, university-educated and unemployed were more likely to prefer a pharmacy open on Saturday ($P < 0.05$). Female, young and unemployed were more likely to prefer the pharmacy to open on a Sunday ($P < 0.05$). Those respondents who were elderly, retired, respondents living in less deprived and frequent pharmacy users were more likely to value having a rapport with the pharmacist ($P < 0.05$), while elderly, those with college/further education, retired, respondents living in moderate deprivation and frequent pharmacy users were more likely to value rapport with pharmacy staff ($P < 0.05$). Only frequent pharmacy users were more likely to prefer to talk with a pharmacist in a private room ($P < 0.05$). Elderly, unemployed and frequent pharmacy users were more likely to have trust in the confidentiality within pharmacies ($P < 0.05$).

Table 6-16 Subgroup analysis of mean score of agreement to factors influencing pharmacy use and independent variables

Factor influencing pharmacy use	Gender[a]		Age group[b]			Ethnicity[a]		Education[b]			Working status[b]			Socioeconomic[b]			Deprivation[b]			User type[a]	
	Male	female	Young (18-34)	Middle (35-64)	Elderly (≥65)	White	Non-white	School	College/further education	University	Not working	Retired	Working	Lower	Middle	Higher	More deprived	Moderate deprived	Less deprived	Infrequent user	Frequent user
Loyalty																					
I prefer to use the same pharmacy every time	0.50	0.56	0.44	0.41	0.76 *	0.54	0.35	0.57 *	0.54	0.43	0.59	0.70 *	0.36	0.57	0.59	0.50	0.52	0.52	0.55	0.36	0.64 *
Pharmacy type																					
I prefer to use a pharmacy owned by the pharmacist who works there	0.24	0.25	0.10	0.20	0.37 *	0.25	0.22	0.31	0.19	0.22	0.30	0.34 *	0.13	0.22	0.20	0.26	0.08	0.26	0.28 *	0.20	0.28
Location																					
I prefer to use a pharmacy near to where I live	0.81	0.84	0.86	0.81	0.86	0.83	0.87	0.84	0.79	0.86	0.85	0.83	0.83	0.86	0.78	0.84	0.77	0.84	0.85	0.81	0.84
I prefer to use a pharmacy near to my doctor's surgery	0.49	0.52	0.55	0.53	0.46	0.51	0.52	0.53	0.43	0.57	0.63 *	0.43	0.55	0.61 *	0.38	0.50	0.51	0.47	0.51	0.49	0.52
Opening time																					
I need a pharmacy that is open in the evening	0.21	0.23	0.54 *	0.40	-0.17	0.22	0.26	0.14	0.24	0.36 *	0.40	-0.12	0.50 *	0.21	0.36	0.21	0.27	0.22	0.13	0.29	0.18
I need a pharmacy that is open on a Saturday	0.48	0.54	0.64 *	0.60	0.35	0.51	0.61	0.46	0.53	0.62 *	0.68 *	0.37	0.61	0.44	0.53	0.55	0.49	0.52	0.50	0.45	0.55
I need a pharmacy that is open on a Sunday	0.03	0.17 *	0.35 *	0.22	-0.14	0.12	0.04	0.14	0.07	0.13	0.33 *	-0.12	0.28	0.14	0.25	0.07	0.16	0.08	0.09	0.12	0.11
Rapport																					
I prefer to visit a pharmacy where I know the pharmacist	0.19	0.22	0.04	0.12	0.41 *	0.21	0.26	0.22	0.26	0.13	0.32	0.38 *	0.01	0.25	0.23	0.18	0.03	0.23	0.25 *	-0.02	0.34 *
I prefer to visit a pharmacy where pharmacy staff know me	0.14	0.19	-0.09	0.05	0.45 *	0.16	0.17	0.19	0.24 *	0.00	0.22	0.38 *	-0.06	0.22	0.24	0.10	0.01	0.23 *	0.16	-0.14	0.34 *

Note: [a]Indpendent t-test, [b]One-way ANOVA, **P*-value < 0.05

Table 6-16 (Continued)

Factor influencing pharmacy use	Gender[a]		Age group[b]			Ethnicity[a]		Education[b]			Working status[b]			Socioeconomic[b]			Deprivation[b]			User type[b]	
	Male	female	Young (18-34)	Middle (35-64)	Elderly (≥65)	White	Non-white	School	College/further education	University	Not working	Retired	Working	Lower	Middle	Higher	More deprived	Moderate deprived	Less deprived	Infrequent user	Frequent user
Privacy																					
I prefer to talk to a pharmacist in a private room	0.07	0.11	0.05	0.06	0.16	0.10	0.00	0.10	0.10	0.07	0.02	0.14	0.07	0.17	0.07	0.07	0.11	0.08	0.11	0.01	0.15 *
Confidentiality																					
I trust the pharmacist to keep my personal information confidential	0.87	0.91	0.80	0.89	0.93 *	0.90	0.74	0.89	0.89	0.90	0.94 *	0.93	0.85	0.88	0.89	0.90	0.85	0.91	0.91	0.85	0.92 *
I trust the pharmacy staff to keep my personal information confidential	0.80	0.84	0.75	0.80	0.89 *	0.83	0.61	0.84	0.81	0.80	0.89 *	0.87	0.76	0.83	0.86	0.81	0.85	0.81	0.85	0.75	0.87 *

Note: [a]Independent t-test, [b]One-way ANOVA, *P-value < 0.05

In summary, there are many factors and personal characteristics that seem to have some bearing on preferences for using community pharmacy, except ethnicity which was unlikely to influence people's preference. A pharmacy open on a Sunday seems important to females, but other factors influencing pharmacy use were similar between genders. Opening time was mostly a concern for younger respondents. The elderly and retired respondents showed a desire for loyalty, an independent pharmacy and rapport. A pharmacy near to a doctor's surgery and open over weekends seems, surprisingly, quite important to unemployed respondents, while opening in the evening was a necessity for the employed group. Privacy was rated as a concern for frequent pharmacy users only, who perhaps may be the ones utilising advisory services more often. A pharmacy in local neighbourhood seems desired by everyone.

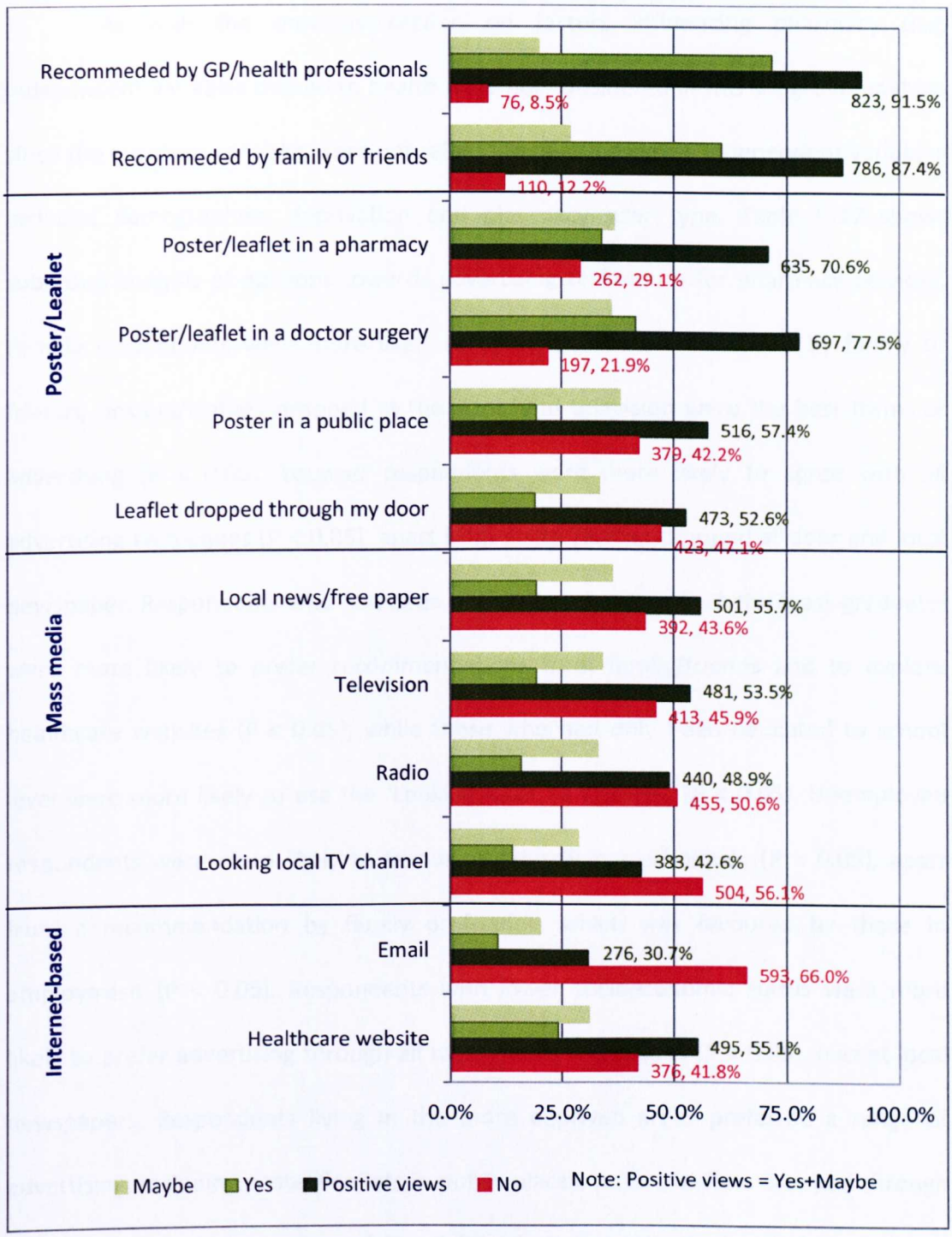
6.4.4 Advertising techniques for pharmacy public health services

a. Overall views towards advertising techniques for pharmacy public health services

The qualitative studies, presented in Chapter 3, found that pharmacy public health services still lack appropriate advertising, thus the general public are not aware of them. Therefore, the survey included a section exploring appropriate advertising techniques in order to more effectively promote pharmacy services. Figure 6-8 shows views of respondents towards advertising for pharmacy services. Overall, recommendation by doctors or other health professionals (71.5%) or by family/friends (60.4%), were considered to be the advertising methods most likely to be seen by respondents. Posters/leaflets were thought more likely to be seen if distributed

through health settings, e.g. a doctor surgery (41.1%) and a community pharmacy (33.9%). Less than 20% of respondents from this survey agreed that mass media advertising could encourage pharmacy use, with a further third thinking that they 'maybe' would work. Internet-based advertising, particularly through healthcare websites (24.1%), was likely to be more effective than mass media. Nevertheless, more than half of respondents viewed all advertising techniques positively. However, the looking local TV channels and advertising by email were viewed less favourably.

Figure 6-8 Advertising techniques for pharmacy public health service



b. Results of subgroup analysis

As with the previous section on factors influencing pharmacy use, independent variables related to health were not considered in this subgroup analysis since the outcome variables were not related to health aspects. Independent variables included demographics, deprivation and pharmacy user type. Table 6-17 shows subgroup analysis of opinions towards advertising techniques for pharmacy services. Female respondents were more likely to agree that recommendation by family or friends, posters/leaflets dropped at the door, and television were the best forms of advertising ($P < 0.05$). Younger respondents were more likely to agree with all advertising techniques ($P < 0.05$), apart from poster/leaflet dropped at door and local newspaper. Respondents who had been university educated (bachelor/post-graduate) were more likely to prefer recommendations from family/friends and to explore healthcare websites ($P < 0.05$), while those who had only been educated to school level were more likely to use the 'Looking local TV channel' ($P < 0.05$). Unemployed respondents were more likely to favour all advertising techniques ($P < 0.05$), apart from a recommendation by family or friends, which was favoured by those in employment ($P < 0.05$). Respondents with lower socioeconomic status were more likely to prefer advertising through all mass media techniques ($P < 0.05$), except local newspapers. Respondents living in the more deprived areas preferred a range of advertising, including poster/leaflets in public places, poster/leaflets dropped through their door, mass media and email ($P < 0.05$). Views towards all advertising techniques were not significantly different dependent on respondents' ethnicity or pharmacy user type.

Table 6-17 Subgroup analysis of opinions towards advertising techniques for pharmacy services

Independent variables - demographics/ deprivation/pharmacy user type	Word of mouth		Poster/Leaflet				Mass media					Internet-based	
	Recommended by doctor/ health professional	Recommended by Family or friends	Poster or leaflet in a pharmacy	Poster or leaflet in a doctor surgery	Poster or leaflet in a public places	Poster or leaflet in dropped through my door	Local newspaper/free paper	Television	Radio	Looking local TV channel	Email	Healthcare website
Gender												
Male	320	298	239	270	191	166	181	171	159	148	98	187
	90.9%	84.9%	67.7%	76.9%	54.4%	47.4%	51.9%	49.0%	45.3%	42.5%	29.1%	55.2%
Female	495	481	391	421	321	303	313	307	278	233	177	302
	92.0%	89.7%*	72.9%	78.7%	59.9%	56.3%*	58.4%	57.2%*	51.9%	43.9%	33.8%	57.6%
Age group												
Young (≤ 34)	100	97	84	89	75	53	60	76	68	59	43	73
	97.1%*	93.3%*	80.8%*	85.6%*	72.1%*	51.0%	58.3%	73.1%*	65.4%*	56.7%*	41.3%*	70.9%*
Middle (35 – 64)	451	446	368	397	306	292	297	292	271	235	182	314
	92.6%	92.1%	75.7%	81.9%	62.8%	60.0%*	61.2%*	60.1%	55.6%	48.6%	37.8%	64.9%
Elderly (≥ 65)	267	238	179	207	132	125	139	111	99	88	51	104
	88.1%	78.8%	59.5%	69.2%	44.3%	41.8%	46.5%	37.2%	33.2%	30.0%	18.4%	37.4%
Ethnicity												
White	793	758	614	675	500	460	483	467	427	372	268	479
	91.5%	87.8%	71.0%	78.2%	57.9%	53.2%	56.1%	54.2%	49.5%	43.5%	32.0%	57.1%
Non-white	21	20	14	15	12	10	12	11	11	10	7	11
	95.5%	87.0%	60.9%	68.2%	52.2%	43.5%	52.2%	47.8%	47.8%	43.5%	30.4%	47.8%
Education												
School	339	322	255	276	205	190	208	206	190	170	117	180
	90.4%	85.9%	68.0%	73.6%	54.8%	50.7%	55.8%	55.1%	50.8%	45.9%*	32.5%	50.1%
College/Further education	254	240	201	224	167	157	164	154	139	123	93	161
	92.0%	87.3%	73.1%	81.8%*	60.5%	57.1%	59.4%	56.0%	50.4%	45.2%	35.1%	60.3%
University	200	199	155	171	124	110	107	106	96	75	61	139
	93.0%	93.4%*	72.8%	80.7%	58.5%	51.6%	51.0%	50.0%	45.3%	35.4%	28.9%	65.6%*

Note: Table presents number and percentage of respondents who had positive views on each advertising techniques. Statistical test was Chi-square, *P-value<0.05.

Table 6-17 (Continued)

Demographics/ deprivation/pharmacy user type	Word of mouth		Poster/Leaflet				Mass media					Internet-based	
	Recommended by doctor/ health professional	Recommended by Family or friends	Poster or leaflet in a pharmacy	Poster or leaflet in a doctor surgery	Poster or leaflet in a public places	Poster or leaflet in dropped through my door	Local newspaper/free paper	Television	Radio	Looking local TV channel	Email	Healthcare website
Work status												
Not working	121	113	100	107	86	80	81	86	82	69	52	81
	96.0%*	89.7%	79.4%*	84.9%*	68.8%*	63.5%*	64.8%*	68.3%*	65.1%*	54.8%*	41.6%*	65.3%*
Retired	339	306	240	271	178	162	182	153	138	128	85	162
	89.0%	80.5%	63.3%	72.1%	47.3%	43.0%	48.4%	40.8%	36.7%	34.6%	24.1%	45.6%
Working (full time/part time)	357	361	290	314	248	227	232	239	217	184	139	248
	92.7%	94.3%*	75.3%	81.6%	64.1%	58.8%	60.3%	61.9%	56.2%	47.9%	36.2%	64.4%
Socioeconomic status												
Lower	174	160	135	144	110	108	108	113	107	100	68	100
	94.1%	87.0%	73.0%	77.8%	59.8%	58.7%	59.3%	61.4%	58.2%*	54.3%*	38.6%	56.8%
Middle	117	116	94	103	81	71	79	81	71	68	36	70
	90.0%	88.5%	71.8%	78.6%	61.8%	54.2%	60.3%	61.8%*	54.2%	51.9%	27.7%	54.3%
Higher	491	471	372	413	298	270	285	267	240	198	160	300
	91.4%	88.2%	69.5%	77.6%	55.8%	50.5%	53.4%	50.1%	44.9%	37.6%	30.9%	57.7%
Deprivation level												
More deprived	140	135	120	125	100	98	100	94	94	83	62	92
	90.3%	87.1%	75.9%	80.1%	64.5%*	63.2%*	64.1%*	60.6%	60.3%*	53.9%*	41.9%*	62.2%
Moderate deprived	286	273	217	243	188	160	169	161	149	124	89	162
	91.4%	87.5%	69.8%	78.4%	60.6%	51.4%	54.7%	51.9%	48.1%	40.5%	29.2%	53.1%
Less deprived	315	301	233	259	171	164	174	169	147	132	95	191
	91.3%	87.8%	68.3%	76.0%	49.9%	47.8%	51.0%	49.4%	43.0%	38.7%	28.8%	57.5%

Note: Table presents number and percentage of respondents who had positive views on each advertising techniques. Statistical test was Chi-square, *P-value<0.05.

Table 6-17 (Continued)

Independent variables - demographics/ deprivation/pharmacy user type	Word of mouth		Poster/Leaflet					Mass media				Internet-based
	Recommended by doctor/ health professional	Recommended by Family or friends	Poster or leaflet in a pharmacy	Poster or leaflet in a doctor surgery	Poster or leaflet in a public places	Poster or leaflet in dropped through my door	Local newspaper/free paper	Television	Radio	Looking local TV channel	Email	Healthcare website
Pharmacy user type												
Infrequent user	292	287	221	245	181	159	169	167	151	132	93	180
	91.5%	90.3%	69.3%	76.8%	56.7%	49.7%	53.0%	52.4%	47.2%	41.5%	29.8%	57.1%
Frequent user	520	489	405	442	326	305	324	304	280	242	176	306
	91.5%	86.4%	71.4%	78.4%	57.7%	54.0%	57.4%	53.9%	49.6%	43.4%	32.2%	56.1%

Note: Table presents number and percentage of respondents who had positive views on each advertising techniques. Statistical test was Chi-square, *P-value<0.05.

c. Results of multivariate analysis

All independent variables used for the subgroup analysis, apart from ethnicity, were controlled in binary logistic regression to identify associations between personal characteristics and views of respondents towards advertising techniques. As shown in Table 6-18, respondents who were middle aged had a higher odds of preferring advertising by poster/leaflet dropped at door (OR=1.92, 95% CI 1.16-3.19), while the retired respondents (OR=0.50, 95% CI 0.28-0.91), persons living in moderate deprived (OR=0.64, 95% CI 0.41-1.00) and more deprived areas (OR=0.54, 95% CI 0.35-0.85) were less likely to prefer this advertising choice. The elderly respondents were less likely to prefer any adverting techniques, compared to younger persons. Respondents who completed college/further education (OR=1.47, 95% CI 1.01-2.15) and university (OR=1.88, 95% CI 1.20-2.94) were more likely to explore healthcare websites. Respondents living in less deprived areas did not favour advertising by poster/leaflets in public places (OR=0.60, 95% CI 0.39-0.94).

Table 6-18 Associations between views towards advertising techniques for pharmacy services and independent variables

Demographics/ deprivation/pharmacy user type	Odds ratio (95% CI) of views towards advertising techniques for pharmacy services											
	Word of mouth		Poster/Leaflet				Mass media				Internet-based	
	Recommended by doctor/ health professional	Recommended by Family or friends	Poster or leaflet in a pharmacy	Poster or leaflet in a doctor surgery	Poster or leaflet in a public places	Poster or leaflet in dropped through my door	Local newspaper /free paper	Television	Radio	Looking local TV channel	Email	Healthcare website
Gender												
Male	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Female	0.82 (0.47-1.42)	1.18 (0.74-1.89)	1.02 (0.73-1.42)	0.87 (0.60-1.26)	1.19 (0.87-1.62)	1.30 (0.96-1.77)	1.15 (0.85-1.57)	0.82 (0.47-1.42)	1.23 (0.90-1.68)	0.99 (0.72-1.35)	1.14 (0.81-1.60)	0.94 (0.68-1.31)
Age group												
Young (≤ 34)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Middle (35 – 64)	0.52 (0.15-1.78)	1.32 (0.50-3.47)	0.89 (0.49-1.62)	0.82 (0.41-1.62)	0.87 (0.51-1.48)	1.92* (1.16-3.19)	1.39 (0.84-2.31)	0.52 (0.15-1.78)	0.84 (0.50-1.40)	0.84 (0.50-1.39)	1.04 (0.62-1.74)	0.83 (0.48-1.43)
Elderly (≥ 65)	0.27 (0.06-1.13)	0.70 (0.22-2.18)	0.39* (0.18-0.83)	0.41* (0.18-0.95)	0.54 (0.27-1.07)	1.31 (0.68-2.54)	0.81 (0.42-1.57)	0.27 (0.06-1.13)	0.37* (0.19-0.73)	0.35* (0.18-0.69)	0.37* (0.18-0.77)	0.24* (0.12-0.49)
Education												
School completed	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
College/Further education	0.93 (0.50-1.73)	0.90 (0.53-1.53)	1.06 (0.71-1.56)	1.41 (0.92-2.17)	1.08 (0.75-1.55)	1.18 (0.82-1.69)	0.99 (0.69-1.42)	0.93 (0.50-1.73)	0.87 (0.60-1.25)	0.85 (0.59-1.22)	0.96 (0.65-1.43)	1.47* (1.01-2.15)
University	1.10 (0.50-2.39)	1.94 (0.90-4.17)	1.11 (0.69-1.77)	1.44 (0.86-2.42)	0.99 (0.64-1.53)	1.03 (0.67-1.58)	0.67 (0.44-1.03)	1.10 (0.50-2.39)	0.68 (0.44-1.05)	0.61* (0.39-0.94)	0.81 (0.51-1.29)	1.88* (1.20-2.94)
Work status												
Not working	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Retired	0.57 (0.16-2.00)	0.61 (0.24-1.56)	0.80 (0.41-1.57)	0.81 (0.39-1.69)	0.57 (0.31-1.03)	0.50* (0.28-0.91)	0.70 (0.39-1.27)	0.57 (0.16-2.00)	0.56 (0.31-1.01)	0.93 (0.52-1.67)	0.93 (0.51-1.70)	1.01 (0.54-1.86)
Working	0.52 (0.17-1.61)	1.81 (0.76-4.30)	0.88 (0.50-1.56)	0.93 (0.50-1.75)	0.86 (0.52-1.42)	0.87 (0.53-1.43)	0.91 (0.55-1.48)	0.52 (0.17-1.61)	0.80 (0.49-1.31)	0.98 (0.61-1.59)	0.99 (0.60-1.61)	0.97 (0.58-1.61)

Note: Odds ratio of 1.00 indicates a reference category. *P-value < 0.05

Table 6-18 (Continued)

Demographics/ deprivation/pharmacy user type	Odds ratio (95% CI) of views towards advertising techniques for pharmacy services											
	Word of mouth		Poster/Leaflet				Mass media				Internet-based	
	Recommended by doctor/ health professional	Recommended by Family or friends	Poster or leaflet in a pharmacy	Poster or leaflet in a doctor surgery	Poster or leaflet in a public places	Poster or leaflet in dropped through my door	Local newspaper /free paper	Television	Radio	Looking local TV channel	Email	Healthcare website
Socioeconomic status												
Lower	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Middle	0.79 (0.32-1.98)	1.66 (0.73-3.77)	1.09 (0.62-1.92)	1.13 (0.61-2.09)	1.34 (0.79-2.26)	1.11 (0.66-1.86)	1.23 (0.73-2.06)	0.79 (0.32-1.98)	1.04 (0.62-1.75)	0.96 (0.58-1.60)	0.59 (0.34-1.04)	0.99 (0.58-1.69)
Higher	0.88 (0.40-1.94)	1.23 (0.65-2.33)	1.05 (0.65-1.68)	1.04 (0.63-1.73)	1.17 (0.76-1.82)	1.04 (0.67-1.61)	1.13 (0.73-1.74)	0.88 (0.40-1.94)	0.95 (0.61-1.48)	0.72 (0.47-1.11)	0.89 (0.56-1.41)	0.94 (0.59-1.48)
Deprivation												
More deprived	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Moderate deprived	1.24 (0.59-2.61)	0.96 (0.49-1.90)	0.73 (0.44-1.19)	0.89 (0.52-1.51)	0.92 (0.59-1.43)	0.64* (0.41-1.00)	0.69 (0.44-1.07)	1.24 (0.59-2.61)	0.83 (0.54-1.29)	0.77 (0.50-1.19)	0.66 (0.42-1.04)	0.73 (0.46-1.16)
Less deprived	1.42 (0.67-3.02)	1.00 (0.51-1.99)	0.71 (0.44-1.16)	0.79 (0.47-1.34)	0.60* (0.39-0.94)	0.54* (0.35-0.85)	0.65 (0.42-1.00)	1.42 (0.67-3.02)	0.70 (0.45-1.09)	0.75 (0.49-1.16)	0.66 (0.42-1.04)	0.89 (0.56-1.41)
Pharmacy user type												
Infrequent user	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frequent user	1.20 (0.68-2.13)	1.06 (0.63-1.78)	1.28 (0.90-1.82)	1.33 (0.91-1.96)	1.16 (0.84-1.61)	1.33 (0.96-1.84)	1.18 (0.85-1.63)	1.20 (0.68-2.13)	1.31 (0.94-1.83)	1.23 (0.88-1.71)	1.37 (0.96-1.96)	1.35 (0.96-1.90)

Note: Odds ratio of 1.00 indicates a reference category. *P-value < 0.05

6.4.5 Geodemographic and dependent variables

a. Descriptive analysis of geodemographic status

Among the 915 respondents, 891 (~97%) provided the full postcodes of their place of residence. Of those, 832 were valid enabling a MOSAIC^{TM} classification to be obtained. The MOSAIC^{TM} is subdivided into 11 groups (A, B, C, ... to K) with 61 types (A01, A02, A03, ... to K61). The valid postcodes obtained were fitted into all MOSAIC^{TM} groups but only 43 MOSAIC^{TM} types. Table 6-19 shows that just over one-third (37.6%) of respondents were categorised as 'Suburban comfort' (group C), 15.7% as 'Symbol of success' (group A) and 12.9% as 'Ties of community' (group D). Other MOSAIC^{TM} groups contained about 10% or fewer respondents within each tier. The survey data were comparable with Sefton's data.[81]

b. Experience of pharmacy public health services by geodemographic status

As noted in the analysis plan section (page 165), the analysis was limited to descriptive analysis. Table 6-20 shows the percentage of respondents falling in each MOSAIC^{TM} group who had ever used pharmacy public health services. Respondents categorised as 'Welfare borderline' (group F) had most frequently experienced seeking advice for stopping smoking (30.0%) and heart health (26.3%), while those in 'Municipal dependency' (group G) had used services for cholesterol (19.0%) and blood sugar checks (12.3%). Seeking advice for sensible drinking (9.5%), losing weight (33.3%) and having blood pressure checked (22.2%), respectively, were mostly experienced by the 'Twilight subsistence' (group I), 'Rural isolation' (group K) and 'Blue collar enterprise' (group H).

Table 6-19 MOSAIC^{TM} groups and types of respondents

Group	Groups/types description	Count (N=832)	Survey data (%)	Sefton data[81] (%)
A	**Symbol of Success**	**131**	**15.7**	**11.4**
	A03 Corporate Chieftains	12	1.4	
	A04 Golden Empty Nesters	33	4.0	
	A05 Provincial Privilege	64	7.7	
	A06 High Technologists	20	2.4	
	A07 Semi-Rural Seclusion	2	0.2	
B	**Happy Families**	**47**	**5.6**	**6.2**
	B09 Fledgling Nurseries	1	0.1	
	B10 Upscale New Owners	1	0.1	
	B11 Families Making Good	9	1.1	
	B12 Middle Rung Families	32	3.8	
	B13 Burdened Optimists	4	0.5	
C	**Suburban Comfort**	**313**	**37.6**	**25.3**
	C15 Close to Retirement	40	4.8	
	C16 Conservative Values	87	10.5	
	C17 Small Time Business	7	0.8	
	C18 Sprawling Subtopia	133	16.0	
	C19 Original Suburbs	46	5.5	
D	**Ties of Community**	**107**	**12.9**	**19.3**
	D21 Respectable Rows	28	3.4	
	D22 Affluent Blue Collar	20	2.4	
	D23 Industrial Grit	31	3.7	
	D24 Coronation Street	10	1.2	
	D25 Town Centre Refuge	17	2.0	
	D27 Settled Minorities	1	0.1	
E	**Urban Intelligence**	**2**	**0.2**	**0.2**
	E28 Counter Cultural Mix	1	0.1	
	E33 Town Gown Transition	1	0.1	
F	**Welfare Borderline**	**21**	**2.5**	**4.2**
	F37 Upper Floor Families	7	0.8	
	F38 Tower Block Living	7	0.8	
	F39 Dignified Dependency	7	0.8	
G	**Municipal Dependency**	**60**	**7.2**	**10.1**
	G41 Families on Benefits	3	0.4	
	G42 Low Horizons	37	4.4	
	G43 Ex-Industrial Legacy	20	2.4	
H	**Blue Collar Enterprise**	**47**	**5.6**	**9.2**
	H44 Rustbelt Resilience	8	1.0	
	H45 Older Right to Buy	13	1.6	
	H46 White Van Culture	22	2.6	
	H47 New Town Materialism	4	0.5	
I	**Twilight Subsistence**	**21**	**2.5**	**3.7**
	I48 Old People in Flats	4	0.5	
	I49 Low Income Elderly	13	1.6	
	I50 Cared for Pensioners	4	0.5	
J	**Grey Perspective**	**80**	**9.6**	**10.0**
	J51 Sepia Memories	12	1.4	
	J52 Childfree Serenity	12	1.4	
	J53 High Spending Elders	17	2.0	
	J54 Bungalow Retirement	21	2.5	
	J55 Small Town Seniors	18	2.2	
K	**Rural Isolation**	**3**	**0.4**	**0.1**
	K57 Summer Playgrounds	2	0.2	
	K59 Parochial Villagers	1	0.1	

Table 6-20 Experience of pharmacy public health services by MOSAIC^{TM} groups

MOSAIC^{TM} groups	Experience of pharmacy public health service						
	Stopping smoking	Sensible drinking	Losing weight	Heart health advice	Blood pressure check	Cholesterol check	Blood sugar check
A Symbol of Success	0	0	3	9	13	7	5
	0.0%	0.0%	2.3%	7.0%	10.1%	5.4%	3.9%
B Happy Families	4	1	7	7	6	4	2
	8.7%	2.2%	14.9%	14.9%	12.8%	8.7%	4.3%
C Suburban Comfort	15	3	16	30	35	20	17
	4.9%	1.0%	5.2%	9.8%	11.3%	6.5%	5.5%
D Ties of Community	9	2	5	8	10	9	7
	8.4%	1.9%	4.8%	7.7%	9.4%	8.4%	6.5%
E Urban Intelligence	0	0	0	0	0	0	0
	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
F Welfare Borderline	**6**	1	5	**5**	4	1	2
	30.0%	5.0%	25.0%	**26.3%**	20.0%	5.0%	10.0%
G Municipal Dependency	13	5	8	12	12	**11**	**7**
	22.8%	8.6%	13.8%	20.7%	20.7%	**19.0%**	**12.3%**
H Blue Collar Enterprise	6	1	4	9	**10**	6	3
	13.3%	2.2%	8.9%	20.0%	**22.2%**	13.3%	6.7%
I Twilight Subsistence	3	**2**	1	3	3	1	1
	14.3%	**9.5%**	4.8%	15.0%	14.3%	4.8%	5.0%
J Grey Perspective	7	1	7	4	7	3	2
	9.0%	1.3%	8.9%	5.1%	8.9%	3.8%	2.5%
K Rural Isolation	0	0	**1**	0	0	0	0
	0.0%	0.0%	**33.3%**	0.0%	0.0%	0.0%	0.0%

Note: Table presents number of respondents who had ever used pharmacy public health services and its percentage within categories.

c. Willingness to use pharmacy public health services by geodemographic

Table 6-21 illustrates that 'Welfare borderline' (group F) were most willing to use services giving advice in relation to stopping smoking (52.4%), losing weight (71.4%) and heart health (80.0%). Also, 'Welfare borderline' (group F) and 'Twilight subsistence' (group I), similarly, were willing to seek advice in relation to sensible drinking (33.3%). The 'Rural isolation' (group K) were willing to use all health checks, but the number of respondents within this group was very small.

Table 6-21 Willingness to use pharmacy public health services by MOSAIC^{TM} groups

MOSAIC^{TM} groups		Willing to use pharmacy public health service						
		Stopping smoking	Sensible drinking	Losing weight	Heart health advice	Blood pressure check	Cholesterol check	Blood sugar check
A	Symbol of Success	12	17	38	60	85	83	78
		9.7%	13.7%	30.4%	47.6%	65.4%	63.8%	60.0%
B	Happy Families	11	12	23	25	28	28	27
		23.9%	26.1%	48.9%	53.2%	60.9%	59.6%	57.4%
C	Suburban Comfort	61	65	115	141	202	196	189
		20.5%	21.8%	39.1%	47.6%	66.4%	65.1%	62.8%
D	Ties of Community	19	17	30	58	66	67	61
		19.0%	17.0%	30.0%	58.6%	65.3%	67.7%	61.6%
E	Urban Intelligence	0	0	0	0	1	1	1
		0.0%	0.0%	0.0%	0.0%	50.0%	50.0%	50.0%
F	Welfare Borderline	**11**	**7**	**15**	**16**	19	19	17
		52.4%	**33.3%**	**71.4%**	**80.0%**	90.5%	90.5%	81.0%
G	Municipal Dependency	23	16	26	33	40	40	39
		41.8%	29.1%	50.0%	62.3%	74.1%	72.7%	72.2%
H	Blue Collar Enterprise	8	7	14	26	28	31	28
		20.5%	17.9%	34.1%	61.9%	65.1%	73.8%	66.7%
I	Twilight Subsistence	7	**7**	7	9	12	10	10
		33.3%	**33.3%**	33.3%	45.0%	57.1%	47.6%	50.0%
J	Grey Perspective	17	19	28	39	49	52	53
		22.1%	24.7%	35.4%	50.0%	62.0%	65.8%	67.1%
K	Rural Isolation	1	0	2	1	**2**	**2**	**2**
		50.0%	0.0%	66.7%	50.0%	**100%**	**100%**	**100%**

Note: Table presents number of respondents who would be willing to use (yes and maybe) pharmacy public health services and its percentage within categories.

d. Factors influencing pharmacy use by geodemographic

As shown in Table 6-22, 'Symbol of success' (group A) was mostly loyal to one particular pharmacy (70.2%) and preferred the one in a local neighbourhood (90.1%). The 'Suburban comfort' (group C) respondents mostly preferred a pharmacy to be open on Saturdays (66.6%), while 'Welfare borderline' (group F) mostly preferred one open in evening (61.9%) and on Sundays (57.1%). The 'Grey perspective' (group J) mostly viewed rapport with the pharmacist and staff as important (~50%).

Table 6-22 Factors influencing pharmacy use by geodemographic status

	A Symbol of Success	B Happy Families	C Suburban Comfort	D Ties of Community	E Urban Intelligence	F Welfare Borderline	G Municipal Dependency	H Blue Collar Enterprise	I Twilight Subsistence	J Grey Perspective	K Rural Isolation
Loyalty											
I prefer to use the same pharmacy every time	92 70.2%	28 59.6%	189 60.6%	69 64.5%	1 50.0%	14 66.7%	41 68.3%	29 61.7%	14 66.7%	48 60.0%	1 33.3%
Pharmacy type											
I prefer to use a pharmacy owned by the pharmacist who works there	60 46.2%	17 37.0%	125 40.3%	31 29.2%	1 50.0%	6 28.6%	18 30.5%	19 41.3%	8 38.1%	36 45.0%	1 33.3%
Location											
I prefer to use a pharmacy near to where I live	118 90.1%	39 84.8%	275 88.4%	92 86.0%	1 50.0%	16 76.2%	48 81.4%	42 89.4%	18 85.7%	66 82.5%	2 66.7%
I prefer to use a pharmacy near to my doctor's surgery	82 62.6%	31 66.0%	205 66.3%	66 61.7%	1 50.0%	13 61.9%	36 61.0%	31 67.4%	13 65.0%	49 62.0%	3 100%
Opening time											
I need a pharmacy that is open in the evening	57 43.8%	26 57.8%	148 47.7%	49 45.8%	1 50.0%	13 61.9%	31 51.7%	19 41.3%	7 35.0%	30 37.5%	1 33.3%
I need a pharmacy that is open on a Saturday	87 66.4%	29 63.0%	205 66.6%	66 62.9%	1 50.0%	14 66.7%	36 60.0%	29 61.7%	12 60.0%	53 66.3%	1 33.3%
I need a pharmacy that is open on a Sunday	53 41.1%	19 41.3%	121 39.5%	45 42.1%	1 50.0%	12 57.1%	24 40.0%	21 45.7%	8 40.0%	33 41.3%	0 0.0%
Rapport											
I prefer to visit a pharmacy where I know the pharmacist	55 42.0%	16 34.8%	126 40.6%	44 41.5%	1 50.0%	9 42.9%	16 26.7%	17 36.2%	9 45.0%	41 51.3%	1 33.3%
I prefer to visit a pharmacy where pharmacy staff know me	56 43.1%	16 34.0%	120 38.6%	44 41.5%	0 0.0%	9 42.9%	16 26.7%	17 37.0%	9 45.0%	40 50.0%	1 33.3%
Privacy											
I prefer to talk to a pharmacist in a private room	50 38.2%	21 46.7%	104 33.5%	31 29.0%	1 50.0%	9 42.9%	19 32.2%	19 41.3%	8 40.0%	29 36.3%	1 50.0%
Confidentiality											
I trust the pharmacist to keep my personal information confidential	121 93.1%	43 91.5%	287 92.3%	101 94.4%	1 50.0%	17 81.0%	56 93.3%	44 93.6%	16 80.0%	75 93.8%	3 100%
I trust the pharmacy staff to keep my personal information confidential	116 89.2%	41 87.2%	268 86.2%	93 86.9%	1 50.0%	16 76.2%	56 93.3%	43 91.5%	16 80.0%	67 83.8%	3 100%

Note: Table represents number of respondents who agreed with the statement and its percentage within categories.

e. Views towards adverting techniques by geodemographic status

Table 6-23 shows that 'Happy families' (group B) had the highest positive view regarding poster/leaflet advertising in a public place and internet-based advertising. 'Welfare borderline' (group F) preferred poster/leaflet technique and mass media

advertising, while 'Rural Isolation' (group K) preferred advertising by word of mouth and Looking Local TV channel although the latter number was very small.

Table 6-23 Views towards advertising techniques for pharmacy by MOSAIC™

	A Symbol of Success	B Happy Families	C Suburban Comfort	D Ties of Community	E Urban Intelligence	F Welfare Borderline	G Municipal Dependency	H Blue Collar Enterprise	I Twilight Subsistence	J Grey Perspective	K Rural Isolation
Recommendation											
By a doctor or another health professional	117 (91.4)	42 (89.4)	287 (92.3)	100 (94.3)	1 (50.0)	19 (90.5)	54 (93.1)	39 (83.0)	18 (90.0)	69 (88.5)	**3 (100)**
By family or friends	107 (84.3)	40 (87.0)	279 (90.3)	95 (88.8)	1 (50.0)	20 (95.2)	53 (91.4)	38 (80.9)	16 (80.0)	66 (84.6)	**3 (100)**
Poster/leaflet											
Poster/leaflet in a pharmacy	82 (65.6)	40 (85.1)	214 (69.5)	82 (76.6)	1 (50.0)	**18 (85.7)**	48 (80.0)	28 (59.6)	12 (60.0)	50 (64.1)	2 (66.7)
Poster/leaflet in a doctor's surgery	90 (71.4)	41 (89.1)	241 (78.8)	89 (83.2)	1 (50.0)	**19 (90.5)**	47 (79.7)	31 (66.0)	13 (65.0)	57 (73.1)	2 (66.7)
Poster/leaflet in a public place	61 (48.0)	**34 (72.3)**	169 (55.0)	74 (69.8)	1 (50.0)	14 (66.7)	39 (66.1)	24 (52.2)	8 (40.0)	40 (51.3)	1 (33.3)
Leaflet dropped through a door	53 (41.7)	29 (63.0)	156 (50.6)	66 (61.7)	0 (0.0)	**15 (71.4)**	40 (67.8)	25 (54.3)	9 (45.0)	31 (39.7)	0 (0.0)
Mass media											
Local newspaper/local free paper	62 (49.6)	28 (59.6)	165 (53.7)	65 (61.3)	1 (50.0)	**16 (76.2)**	40 (67.8)	27 (58.7)	9 (45.0)	34 (43.6)	1 (33.3)
Television	53 (42.1)	28 (60.9)	157 (51.1)	62 (57.9)	1 (50.0)	**17 (81.0)**	39 (66.1)	29 (63.0)	9 (45.0)	34 (43.6)	2 (66.7)
Radio	51 (40.2)	26 (55.3)	135 (44.0)	60 (56.6)	1 (50.0)	**16 (76.2)**	38 (64.4)	28 (60.9)	7 (35.0)	32 (41.0)	2 (66.7)
Looking local TV channel	39 (30.7)	21 (45.7)	117 (38.5)	52 (49.5)	1 (50.0)	**14 (66.7)**	38 (65.5)	22 (48.9)	6 (30.0)	35 (45.5)	**2 (66.7)**
Internet-based											
Email	33 (26.2)	**23 (52.3)**	84 (28.5)	38 (36.2)	0 (0.0)	8 (40.0)	27 (49.1)	13 (28.9)	3 (15.0)	18 (23.7)	0 (0.0)
Healthcare website	64 (50.8)	**33 (73.3)**	164 (55.2)	65 (61.9)	1 (50.0)	14 (70.0)	36 (66.7)	26 (57.8)	9 (45.0)	36 (47.4)	2 (66.7)

Note: Table presents number of respondents who had positive view (yes and maybe) on advertising technique.

In summary, the highest proportion of respondents fell into the 'Suburban Comfort' (group C) MOSAIC™ classification but they had a low experience of pharmacy public health services, compared to other groups. The 'Welfare borderline' (group F) was the most willing to use services for health advice, while 'Rural Isolation' (group K) were the most willing to use health check services. No distinctive trend could be

identified for factors influencing pharmacy use. The 'Welfare borderline' (group K) had the highest positive views towards most of advertising techniques, while 'Happy Families' (group B) preferred poster/leaflet in public places and internet-based advertising.

f. Case studies

Because subdividing into the broad range of MOSAIC™ groups reduced the sample size per group and offered limited ability to perform subgroup analysis, three subgroups were then chosen to further demonstrate the potential use of the MOSAIC™ geodemographic tool. Both the study area, Sefton, and the sample are dominated by three MOSAIC™ tiers, 'Symbol of success' (N=131), 'Suburban comfort' (N=313) and 'Ties of community' (N=107). This analysis provides a picture of how people within different geodemographic types used pharmacy public health services and how they viewed advertising for pharmacy.

(1) Brief description for dominant MOSAIC™ groups

'Symbol of success' (Group A) is described as including people earning high incomes, holding senior management positions and working in large companies. People within this group have an independent lifestyle with leisure interests that are relatively expensive. Housing for people in this group is well built and spacious with individual design. Regarding attitudes to health, 'Symbol of success' people feel themselves to be healthy, so that they do not need to do much to improve their health.[80, 81]

'Suburban comfort' (Group C) is predominant in Sefton (~25%). People in this tier have established families, mostly work at an intermediate level and are likely to

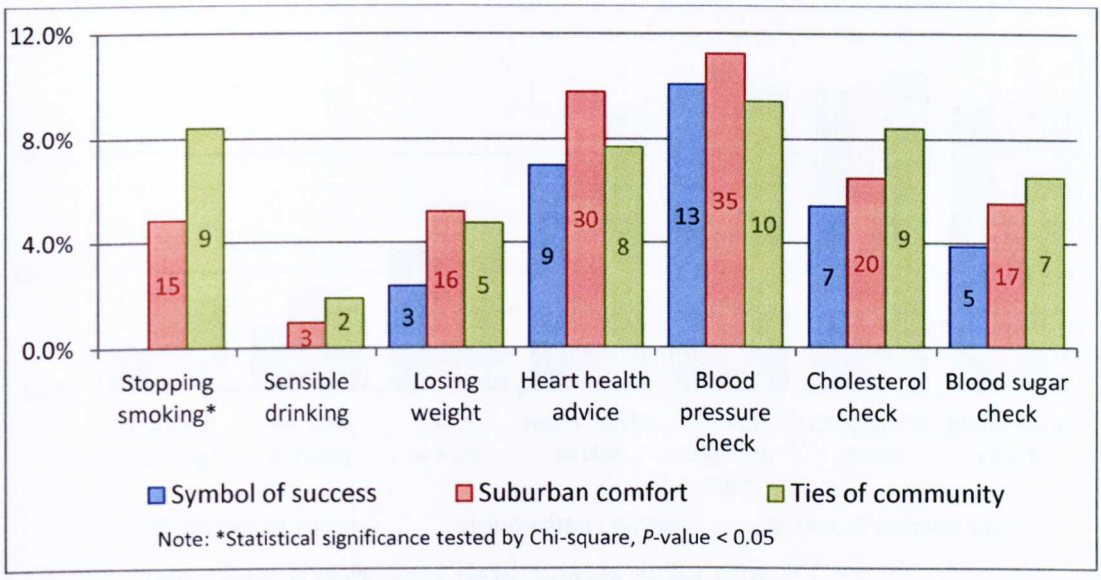
prefer detached houses with leafy gardens in suburban areas. People in this group are self-reliant and unlikely to get involved with local communities. Women in this group are likely to agree that they want to lose weight. They also think looking youthful is important.[80, 81]

The 'Ties of community' (Group D) includes people who live in old-fashioned communities, and hold jobs in manual occupations in industry. Strong social networks are built up among friends and relatives nearby and there is a culture of economy and thrift. People in this group save their money, make small contributions to the community, but are less likely to look after their health. However, men are slightly more likely to believe that they should do something about their health than women. Men also prefer to look young, while women think diet is of importance. [80, 81]

(2) Experience of pharmacy public health services by dominant MOSAIC™ groups

Overall, as shown in Figure 6-9, people from 'Symbol of success' have never sought advice for stopping smoking and for sensible drinking from the community pharmacy. They were also the group having the least experience of other services. People from 'Suburban comfort' were more likely to have sought advice for losing weight (5.2%) and heart health (9.8%) and more likely to have had blood pressure checks (11.3%) in community pharmacy. 'Ties of community' was the group which mostly sought advice for stopping smoking. ($P < 0.05$) Also, they were more likely to have cholesterol (8.4%) and blood sugar checked (6.5%) in community pharmacy.

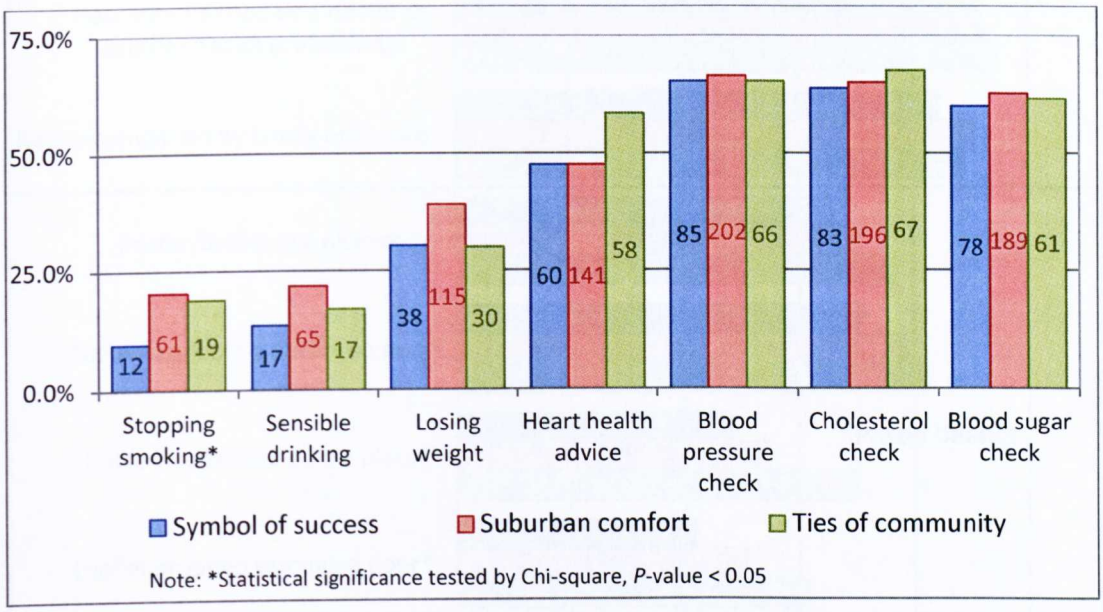
Figure 6-9 Experience of pharmacy public health services by dominant MOSAIC^{TM} groups



(3) Willingness to use pharmacy public health services by dominant MOSAIC^{TM} groups

Figure 6-10 shows that the people categorised as 'Suburban comfort' were significantly more willing to seek advice for stopping smoking ($P < 0.05$), sensible drinking (21.8%) and losing weight (39.1%). Over half (58.6%) of respondents from 'Ties of community' were willing to seek advice for heart health. Willingness to use the service for health checks in community pharmacy was similar among the three dominant MOSAIC^{TM} groups.

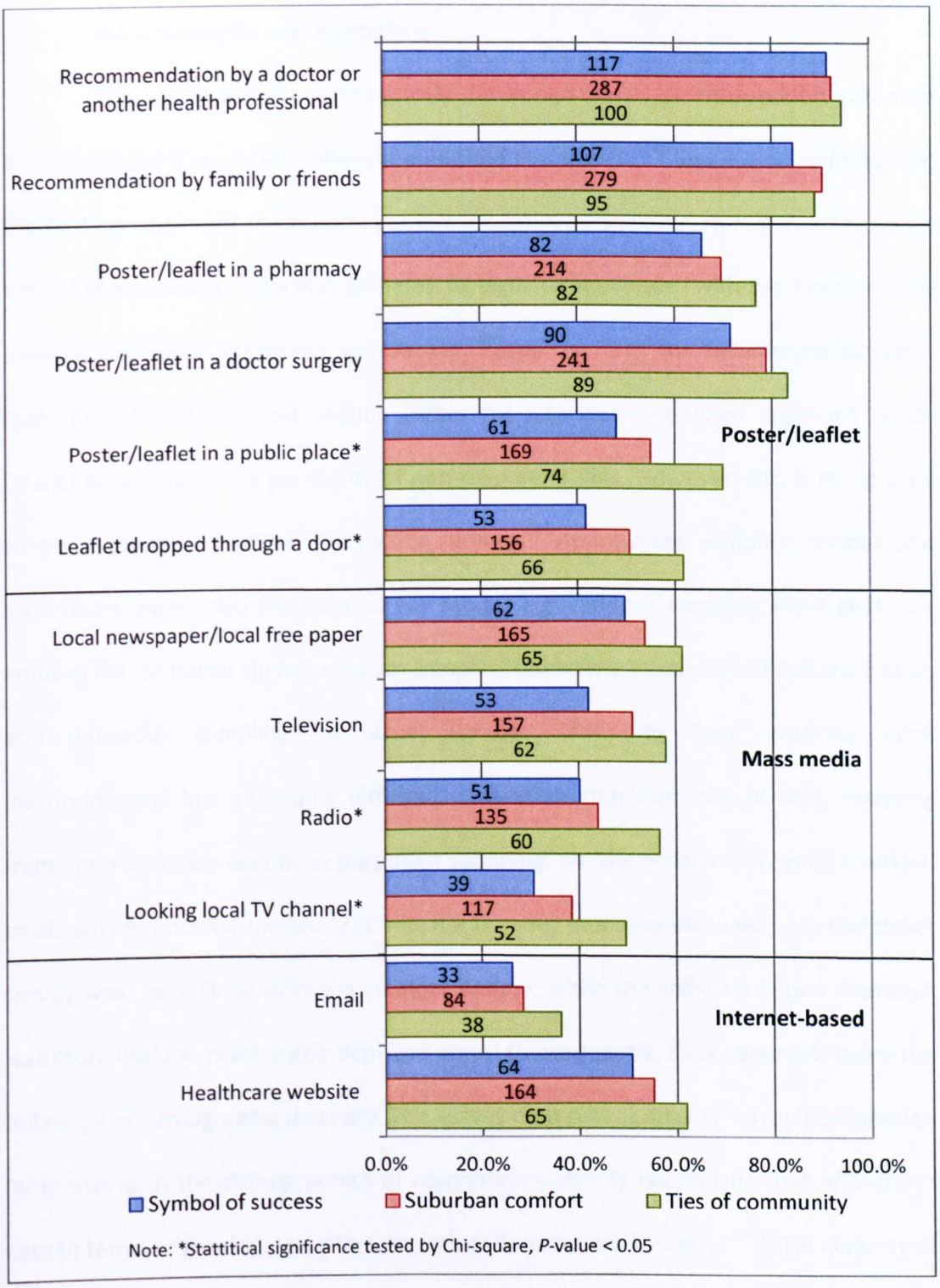
Figure 6-10 Willingness to use pharmacy public health services by dominant MOSAIC^{TM} groups



(4) Views towards advertising for pharmacy by dominant MOSAIC^{TM} groups

As results shown in Figure 6-11, most respondents (> 85%) from all three MOSAIC^{TM} groups would be encouraged to use pharmacy services if they were recommended by a doctor/other health professionals or family/friends. People from 'Ties of community' preferred to receive information about pharmacy services by poster/leaflet in a public place, leaflet dropped through doors and mass media advertising like radio and Looking Local TV channel ($P < 0.05$).

Figure 6-11 Views towards advertising for pharmacy by dominant MOSAIC™ groups



6.5 DISCUSSION

6.5.1 Strengths and limitations

This study was comprehensively developed based on information gathered from the general public and relevant published literature[5, 6, 47] and it is considered that the findings represent the general public's (societal) perspective, rather than the views only of service users. Data was gathered by eight survey modes with two (interviewer-assisted and self-completion) approaches. Response rates for self-completion were fairly low (5.1-26.5%), but slightly higher for interviewer-assisted approach (28.5-34.5%) hence there is a possibility of non-responder bias. However, this is recognised to be a common problem for health surveys.[65] Appropriate sampling frames and techniques were used for each survey mode, e.g. random sampling from postcode address file for postal survey, random sampling telephone numbers from phone books, and purposive sampling for street surveys. This may have incurred some methodological bias regarding different population characteristics of each sampling frame and selection bias from purposive sampling. On the other hand, using a mixed-mode survey enabled the study to reach a broader demographic base, e.g. the street survey was more likely to reach younger people, while the self-completion approach was more likely to reach more deprived areas. Consequently, data obtained covers the full range of demographic diversity. The survey data set represents Sefton's population fairly well with the demographics of respondents closely resembling that of Sefton's data in terms of gender, age, ethnicity, education and work status.[40, 85] The majority of respondents were female, of middle age, white, school educated and employed. However, generalisation and extrapolation to the national population may be limited,

since the study was conducted in one local area. The survey obtained views predominantly from females which is common in other studies conducted in North Staffordshire[60] and Northern Ireland.[59] Most respondents were classified into the higher socioeconomic status, based on occupation data. This was reasonably well related to the deprivation data, as respondents were mostly living in less deprived areas. However, the IMD quintiles used for survey data were not developed using the same procedure as is used for national statistics. The results of deprivation data were in contrast with the health profile. The overall deprivation score for Sefton is worse than the national average,[40] indicating that the sample is not representative of the Sefton population in terms of deprivation. Proportions of unsafe drinkers, and persons who 'eat well', who are physically active, and who are overweight in this survey were also proportionately higher than the average for both Sefton and England. This might be because data were independently estimated by respondents, thus data might vary between different studies. However, this study attempted to use standard tools to measure lifestyle aspects, such as AUDIT-C algorithm,[130, 136] BMI calculation,[137] standard recommendation for eating healthily[138] and exercise,[139] ensuring that the measurements used followed the common guidelines.

6.5.2 Implications for practice

a. Use of pharmacy public health services

Almost all respondents (~96%) in this study were pharmacy users, similar proportions also reported in the previous systematic review.[47] About two-thirds (64.1%) visited community pharmacies frequently. About two-thirds of pharmacy users (62.8%) reported that obtaining prescribed medicines was always the main reason for

pharmacy visits, with a similar proportion reporting that they sometimes buy medicines (64.0%), which is similar to findings from previous studies.[6, 47, 59, 60] In this survey, about half of respondents had sometimes sought advice about medicines and minor ailments from the community pharmacy, considerably higher than in a previous study which reported only 12%.[60] This implies that the public's awareness of the pharmacist's role in relation to minor ailments has increased.

Overall, while a quarter of respondents (26.6%) had used at least one service, actual experience of individual services was low, with about 10% or fewer of respondents who had actually used these services. Although most respondents in this study were pharmacy users, as reported above, but only a small proportion had used pharmacy public health services. Therefore, the result are not directly comparable to those found among from pharmacy users, as has been done in previous studies,[30, 47] probably was not always appropriate. This study reflects underutilisation of pharmacy public health services by the general public, as has also been demonstrated for the MUR service,[51, 101] weight management in Scotland[58] and CVD screening in Australia.[52] The multivariate analysis revealed that different subgroups had experience of using different services. For example, advice for stopping smoking was predominantly used by those of higher socioeconomic status, smokers and poor health respondents. Advice for losing weight was used by younger persons, lower socioeconomic groups, those who were overweight and those taking medicines regularly. The subgroup analysis shown in Table 6-7 indicated that normal weight respondents had sought advice for stopping smoking more than those who were overweight. This may be related to the fact that smokers tend to have a lower appetite.[25]. However, the data also shows that people with chronic health conditions seem to have used the correct

services available for them, e.g. respondents with smoking related problems were more likely to have sought advice for stopping smoking. Logistic regression analysis, controlling for confounders, found that for some of the specific services there were extremely high odds of persons with a specific need accessing the service. This suggests that pharmacy public health services are now contributing in a significant way to benefit to public health, as reported previously.[5, 28, 47]

The general public in this survey showed a positive willingness to use pharmacy public health services. However, this study used a variety of methods and the interviewer-assisted approaches may have positively influenced responses to questions regarding respondents' willingness to use a service. Over two-thirds of respondents (> 63%) would be willing to use health check services, 52.3% would seek advice for heart health and over 38.4% for losing weight. This finding may provide a positive sign to the Sefton PCT for continuing pharmacy public health services, in particular for cardiovascular screening which started in 2009.[42] Although less than quarter (~22%) would seek advice for stopping smoking and sensible drinking, this was diluted by the non-smokers and low-risk alcohol drinkers, whereas among those at risk, willingness to use services was very high. This is extremely positive for service providers and suggests a potentially high uptake for these services, making them a good core activity for pharmacy provision. Potential users for each service were summarised from the multivariate analysis, shown in Table 6-24. Females would use most of services proposed. Most services would help support the general public's health needs and some services would reach people at risk from chronic disease, for example, diabetic persons would seek advice for stopping smoking and losing weight and have blood pressure and cholesterol checked in community pharmacy. This shows

the multiple benefits from pharmacy public health services. Unexpectedly, people with diabetes and high cholesterol would not be willing to have their blood sugar and cholesterol checked in community pharmacy. This might be because they are already receiving regular follow-ups from their GP. Interestingly, all services, other than advice for stopping smoking, also potentially serve healthy people. This provides an opportunity for the community pharmacy to spearhead preventive public health provision as well as medicine supply. The problem of low service utilisation, however, emphasises the need for more appropriate promotion[30, 149] to encourage use. Promotional campaigns may therefore need to target the healthy population.

Table 6-24 Potential users for pharmacy public health services

Pharmacy public health services	Potential users
Advice for stopping smoking	younger age, higher socioeconomic, smoker, frequent pharmacy user diabetes, smoking related problems
Advice for sensible drinking	smoker, drinker, good health, frequent pharmacy user alcohol related problems
Advice for losing weight	female, overweight, good health, frequent pharmacy user diabetes, obesity
Advice for heart health	good health, frequent pharmacy user
Blood pressure check	female, good health, frequent pharmacy user hypertension, diabetes
Cholesterol check	female, drinker, good health diabetes
Blood sugar check	female, drinker, good health, frequent pharmacy user

b. Factors influencing pharmacy use

Location of the community pharmacy appeared to be the greatest concern of the general public. Results show that the highest preference was that the community pharmacy be in a local neighbourhood, followed by one at a nearby doctor's surgery. This indicates that convenience of access to the community pharmacy is of importance, also found by a previous study,[42] and is a common strength of the

community pharmacy which has been highlighted by global and national policy makers.[2, 5] The large majority of the general public appear to trust that their personal information is being kept confidential by both the pharmacist and pharmacy staff. This is in contrast to the study in Liverpool indicating that the general public was unsure whether confidentiality would be assured within community pharmacy.[6] The previous systematic review also noted that a lack of privacy was a concern for community pharmacy.[47] The general public are loyal to one particular pharmacy ($\bar{x}$=0.53, 63%), similar to the Northern Ireland study which reported that ~68% of respondents are loyal to one pharmacy,[59] with an even higher percentage of such loyalty (84.8%) found in Australia.[52] If promotional campaigns are to be developed in the future, community pharmacies should thus also promote their services locally in order to target their loyal users.

Respondents were less likely to prefer large chain pharmacies, those in supermarkets and a pharmacy near a workplace. Pharmacist's gender was not a factor influencing pharmacy use. Younger respondents were likely to prefer a pharmacy that was open in the evening and over the weekend. For respondents who were elderly, retired, persons living in less deprived areas, and frequent pharmacy users, their main concerns were about rapport with the pharmacist and staff. The general public reported they would not be happy to wait longer than 15 minutes to obtain a service, in line with the early qualitative work and the Australian study.[107] The appointment system seems acceptable to organise pharmacy visits in order to receive pharmacy services, but the appointment should be no longer than one week away and shorter if possible. This system is currently used for GP services and has been highlighted as a key obstacle to GP accessibility.[55, 149] Implementing this would perhaps encumber the

community pharmacy with the same logistic difficulty; since reducing accessibility is currently one of the notable strengths for community pharmacy. However, if pharmacy public health services are to be used increasingly in the future, this option will need to be considered. All these factors mentioned are, however, useful in particular to help improve service quality within community pharmacy.

c. Advertising techniques for pharmacy services

Clearly, appropriate campaigns are needed to promote pharmacy public health services, both nationally and locally. As suggested previously, a community pharmacy may have to create its own advertising for its services. The issue of advertising techniques was included in this study to identify the best methods of promoting public health services. The Sefton PCT has used several advertising methods in order to promote the commissioned cardiovascular screening, for example, newspaper, Valentine's day campaign and advertising within community pharmacy. However, participants in another study suggested a need for improvement and identified the preferred advertising methods as the newspaper, posters in GP surgeries and pharmacies, and leaflets in bags.[42] Findings from this study suggest promoting via health settings seems more acceptable, in particular, recommendations by GPs or other health professionals. This is supported by findings from Scotland, suggesting that the general public learned about weight management in pharmacies frequently from the pharmacists.[58] Mass media is the technique widely used to communicate with the mass population in the commercial sector[150, p.232] but it is probably not the best for pharmacy services. Findings from subgroup analysis also revealed that different techniques may be able to best target different groups. Mass media and internet-

based advertising may be of value in promoting services to the younger population, while the elderly as well as retired were less likely to favour advertising. Internet-based adverts seem to work better with the general public who are educated beyond school level. The general public living in less deprived areas are likely to want a recommendation by a doctor or other health professional only, supporting the findings from the qualitative work which found that the general public trust the GP to help with health matters. The results tend to suggest that advertising for pharmacy public health services should be done through trustworthy settings. If this is the case, inter-professional networking may need to be further developed to achieve this, as it is also important for delivering services. [45, 46, 117] Nonetheless, the public's preference still has the potential to be a barrier to collaborative work among the primary care team, as was found in Tameside and Glossop, where people at high risk of cardiovascular disease hesitated to attend the community pharmacy for secondary prevention services.[148] Appropriate advertising media/campaigns are essential to promote pharmacy public health roles and must be driven locally and nationally. There is no single technique which would effectively target the whole population and a mixed-methods strategy should be considered. This survey highlights that self-reported healthy people are likely to use pharmacy public health services, in line with the previous survey in Liverpool which reported that two-thirds of healthy respondents have ever sought health advice from community pharmacies.[6] Perhaps, messages included in promotional campaigns should emphasise that the community pharmacist can help people to stay healthy; for example, 'Keep an eye on your health at a pharmacy', rather than limiting messages to the provision of a treatment package. This

will help draw the public's attention to using the community pharmacy in a more holistic way.

d. Geodemographic status

Geodemographic analysis is relatively new in public health in recent years.[9, 81] Only one study conducted in 1996 used ACORN classification (one of a range of geodemographic tools) to differentiate pharmacy user type into ACORN segments. It found that respondents in the segment 'striving' who are more likely to live in 'inner city' with the poorest conditions were the most frequent pharmacy users.[47] In this study, MOSAIC™ classification was used since its segments are derived from multi-aspects including demographic, socioeconomic, education and health, it is used by Sefton PCT and available at no charge for academic use.[80] This survey was able to obtain postcodes matching all eleven MOSAIC™ groups but not all subtypes. However, survey data were close to Sefton's profile,[81] with 'Suburban comfort' (group C) being predominant in this survey and in the Sefton population. People within this segment tend to be independent[80] and women in this group are unlikely to do much for their health.[81] This probably relates to this group having a fairly low experience of pharmacy public health services (1-11%). 'Welfare borderline' (group F), people relying on council accommodation with a high rate of unemployment, had the highest positive views on willingness to use pharmacy public health services and advertising for pharmacy. Carlin et al[81] noted that people in this group do not agree that they need to do more about health and they are less likely to eat well. This description contrasts with this study's results as the 'Welfare borderline' (group F) had the highest experience of services for health advice. People categorised as 'Symbol of success' were less likely to seek health

services from community pharmacy. This might be influenced by their attitudes on health in that this group believe they are healthy and do not need health interventions. However, the data shows that they would be willing to use services for health checks, similar to other MOSAIC™ groups. These examples suggest that the description of MOSAIC™ classifications fit in to some extent with study findings and that geodemographic classification was useful as a narrative profile which characterises the multiple factors associated with one group. The technique provides an opportunity for use in future studies, with a larger sampling frame, which would enable detailed analysis by population group. The findings may help to target specific interventions according to MOSAIC™ group characteristics.

6.6 CHAPTER SUMMARY

Although the results show that pharmacy public health services have been used at a relatively low level by the general public in Sefton, it does show that community pharmacy can provide an extensive contribution towards supporting the public's health needs. Respondents with specific health needs, particularly around smoking, drinking and obesity, reported significantly higher usage and these may be considered core services which can encourage the public to further utilise services. The willingness to use pharmacy public health services in the future seems highly positive, in particular, services for health checks, advice for heart health and losing weight respectively. Willingness also included the well population, offering an opportunity for preventive as well as treatment services. Important factors influencing pharmacy use include loyalty, location and convenient accessibility. Appropriate promotional

campaigns are a key facilitator to help encourage service usage. Results suggest that pharmacy public health roles must be promoted wider in this locality as well as nationally. In addition, community pharmacies may also need to promote services themselves in order to target to local people. However, the results suggest that advertising should involve health organisations, e.g. NHS, GP surgeries and community pharmacy, to enhance perceptions of the trustworthiness of the advertising media. Messages included in the campaign should target healthy people. Geodemographic grouping by MOSAIC or other population characterisations are potentially useful for helping to help target services for specific groups, and it is recommended this concept should be included in further health service research.

CHAPTER 7 FOCUS GROUP EVALUATION OF SURVEY FINDINGS

7.1 INTRODUCTION

The main survey reported in Chapter 6 explored the general public's views on seven services in relation to cardiovascular disease and cardiovascular risk factors; advice for stopping smoking, sensible drinking, losing weight and heart health as well as services for health check. Briefly, the survey indicated that pharmacy public health services were infrequently used. However, the survey also showed that in the future respondents would be willing to use services, in particular health checks, if they were made available in community pharmacies but they were less likely to use services for health advice. 'Recommendation by a doctor or other health professionals' was viewed as the best advertising strategy for pharmacy services, followed by adverts promoted through venues/sites related to health. The results also demonstrated that age group and deprivation level may influence respondents' perceptions regarding pharmacy use and advertising.

As suggested by Huston and Hobson,[151] the benefit of FGDs are to help explain the consequence of survey findings. Therefore, another FGD was conducted in the final stage of this study to identify and qualify personal opinions of the general public about the survey findings, whether or not representatives of the general public agreed, and any other thoughts they had regarding this topic. This was to gain a more in-depth understanding of survey findings and strengthen the rigour of the study.

7.2 OBJECTIVE

(1) To evaluate survey findings regarding the views of the general public on pharmacy public health services.

7.3 METHODS

7.3.1 Recruitment of participants

The target sample for this FGD was respondents among the general public survey. An invitation to the FGD was enclosed with the invitation letter used for the postal survey. The letter stated the objectives and proposed a tentative schedule for the FGD. (Appendix 5-23; page 318) Survey respondents who were interested in taking part completed a participation form and returned it, together with a completed questionnaire, to the research student. In addition, an invitation was given verbally when administering questionnaires using interviewer-assisted approaches (street and telephone surveys). Invitation packs were provided to survey respondents who expressed an interest in participating. They completed a participation form and returned it to the research student, either immediately or at a later date. The research student then selected potential participants based on socioeconomic status to ensure group diversity. Postal and telephone contact was made to schedule the FGD once survey findings had been analysed and summarised. All FGD participants were offered a £25 shopping voucher in gratitude for their time spent assisting with the study, and £5 cash for local travel support.

7.3.2 Methods used in the focus group discussion

Participants who agreed to take part were provided with a summary report of survey findings a few days prior to the FGD. (Appendix 7-31; page 326) The FGD was held in a neutral location and lasted approximately one hour. Written consent was obtained prior to the meeting and the discussion was audio recorded. The research student facilitated the FGD, steering issues for discussion around the summary report of the earlier survey findings. A second facilitator was also present in the FGD to take notes.

7.3.3 Focus group topic guide

The summary report of the survey findings which was sent to participants (Appendix 7-31; page 326) was used as the FGD topic guide. The report briefly described results regarding the demographic and health status of respondents. The report also raised several key points identified from the survey findings for participants to discuss on behalf of all respondents, including use of pharmacy public health services, willingness to use and advertising techniques for pharmacy services. (Table 7-1, Appendix 7-31; page 326)

Table 7-1 Focus group topic guide

Key point 1: Use of pharmacy public health services
• Why don't people use new pharmacy services?
Key point 2: Willingness to use pharmacy public health services in the future
• What makes people unlikely to use services related to health advice?
• Why are they more willing to use health checked services?
• Why would elderly people be less willing to use pharmacy services when compare to younger groups?
• What make people in deprived areas would be more willing to use pharmacy services when compare to those living in affluent areas?
Key point 3: Advertising for pharmacy services
• Why is 'recommended by doctor' is the best way?
• How can we have a doctor to help advertising pharmacy services?
• Why do people prefer to know about pharmacy services from health places?
• If not through mass media, how can we advertise pharmacy services and target to large group of people?
• Why does advertising work better to younger group?
• How should we promote services to older people?

7.3.4 Data analysis

Discussions were transcribed verbatim and analysed thematically. NVivo version 9 was used to assist with managing the text data. A number of codes around potential themes were created e.g. lack of advertising, service fee, trusting the pharmacist and others. All codes were reviewed to ensure appropriateness of coding before creating key themes.

7.4 RESULTS

7.4.1 Participants

Thirty survey respondents returned participation forms. Two of them were aged 18-40 years old, 16 were aged 41-60 years old and 11 were over 60 years old. Only seven, aged over 40 years old, agreed to take part when contacted by telephone. Younger respondents were not willing to participate. Of those seven, only five respondents eventually participated. All were aged above 40 years and three were male. Four participants held managerial/professional occupations and one was classified as having an unskilled/manual occupation.

7.4.2 Results

Two themes were established; (i) barriers to the use of pharmacy public health services, and (ii) improving the public's awareness.

a. Barriers to the use of pharmacy public health services

The main survey revealed that pharmacy public health services were infrequently used. Participants intensively discussed this topic and identified several barriers to the use of pharmacy public health services.

(1) Confidentiality and rapport

FGD members acknowledged the presence of a consultation room within community pharmacies which provide privacy for consultation. This was in contrast to the FGD findings in the early phase of this study when FGD participants did not realise that such rooms existed. Although trust in confidentiality within community pharmacy was found to be very high in the survey, participants in this FGD believed that a system of using locum pharmacists (a situation which results in frequent changes in a community pharmacist from one to another) probably reduces confidentiality and may possibly result in their personal information not being kept confidential. This FGD also considered that locum pharmacists were unable to maintain a good rapport with pharmacy users because of the change of community pharmacists operating in different time slots, which meant that the pharmacy users did not see the same community pharmacist, thus viewed them as a stranger. This could be a further barrier for the general public not to use pharmacy public health services. A situation of fragile relationships also occurs with GP services, as was identified earlier in the previous FGD,

noting that patient-GP relationship was not strong because patients would often see a different GP at each visit.

"...Well it's not if you use the same pharmacy, but you wouldn't trust them with personal information... [P4] ...Even if you use the same pharmacy, there's not always the same pharmacist there. That's where I'm coming from when I said stranger... [P2]"

"...So many pharmacies now, it's a locum on. Every time you go in, it's a different person and you don't have a chance to build that rapport..." [P4]

(2) Community pharmacist's competency

FGD participants identified that community pharmacists were trusted particularly for medicine-related problems, OTC medicines, and minor ailments. Survey respondents were less likely to use health advice services for stopping smoking, sensible drinking, losing weight and heart health, but they were more likely to use services for health checks. FGD participants commented this may be because providing health checks involved obtaining a result using an appropriate medical device, e.g. using a sphygmomanometer to measure the blood pressure level. Therefore, people might feel more confident about the result, whereas providing health advice was perceived to need well-trained professional skills, and FGD members thought the general public may be unsure of the competency of community pharmacists to provide such advice.

"...if you look at the figures, both at the green [results for health checks] 39, 40, 40% - everything starts with the blue [results for health advice] and that drops down where the word 'advice' comes in. In other words, the other is just a test. And they don't think that they [pharmacists]'re able to give them that advice..." [P4]

(3) General practitioner service

Similar to the previous FGD and, not surprisingly, this FGD again mentioned that the GP was a trusted health professional. One of the reasons given for the infrequent use of pharmacy public health services, especially services related to cardiovascular disease, was thought to be because clients would have been followed up on a regular basis by their GP if they were already diagnosed either with a cardiovascular related disease or another chronic health problem. The general public would thus think it was not necessary for them to seek services from other settings.

"...If there's something wrong, [The doctor]'ll have you back and we'll start checking it regularly..." [P3]

(4) The general public's perception

Participants of the FGD agreed that the general public's perception about the roles of community pharmacists was another main reason for pharmacy public health services being used infrequently. People have become accustomed for most of their lifetime to the view that a community pharmacy is for medicine supply and a pharmacist is a medicine expert. FGD participants noted that would be difficult to change their attitudes.

"...I'm brought up in a village outside and there's a village doctor and there's a village chemist. You know, my parent told me that...the chemist just did the prescriptions...And it's hard to break a lifetime habit..." [P4]

Age group could also be a factor affecting pharmacy use. This FGD noted that changing attitudes in the elderly would be even more difficult because of the long-term perception regarding community pharmacist's roles and that they would rather trust the GP. In addition, many elderly people take medicines on a regular basis and

therefore have a need to visit their GP regularly, as mentioned above. This may explain why the survey demonstrated that the elderly would be less likely to use pharmacy public health services, as opposed to younger people.

"...a lot of elderly people are on some sort of medication from the GP so they automatically keep going back to the GP because they do have that trust in them and they don't have the need to go to the pharmacy because they're being so well looked after by the GP... [P1]

"...They're more open aren't they, youngsters?..." [P5]

FGD participants also suggested that middle aged people are the most active. They are likely to be busy with their work and are presumably healthy. The FGD members inferred that this age group perceive themselves as being invincible. Moreover, those who are employed may have health check-ups on a regular basis, advocated either by the company they work for or through private health insurance. Therefore, these health services might not be of interest to them.

"...It's just people think 'I'm OK, I'm fit, I'm well'..." [P3]

"...also the middle aged group...they're employed, those sort of things [health checks] are done through their work...because a lot of companies do look after those things..." [P1]

Utilisation of pharmacy public health services by the general public varied in different areas of the PCT. The survey flagged up that people in the more deprived areas would be more likely to use pharmacy services rather than those living in the more affluent areas. FGD participants felt this might be influenced by their socioeconomic status and lifestyle. People in the more affluent areas perhaps were well-educated and earned higher income, and were thus able to live healthier lives. As

a consequence, the FGD participants thought wealthier members of the public may not need to access health services as much as persons living in the more deprived areas.

"...People in the more deprived areas are not as healthy as those is the more affluent areas...maybe they don't get the better foods; they get a lot of processed foods for convenience and generally just smoke more and have a bit more pressure so they might have high blood pressure..." [P1]

(5) Lack of advertising

A lack of promotion or advertising the availability of services was a major concern discussed in the FGD, and was thought to contribute to a low awareness among the general public; this was also noted in the earlier FGDs.

"...I don't think is publicised so people don't, people just go back to the surgeries..." P1

Additionally, FGD participants suggested that sometimes information regarding pharmacy public health services was not clear, for example, whether or not the public need to make an appointment beforehand or how long it would take before an appointment could be obtained. They also expressed concern about whether they would have to pay for these services, and also what would happen if the pharmacist did detect a health problem. The FGD participants considered that such matters relating to the process of receiving services should be clarified, and better information should be provided to the general public via advertising materials to improve understanding.

"...I just have a question on this: if your blood pressure is up...you go to the pharmacy and they say, "You've got high blood pressure". What do they [community pharmacists] do with that result?..." [P5]

The FGD thus identified several important potential barriers affecting the use of pharmacy public health services, a few of which had not been identified during earlier phases of this study. Potential barriers included concerns about confidentiality and rapport, the community pharmacist's competency, and the general public's perception about roles of community pharmacy, and a lack of advertising. Moreover, preferences for using pharmacy services would also depend on the age group and deprivation level according to where members of the public live.

b. Improving the public's awareness

As reported above, a lack of advertising could potentially contribute to the infrequent use of pharmacy public health services. The survey incorporated a question set regarding advertising techniques for pharmacy services in order to identify appropriate strategies for designing a promotional campaign. Survey findings revealed that a 'recommendation by a doctor or another health professional' was the best approach for advertising. Members of the FGD explained that this was because the GP is a trustworthy health professional.

"...If my doctor says it's alright to go [to a community pharmacy]...if a doctor has the leaflet in his surgery, it must be good. Rather than the leaflet coming through the letterbox or in the newspaper or on telly..." [P3]

This implies that the general public would like GPs and community pharmacists to work together collaboratively in promoting services as well as developing systems for referral or for sign-posting patients with a high risk of disease when necessary. Inter-professional work is important[45, 46, 117] to ensure that high risk

patients receive appropriate care. This concept could also enhance trust among the general public, particularly elderly people.

Although mass media advertising was less likely to be a good technique, this FGD still recommended using it perhaps for only a short period when a new service has just been implemented.

"...If it is on TV it costs an absolute fortune, but just over a couple of months that it's on in every advert, between every sort of programme and people are bombarded with it, like the stroke, and people do remember it. You don't see it on so much now, but you do remember it..." [P1]

Quality of advertising materials was also noted to be important. FGD participants suggested that messages used in adverts should be interesting, simple and concise for the general public to understand easily.

"...During Christmas time they always have the drink driving adverts. I think it should be something like that [the drink driving adverts] but short and sharp..." [P1]

Also, as reported earlier, members of the FGD felt that information around the process of receiving services was inadequate e.g. if they would need an appointment, how long they would have to wait for an appointment, if they would have to pay, what the system was for sign-posting if they were identified to be at risk, etc. It was considered that such information should all be included in the adverting messages. FGD participants also agreed that the inclusion of the NHS logo on advertising materials would be of benefit in improving the trust of the general public.

7.5 DISCUSSION

7.5.1 Strengths and limitations

This FGD was conducted among representatives of survey respondents to evaluate the survey findings reported in Chapter 6. This provided an important opportunity for survey respondents involved in the study to hear and react to study results. Additionally, FGD participants were able to discuss and help explain many of the findings on behalf of other respondents, and the general public.[151] This study thus truly reflects on the opinions of members of the general public since members of the public were involved in all phases of the study. FGD, as other qualitative research, usually limits ability to generalise findings to national population because of the small group of participants.[103] This FGD lacked participation from the younger respondents (aged 18-40 years old) and people from the lower socioeconomic status who may have had different views. Selecting topics for discussion and preparing participants should be done carefully. Key points for discussion with the general public should not be too complex to induce good group dynamics and effective discussion. Because of this, the FGD at this stage was unable to cover all topics from the survey results. The summary report (Appendix 7-31; page 326) sent to participants was based on 905 completed questionnaires, although another 10 questionnaires were later returned which increased the total number of respondents to 915, as reported in Chapter 6. However, the additional data did not affect trends of main findings, therefore, these FGD findings are usable.

7.5.2 Comparison with the previous focus group findings and other studies

The three FGDs were conducted in the earlier phase of this study to obtain background information regarding pharmacy use (see results in Table 3-4). The later FGD described and discussed here was conducted at the end of the study to evaluate survey findings. Thus they were conducted at different times (in 2009 and 2011) and for different purposes. During these years, several pharmacy public health services had been developed and promoted by the Sefton PCT, e.g. cardiovascular screening and an alcohol service.[42] This may have had some influence on the perception of participants towards the provision of community pharmacy services. However, some findings of both phases overlapped and new concerns were added.

Concerns about confidentiality within community pharmacy differed from earlier FGDs and published studies It has been reported that ~80% of community pharmacies in England provide MURs,[106] presumably therefore had a consultation area as it is a minimum requirement for this service.[5] A survey undertaken in Liverpool identified that the general public wondered if their personal information would be kept confidential, especially when they were known to pharmacy staff.[6] The Patient Association survey also underlined that privacy and confidentiality were important.[55] However, these issues did not emerge in the earlier FGDs in this study, instead participants expressed their displeasure at the common practice of staff calling out patient's details for identification purposes. This later FGD, conducted at the final stage of the study, criticised the practice of using locum pharmacists which could result in a loss of confidentiality of their personal information, as well as reducing the rapport with the pharmacist. Although the survey, reported in Chapter 6, demonstrated that the majority of the general public trust confidentiality within community pharmacy, it

is very important that community pharmacists should ensure that confidentiality exists. Community pharmacists should work professionally and increase use of their consulting room to enhance privacy.[6, 46, 47, 55]

Participants in this FGD were unsure about community pharmacists' competency, particularly in the provision of health advice, and this was also noted as a key barrier for pharmacy use. Perceiving pharmacists as a medicine expert is what the general public have lived with for a lifetime and this may influence this belief. The previous FGD also found this, and it was also separately raised in interviews with GP's. Bryant et al[114] reported that GPs in New Zealand did not accept community pharmacists' clinical roles. The survey conducted in West Sussex, England found that 7% of GP visits were viewed by GPs as unnecessary which potentially could be managed at a community pharmacy.[54] This indicates that the promotion of services is essential in order to build new knowledge among both the general public and health professionals regarding pharmacist's public health roles.

This FGD highlighted the value the general public place on GPs. Not only are the GP's attitudes to pharmacist's competency important, but also GPs are recognised by the general public to be essential for providing regular follow-up for patients with chronic disease, which could be an important barrier to utilising the community pharmacy for such services. Patients, consequently, may never consider that these services are provided at the community pharmacy, or are a valid alternative to that of the GP. However, regular follow-up by GPs is more likely to be provided for people already diagnosed, while community pharmacist services are available for both ill and healthy people.

A lack of advertising was identified as a crucial barrier for pharmacy use, both in this FGD and the earlier ones,[149] as well as being suggested by other studies.[6, 47, 52] This reiterates that advertising for pharmacy services has been neglected, and is indeed necessary. Messages included in advertising should cover comprehensive information but be simple and concise; what services are provided, when it starts and how to receive it. The survey, reported in Chapter 6, revealed 'recommendation by doctor or other health professionals' was the most preferred advertising technique. As discussed before, this needs strong collaborative work between GPs and community pharmacists, as this could also result in attracting only unwell people when it aims to provide services to all members of the general public. Mass media advertising, although considered by survey respondents to be less acceptable, might be useful as it is widely used to target mass populations in marketing. [150, p.232] Perhaps, using it in the early phase when services are developing could help to draw the attention of the general public and improve their awareness, as participants in this FGD suggested. In addition, advertising materials should include a logo of a trustworthy organisation, e.g. the NHS logo, since both the survey and the FGD members indicated that people place great trust in information available from health settings.

7.6 CHAPTER SUMMARY

This FGD reiterates that pharmacy public health services and community pharmacist's competency in providing such services lack advertising. The general public, therefore, are not aware of them. The FGD also adds further concern about the use of locum pharmacists who may not retain confidentiality of personal information, as well as lack of rapport with the locum pharmacist. Appropriate advertising can help promote pharmacy public health services, thus improving the public's awareness. GPs and community pharmacists, as well as other health professionals, need to work collaboratively together with other health organisations like the NHS because people trust information provided via health settings.

CHAPTER 8 GENERAL DISCUSSION AND CONCLUSION

As described in Chapter 1, the provision of public health services by community pharmacies has become of great interest and value to public health in many countries worldwide.[1, 2] Strong evidence has been amassed[3, 4, 31] to show the potential benefit and the NHS in England has developed a distinctive model that encourages community pharmacists to provide public health services beyond medicine supply.[5] Two systematic reviews similarly reported that there is an expectation that community pharmacies do *not* provide such services,[30, 47] however, the findings were based on pharmacy users' opinions. Only a few studies conducted in England have explored the views of the general public, despite their importance, and these studies reported that the general public lacked an awareness of the public health roles of pharmacists.[6, 47, 60] This current study was undertaken in response to the paucity of research in this area. A series of studies involving mixed-methods research, comprehensive and complex, was designed (Figure 2-2) and undertaken within the boundary of one PCT, NHS Sefton, to investigate societal perspectives towards a range of pharmacy public health services, which it is hoped will be of great value to policy decision making.

8.1 GENERAL DISCUSSION

8.1.1 Methodological issues

This study began with a qualitative phase (Chapter 3) focusing on the exploration of views of key stakeholders on a range of pharmacy public health services related to cardiovascular risk. Focus group discussions were undertaken with the general public, followed by semi-structured interviews conducted with health care providers, community pharmacists, GPs and other stakeholders. This was the first study to bring together the views of the four key stakeholder groups on factors influencing the utilisation of pharmacy public health services, linked with perceptions of the general public. The qualitative findings, presented internationally and currently in press,[149] provided a robust background for developing a questionnaire to generate quantitative data on these same issues. Only one previous study, by Rapport et al[46] had assembled views of multiple key parties on an aspect of community pharmacy practice, patient-centred professionalism, but it did not include GPs.

Once the questionnaire had been developed, it was tested by administering it to members of the general public prior to the main survey in order to ensure reliability. A cognitive interview was also used to assess content validity of questionnaire, as reported in Chapter 4. This technique was originally developed in psychology and other methodologists have applied it to the validation of questionnaires,[90-93] but it has not been widely used in pharmacy practice research. This study shows that cognitive interviewing is a potentially useful technique in order to identify problems about the content of questionnaires.

The idea of using mixed methods to gather information from the general population has been suggested by researchers in many countries[65, 71-73] but, at the same time, researchers recommend not automatically assuming equivalence with multiple modes.[72] For the main survey in this study, therefore, eight separate survey modes were designed to collect data with the anticipation of achieving diversity among the population and to increase the chance of good response rates. In addition, the efficiency of the eight survey modes were assessed and compared against each other on methodological and financial outcomes, as this has never been carried out elsewhere for this topic. The two main approaches used were interviewer-assisted and self-completion. Response rates for self-completion were fairly low (5.1-26.5%), but higher for interviewer-assisted approaches (28.5-34.5%), hence there is still a possibility of non-responder bias.[62] However, this is recognised to be a common problem for health surveys.[65] The response rates obtained in this study were also in line with previous reports, indicating that interviewer-assisted approaches could achieve higher response rates than self-completion approaches.[61] (See Table 1-3) The cost-effectiveness analysis suggested that the questionnaire dropped off at public/private organisation survey (Drop-off OGN) was the most cost-effective mode, but was limited by the time taken. The street survey was considered the best alternative mode, because achieving the target sample size was completed in a shorter period. Since the sampling frame used for each survey mode was disparate as explained in Chapter 5, this may have incurred some methodological bias regarding different population characteristics of each sampling frame. However, on the other hand, the study demonstrated that using a mixed-mode survey can cover the full range of demographic diversity, because each survey mode was able to approach different

groups. For example, the street survey was more likely to reach younger ages, and the self-completion approach was more likely to reach more deprived areas. Interviewer-assisted approaches may have slightly influenced the proportion of positive answers when asking for opinions directly related to pharmacy, e.g. willingness to use services and factors influencing pharmacy use. However, the interviewer-assisted surveys did not really affect responses to questions eliciting behaviours of using pharmacy or questions indirectly related to pharmacy (e.g. advertising). This suggests that combing data from mixed-modes survey can be possible. The advantages and disadvantages of all the survey modes used in this study were summarised in Chapter 5, Table 5-20.

Overall, as reported in Chapter 6, the use of multiple methods resulted in survey data which was fairly well representative of Sefton's population, in terms of gender, age, ethnicity, education and work status.[40, 85] Although the study was relatively large, generalisation and extrapolation to the national population may be limited since the study was conducted in one local area. The target sample size was calculated as 1,200. However, 1,200 was an inflated number to enhance the power of estimation.[97, p.397] While, the actual minimal size of sample calculated based on a standard error of 0.020 was 1,063. The survey was able to obtain 915 fully completed questionnaires, ~86% (SE) of the actual target. This had no significant effect on the standard error, since the estimated new SE was the same at 0.022. Therefore, the findings are still within acceptable confidence level of 95%.

As has been suggested by Huston and Hobson[151] further benefit can be gained from using FGD to help explain survey findings. Therefore, a further FGD was included in the final stage of the study to identify and qualify personal opinions in response to the quantitative survey findings. This provided an opportunity for the

public to comment on, agree or disagree with the results, and indicate their reasons for this. This provided an important opportunity for survey respondents involved in the study to learn of study results. A few days before the meeting, FGD participants were sent a summary report of survey findings provided with simple bar charts, see Appendix 7-31; page 326. During the meeting, FGD participants were enthusiastic in discussing and helping to explain the findings on behalf of other respondents.[151] This suggests that more use should be made of this method in research to include the views of survey respondents in clarifying findings.

The concept of geodemographic segmentation was also applied in this study since it has become of great value in health service research.[10, 75] Only one previous study on this topic was found; this was conducted in 1996 and used the ACORN™ classification in pharmacy users.[2] In the present study, the MOSAIC™ classification was used since its segments are derived from multi-aspects including demographic, socioeconomic, education and health. It is used by Sefton PCT and is available at no charge for academic use.[80] The survey included respondents' postcodes matching all eleven MOSAIC™ groups but not all sub-types. However, subdividing survey respondents into the broad range of MOSAIC™ groups resulted in a relatively small sample size per group and offered a limited ability to perform subgroup analysis. However, the technique provides an interesting novel approach for use in future studies with a larger sampling frame, which would enable detailed analysis by population group. The limited analysis conducted here suggests that findings may help to target specific pharmacy interventions according to MOSAIC™ group characteristics.

8.1.2 Strengths and limitations

This study was comprehensively developed based on information gathered from the general public and relevant published literature[5, 6, 47] and it is considered that the findings represent the general public's (societal) perspective, rather than the views only of service users. The questionnaire included a range of standard tools to measure lifestyle aspects, such as AUDIT-C algorithm,[130, 136] BMI calculation,[137] standard recommendation for eating healthily[138] and exercise,[139] ensuring that the measurements used followed common public health guidelines. The survey was administered by multiple survey modes which had the ability to reach the diverse demographic of Sefton residents but there was a phenomenon of selection bias when using different sampling frames for each survey mode. In addition, non-respondent bias possibly occurred through the low response rate. The interviewer-assisted approach may have induced positive views on questions eliciting respondent's opinions, and researchers need to be aware of this possibility. Data gathered by multiple survey modes may induce possibility of some methodological bias and selection bias since sampling frames and techniques used for each survey mode were different. Although the survey obtained an adequate sample size to investigate the views of the general public, it was inadequate to generalise to the national population or to perform subgroup analysis using geodemographic variables. Further research is needed to fill this gap. Cost-effectiveness analysis was performed based on the circumstances of this present study, which will vary or change when conducted elsewhere.

8.1.3 Key findings

The qualitative findings reported in Chapter 3 revealed that community pharmacies are currently regarded as a potential source of some public health services, with accessibility and good customer-pharmacist relationships seen as the main strengths. The survey found that almost all respondents in this study were pharmacy users. The main reason for pharmacy visits was to obtain prescribed medicines and sometimes to buy medicines, which is similar to findings from previous studies.[6, 59, 60] However, the actual experience of the seven pharmacy public health services (health advice - stopping smoking, sensible drinking, losing weight and heart health and health checks – blood pressure, cholesterol and blood sugar) included in the survey was low. This reflects under-utilisation of pharmacy public health services by the general public, as has also been demonstrated for the MUR service.[101] However, the general public in this survey showed a positive willingness to use pharmacy public health services, partly reflecting their lack of awareness that such services existed. It should be noted, however, that this study used a variety of methods for collecting data, and the interviewer-assisted approaches may have positively influenced responses to questions regarding respondents' willingness to use a service. In the FGD conducted at the end of the study, participants explained that they were unsure about community pharmacists' competency, particularly in providing health advice. This was also found in the initial FGDs and it was raised separately in interviews with GPs. This may be influenced by people's perceptions of pharmacists as drug experts, perceptions that they have lived with for a lifetime, since pharmacists started to concentrate on dispensing medicines with the introduction of the NHS in 1948,[28] and this was also noted as a key barrier for pharmacy use. FGD participants suggested that promotion of

services is essential to build new knowledge among both the general public and health professionals regarding the extension of pharmacist's public health roles.

The multivariate analysis of survey responses revealed that different subgroups had experience of using different pharmacy services. The data also show that people with chronic health conditions seem to have used the appropriate services available to them, e.g. respondents with smoking-related problems were more likely to have sought advice for stopping smoking. This suggests that pharmacy public health services are contributing in a significant way to benefit to public health, as has been reported previously.[4, 5, 31, 47] Although less than quarter (~22%) would use advice for stopping smoking and sensible drinking, this was diluted by the non-smokers and low-risk alcohol drinkers, whereas among those at risk, willingness to use services was very high. This is extremely positive for service providers, and suggests potentially high uptake for these services, making them a good core activity for pharmacy provision. Such services would need to cross the social strata since drinking related problems occur across wealth gradients.[152] Table 6-24 demonstrates that most services would help support the general public's health needs and some services would reach people at risk from chronic disease; for example, diabetic persons would seek advice for stopping smoking and losing weight and have blood pressure and cholesterol checked in the community pharmacy. This shows that there are multiple benefits from pharmacy public health services. Interestingly, all services also potentially serve people who may perceive themselves as healthy. There is thus an opportunity to build on pharmacy's strengths of accessibility and good customer-pharmacist relationships identified in early FGDs and for community pharmacy to spearhead preventive public health provision as well as medicine supply.

The qualitative study reported in Chapter 3 identified that privacy and confidentiality in pharmacies could be crucial obstacles to pharmacy public health service utilisation. In contrast, the quantitative survey found that the large majority of the general public appear to trust that their personal information is being kept confidential by both pharmacists and pharmacy staff. Talking to a pharmacist in a private room was not a significant factor in preferences for pharmacy use (Chapter 6). This is in contrast to the earlier study in Liverpool which found that the general public were concerned about whether their personal information would be kept confidential, especially when they were personally known to pharmacy staff.[6] This issue did not emerge in the early FGDs in this study, instead participants expressed their displeasure at the common practice of staff calling out patient's details for identification purposes.[149] The later FGD additionally criticised the practice of using locum pharmacists which could result in a loss of confidentiality of their personal information, as well as rapport with the pharmacist. Although, the survey demonstrated high trust in confidentiality within community pharmacy, it is very important that community pharmacists should increase the use of their consulting room to enhance privacy.[6, 46, 47, 55, 129, 149]

A need for appropriate promotional campaigns was suggested by both the initial qualitative study and the later FGD to promote pharmacy public health services and to improve awareness of the general public and other health professionals. Findings from the survey suggested promoting via health settings seems more acceptable, in particular, recommendations by GPs or other health professionals. This may need strong collaborative work between GPs and community pharmacists, but may also result in attracting only unwell people, not the whole general public. Mass

media advertising, although less acceptable to survey respondents, might be useful as it is widely used in order to target mass populations in marketing.[150, p.232] FGD participants agreed that advertising materials should include a logo of a trustworthy organisation, e.g. the NHS logo, since people place great trust in information available from health settings. Improved networking and collaboration with local health professionals is needed to enhance their confidence in pharmacists' service delivery, helping to encourage greater general awareness and thus support. This system is well-established in the Netherlands[153] where, to an extent, good relationships exist between pharmacists and GPs. However, in England pharmacist-GP relationships are not universally strong. The Patient Association survey also found greater willingness to use pharmacy public health services if they were well integrated with GP services,[55] but previous research has found that GPs have not supported the provision of MURs, an NHS-funded pharmacy service.[45] This might be due to GPs' perceptions of pharmacist's clinical or public health roles, which is limited,[154] as was also found in New Zealand[114] and the US.[121] Bradley et al[154] have recently proposed a model to strengthen pharmacist-GP collaborative work and suggested this work should take account of the importance of trust, communication between the two professionals, professional respect, and 'knowing' each other.

The application of a geodemographic methodology to the survey offered a limited ability to perform subgroup analysis since, once subdivided into the broad range of MOSAIC™ groups, the sample size per group was relatively small. However, the survey data were close to Sefton's profile,[81] with 'Suburban comfort' (group C) predominating in this survey (37.6%), followed by 'Symbol of Success' (group A, 15.7%) and 'Ties of community' (group D, 12.9%). Group A was the least deprived while group

D was the most deprived among these three groups.[81] Respondents from the group 'Suburban comfort' and 'Ties of community' were likely to have used all pharmacy public health services (Figure 6-9). This implies that pharmacy public health services were used more in the more deprived areas, however, it might be due to the impact of advertising of CVD screening services which commenced in the most deprived areas of Sefton in 2009.[42] The provision of pharmacy public health services, in particular health checks, seem acceptable to the three dominant MOSAIC™ groups since the willingness to use these services was highly positive (Figure 6-10). This information could help the local health authority to design pharmacy public health services that the public would use. As mentioned in Chapter 1, geodemographic segmentation can help target services and communicate with people.[9, 10] This present study also demonstrated that 'recommendation by health professionals or family/friends' were likely to be the most effective choices for advertising. Although no distinctive association between advertising and geodemographic subgroup could be identified, people classed as 'Ties of community' were more likely to seek information from posters/leaflets, mass media and internet-based advertising. Despite an inadequate sample size, these examples show some benefits of MOSAIC™ classifications for pharmacy practice research, in particular for service design and promotion. Sefton PCT may need to differentiate geodemographic segments dominated in each small area, as has been done in other PCTs,[9] and understand their characteristics to make better decisions on choosing service provision.

8.2 IMPLICATIONS FOR RESEARCH AND PRACTICE

Mixed-methods research, a mixture of using both qualitative and quantitative methods,[88] is able to thoroughly engage the societal perspectives in order to inform policy. The questionnaire dropped off at public/private organisation survey (Drop-off OGN) was the cost-effective mode that could be considered by other researchers in future surveys. The street survey could be considered for use in surveys where results are required quickly, because achievement of the target sample size was completed in a shorter period. However, researchers should also seek to address concerns of social desirability bias which might be influenced by an interviewer administering the survey.[61, 62] Mixed-modes surveys could also be considered for gathering data from the general public. However, evaluation is necessary to see whether the data obtained by each mode are similar prior to combining them since the equivalence of results is uncertain.[72] Geodemographic grouping by MOSAIC™ or other population characterisations is potentially useful for helping target services for specific groups, as suggested by previous reports,[10, 75] and it is recommended this should be included in further health service research.

The DoH of England has prioritised a broad range of public health issues based on previous robust evidence[3] where community pharmacy could have a significant contribution.[5] In commissioning enhanced services, PCTs or their successor organisations can choose to provide any public health services, either in one of the areas suggested by the DoH or based on local health problems, to support their population's health. Sefton PCT has chosen to commission cardiovascular screening in 2009 targeting the high deprivation areas and alcohol screening in 2011.[42, 155]

The present study focused on seven pharmacy public health services related to CVD, thus findings can be fed back on this local policy from the public's perspective. Findings show that pharmacy public health services have been used at a relatively low level by the general public in Sefton. This situation also occurs with novel services in many countries.[58, 101, 119, 120] However, it also shows that community pharmacy can make an extensive contribution towards supporting the public's health needs. Persons with specific health needs, particularly those around smoking, drinking and obesity, reported significantly higher usage of pharmacy services in this study and these services may be considered core services which can encourage the public to further utilise other services. This is in line with the previous systematic review[3] and the White Paper.[5] The willingness to use pharmacy public health services in the future also seems highly positive, in particular, services for health checks, advice for heart health and losing weight, similar to the findings from the Australian survey.[52] This willingness to use services importantly included the population perceiving themselves as healthy, offering an opportunity for preventive services as well as treatment services. Importantly, appropriate promotional campaigns are a key facilitator to help encourage service usage, as shown by all qualitative findings in this study and other reports.[6, 47, 52, 149] Results suggest that pharmacy public health roles must be more widely promoted in this locality. For example, Sefton PCT had promoted cardiovascular screening by several advertising modes including newspaper and a Valentine's day campaign.[42] As was seen from the results of this current study (Table 6-12), the numbers of people seeking advice for heart health and having blood pressure and cholesterol checked in pharmacies was higher in the more deprived areas, where CVD screening services have been commissioned.[42] Additionally, 'Suburban comfort' and

'Ties of community', ranked as the more deprived groups,[81] were more likely to have used all pharmacy public health services (Figure 6-9). Possibly, the promotion campaign used by Sefton PCT had impacted on the public's recognition and service use, although this was by no means universal. This corroborates the suggestion that health organisations need to identify the best way to promote such services in their areas. In addition, promotional campaigns advocated by health authorities or other relevant bodies, both local and national, could involve mass-media advertising, e.g. TV adverts, to provide more widespread education of the public.[150, p.232] Moreover, community pharmacies also need to promote services themselves and not rely on national advertising materials to target local people. If pharmacy public health services are to become more acceptable in future, collaborative work between GPs and community pharmacists may be important, as has been found elsewhere,[18, 45, 117, 153] to develop a comprehensive care system. The model of collaboration between two professionals proposed by Bradley et al[154] concerning trust, communication, respect, and 'knowing' each other should be of use in strengthening pharmacist-GP collaboration which PCTs need to consider. The results also suggest that advertising should involve health organisations, e.g. NHS, GP surgery, and community pharmacy to enhance perceptions of the trustworthiness of the advertising media. Information about procedures involved in the services need to be included in public media advertising so that the general public can be better informed about the community pharmacy's provision.

Recent policy changes are likely to reduce NHS marketing activities. Therefore, it is important that community pharmacy develops its own advertising of services because people are often loyal to one particular pharmacy. This current study

highlighted that members of the public that self-report to be healthy are also likely to use pharmacy public health services. Messages included in promotional campaigns could thus emphasise that the community pharmacist can help people to stay healthy; for example 'Keep an eye on your health at a pharmacy', rather than limiting messages to the provision of a treatment package. This will help draw the public's attention to using the community pharmacy in a more holistic way.

The views of community pharmacists themselves are also important as they are the person who provides the services. This present study also explored their perspective towards pharmacy public health services using semi-structured interviews. Community pharmacists expressed confidence in their competence to deliver public health services, in line with the previous systematic review.[30] A crucial barrier to the pharmacist's public health role was the dispensary workload which limited the time pharmacists had available to provide such services. Pharmacists' dispensing role increased when the NHS was founded in 1948 and has since become a major task of community pharmacy.[28] Not only the general public but also pharmacists have this embedded perception that dispensing and other medicine-related services are the principle tasks for community pharmacy.[30, 43, 44] This is probably because of the desire to stick to familiar tasks, not engage with the public, and failure to be proactive, as was found in early interviews and in other countries.[30, 114] This perception among community pharmacists may reflect pharmacy educational organisation in England. The undergraduate pharmacy programme may need modification by including the concepts of patient-centred professionalism and public health roles into the course,[46] as is successfully integrated in pharmacy curriculum in other countries.[37, 123] However,

modification of the pharmacy programme is a long-term strategy which is being addressed in the UK by the Modernising Pharmacy Careers programme.[122]

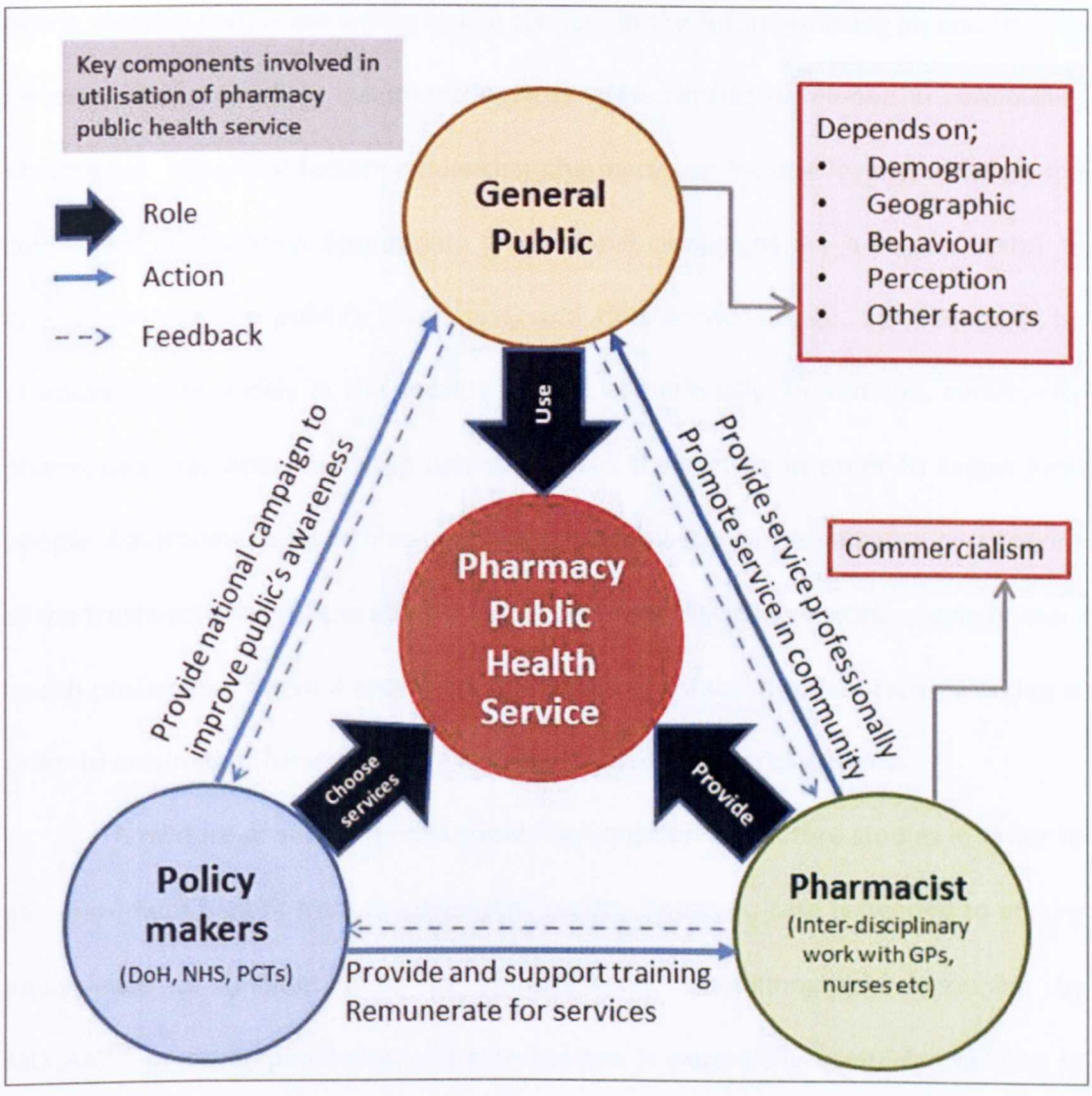
While GPs were identified as key professionals to support and promote services to potential users, including the advertising of pharmacy services, GP's unfortunately appear to have sceptical views on the clinical role of pharmacists. This has been noted in early interviews in this and in other studies.[45, 117, 121] In England there are training packages available for pharmacists, produced by the Centre or Pharmacy Postgraduate Education,[124] plus local training courses aimed at enhancing pharmacist's abilities to carry out this role. In future, PCTs or other local health organisations may need to organise training sessions for both pharmacists and GPs to learn together about collaborative work for public health provision. This idea could ensure competency of community pharmacy and concurrently educate GPs about pharmacy public health roles. The proposed concept of pharmacist-GP learning together would strengthen trust, respect and the relationship between the two professionals, as suggested by Bradley et al.[154]

Although remuneration schemes have been established for some pharmacy services in England,[27] some community pharmacists complained in the interviews in this current study that it was still not reasonable as in their work they feel a need to balance professionalism with personal income/earnings.[3, 45, 46] This concern needs to mirror policy makers both at local and national levels. At present, national policies for the UK are in a transitional state due to the government instigated changes which have taken place since 2010. Within the DoH, the new white paper *'Equity and Excellence: Liberating the NHS'* has been implemented, intending to re-organise the NHS.[112] Regarding the new policies for the health services, it is likely that PCTs (the current

local health organisation) will be terminated and commissioning transferred to the 'NHS Commissioning Board' (NHSCB) since the current government has identified the need to modernise the NHS to improve patient's outcome.[112, 156] The NHSCB is due to take up its role in April 2013. It seems the clinical commissioning groups, mainly involving GPs, are also to be responsible for managing health services locally.[156] In the policy document *'Securing Excellence in Commissioning Primary Care'* launched in June 2012[157] community pharmacy is identified as a key primary care professional, but their roles regarding optimal use of medicines have been emphasised Although pharmacy public health tasks have been mentioned, it is unclear how these services would be commissioned – this means the direction of both the pharmacy service scheme and its remuneration is currently unknown. If pharmacy public health provision is to be of benefit and well accepted by all parties, the government should then consider confirming this policy agenda. Pharmaceutical bodies have the responsibility to urge the government in relation to pharmacy public health roles with the support of research evidence, such as this present study. If this is not done, then there is the risk that community pharmacy practice could take a step backwards to become, once again, 'invisible' in the primary health system as happened in 1948.[28]

The conceptual framework developed at the beginning of this current study had summarised key components involved in the utilisation of pharmacy public health services (Figure 1-4). This has now been revised according to the outcome results of the study (Figure 8-1). The revised framework demonstrates that the three parties have their own roles and actions to take in order to enhance service utilisation. Also, all parties need to have an opportunity to feedback to each other in order to improve services.

Figure 8-1 Revised conceptual framework



8.3 CONCLUSION

The qualitative findings confirm that community pharmacies in Sefton are currently regarded as a potential source of some public health services, with accessibility and good customer-pharmacist relationships seen as their main strengths. The survey results show that pharmacy public health services have been used, but at a low level by the general public. However, survey results show that community

pharmacy can make an extensive contribution towards supporting public health's needs. Healthy people are willing to use services in the future, offering an opportunity for preventive as well as treatment services to be further developed in community pharmacies. Important factors influencing pharmacy use include loyalty, location and convenient accessibility. Appropriate promotional campaigns are a key facilitator to help encourage the public's awareness, and thus service usage. Services must be promoted more widely in this locality as well as nationally. In addition, community pharmacies may also need to promote services themselves in order to target local people. Advertising could involve health organisations in order to enhance perceptions of the trustworthiness of the advertising media. Inter-disciplinary work among primary health professionals is vital and effort is required to establish collaborative working in order to ensure that comprehensive care is provided to high risk patients.

A mixture of survey modes should be considered in future studies in order to gain maximum benefit from the divergent modes, however, care is needed to ensure equivalence of findings prior to interpretation. Geodemographic grouping by MOSAIC^{TM} or other population characterisations is potentially useful for helping to help target services for specific groups, and it is recommended this be included in further health service research.

8.4 SUGGESTIONS FOR FURTHER RESEARCH

The new health policy 'Equity and Excellence: Liberating the NHS' suggests 'putting patients and public first'. This indicates the government has clear vision in relation to views of both actual (patients) and potential service users (the public) when deriving service provision. Further research should, therefore, investigate their views and focus on other public health issues. The findings will be useful in policy decision making. However, difficulties may be faced in gathering information from the general public in relation to achieving acceptable response rates and obtaining a good mix of demographics when data are generated through survey research. Multiple survey modes (street surveys and questionnaires dropped-off at public/private organisations) should be used in order to create the best possibility to approach the general public in many environments. This survey represents Sefton's population fairly well in many aspects and indicates a current low use of pharmacy public health services related to CVDs, but it may not be appropriate to generalise to the whole of England. Further study will be needed to gather more views of the general public in other regions of this country. Geodemographic segmentation (e.g. MOSAIC^{TM} or others) provides an interesting novel approach for use in future pharmacy practice research with a larger sampling frame, which would enable detailed analysis by population group. Findings will help design services and target interventions to specific groups according to their geodemographic characteristics. The concept of pharmacist-GP learning together may be of value to improve the quality of public health provision. This idea needs to be piloted and outcomes evaluated to identify whether it may have some impact on inter-disciplinary work.

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APPENDICES

Appendix 3-1 Advertisement message

Looking for your **IDEAS** about **PHARMACY**

We are looking for local people in Sefton who are **NOT** health professionals to take part in a group discussion about local pharmacies.

All participants will be offered a **£25 voucher** for high street shops or a supermarket PLUS **£5 for your travel costs**.

If you are interested in taking part, please read the enclosed information pack.

If you are not interested, please pass this pack to someone else who may like to take part.

If you have any questions, please contact;

Kritsanee Saramunee

Phone: 0151 231 2070

Email: k.saramunee@2009.ljmu.ac.uk

This study has been approved by LJMU Research Ethics Committee

Appendix 3-2 Invitation letter for focus group discussion

Faculty of Science

30 October 2009

Dear Sir/Madam,

I am a researcher in the School of Pharmacy & Biomolecular Sciences at Liverpool John Moores University. I am undertaking a study entitled

'General Public Views on Community Pharmacy Services in Public Health'

I would like to invite you to be a part of a group discussion which aims to explore your views on community pharmacy and public health services. The discussion will take approximately one hour and be held at Committee room, Crosby Town Hall.

I enclose an information pack (including participant information sheet, participation form, venue details and freepost envelope) for you to read through. For this participation, I will offer **£25 voucher** for high street shops or a supermarket plus **£5 for your travel costs**.

If you are interested, please identify the job code that fits you best from the job code list. If you are currently unemployed or retired, please choose the job code for the most appropriate job (i.e. your main career). If you are a student, please use 0 (zero) as your job code and give details of your subject area. Then fill in the participation form included in this letter and post it back in the freepost envelope to the research team by **4th November 2009**.

If you have any questions, please contact **Kritsanee Saramunee**, phone 0151 231 2070 or email k.saramunee@2009.ljmu.ac.uk or if you prefer you can contact my supervisor **Professor Janet Krska**, phone 0151 231 2404 or email j.krska@ljmu.ac.uk

Thank you in advance.

Yours sincerely,

K. Saramunee

Kritsanee Saramunee

SCHOOL OF PHARMACY AND BIOMOLECULAR SCIENCES
James Parsons Building, Byrom Street, Liverpool, L3 3AF
School Website: http://www.ljmu.ac.uk/phc/

This study has been approved by LJMU Research Ethics Committee

Appendix 3-3 Participant information sheet for focus group discussion

LIVERPOOL JOHN MOORES UNIVERSITY PARTICIPANT INFORMATION SHEET FOR A GROUP DISCUSSION

Project Title: General Public Views on Community Pharmacy Services in Public Health
Researcher: Kritsanee Saramunee, LJMU

You are being invited to take part in an important research study concerning the role of the community pharmacy in improving public health. However, before you decide if you wish to participate, it is important that you understand why this research is being done and what you will need to do if you agree to take part. Please take a few moments to read the following information.

1. What is the purpose of the study?
This study is looking at the views of people like you to find out how to help design new pharmacy services.

2. Do I have to take part?
No. It is up to you to decide whether or not you wish to take part.

3. What will happen to me if I take part?
If you agree to be in this study, we will ask you to come to a group discussion. The discussion will be recorded and last about an hour. We will ask you to sign a consent form before starting the discussion. Any personal data you give us will be destroyed immediately after the group discussion is completed. We might print some of what you say in a report but nobody will know it was you who said it.

4. Are there any risks / benefits involved?
There are no risks in taking part but you will be offered a **£25 voucher** for high street shops or Tesco plus **£5 for your travel costs**.

5. Who will know what I have said?
Only the researchers and the others in a group discussion will know what you have said. It will not be possible for anyone else to know who made the comments.

6. What should I do if I change my mind?
If it is before a group discussion, please contact the researcher.
If during a group discussion, please tell the researcher that you have changed your mind and your answers will be taken out.
If it is after a group discussion, it will not be possible to take out your answer. However, nobody will be able to identify you. All personal data will be destroyed after the group discussion has been completed.

Who should I contact if I have any question?	Who should I contact if I have a problem?
Kritsanee Saramunee Phone 0151 231 2070 Email k.saramunee@2009.ljmu.ac.uk	**Professor Janet Krska** Phone 0151 231 2404 Email j.krska@ljmu.ac.uk

This study has been approved by LJMU Research Ethics Committee

Appendix 3-4 Participation form for focus group discussion

Participation Form

Please give us your contact details so we can make arrangements for the group discussion

TITLE	☐ Mr.	☐ Mrs.	☐ Miss	☐ Other.....
FULL NAME				
CONTACT ADDRESS			**POST CODE**	☐☐☐☐ ☐☐☐
TELEPHONE		**EMAIL**		

JOB CODE	☐	**How to choose your job code?** Please see the **LIST OF JOB CODES**, and choose the code that best fit you. See examples below	
	If you are a student, please specify your subject area	**Ex 1**	If you are a *bus driver*, then fill *8* in the square.
		Ex 2	If you are currently *retired or unemployed*, then choose the code that best fits with your *previous career*.
		Ex 3	If you are a *student*, then fill *0* in the square and specify your subject area on the dotted lines.

DATE AVAILABLE	Please tell us when you would be available (Please tick all that are suitable)			
	☐ Thu 29 Oct 2009	☐ morning	☐ afternoon	☐ evening
	☐ Wed 4 Nov 2009	☐ morning	☐ afternoon	☐ evening
VOUCHER	Please select the voucher type you prefer ☐ A high street shop voucher ☐ A Tesco voucher			
Please tell us which age range you are in	☐ 18-40	☐ 41-60	☐ over 60	

Please return this participation form in the freepost envelope by ***16th October 2009***

This study has been approved by LJMU Research Ethics Committee

Appendix 3-5 List of job codes

List of job codes

Please choose the job code that best fits you, then fill it in the participation form. (We are still looking for people who have particular job code 7 - 9. Sorry if your job code is 1 - 6 – there is no seat available for this group now.)

Job code	Job Details
1	Corporate Managers And Senior Officials
	Production Managers
	Functional Managers
	Quality And Customer Care Managers
	Financial Institution And Office Managers
	Managers In Distribution, Storage And Retailing
	Protective Service Officers
	Managers In Farming, Horticulture, Forestry And Fishing
	Managers And Proprietors In Hospitality And Leisure Services
	Managers And Proprietors In Other Service Industries
2	Science Professionals
	Engineering Professionals
	Information And Communication Technology Professionals
	Teaching Professionals
	Research Professionals
	Legal Professionals
	Business And Statistical Professionals
	Architects, Town Planners, Surveyors
	Public Service Professionals
	Librarians And Related Professionals
3	Science And Engineering Technicians
	Draughtspersons And Building Inspectors
	IT Service Delivery Jobs
	Social Welfare Associate Professionals
	Protective Service Jobs
	Artistic And Literary Jobs
	Design Associate Professionals
	Media Associate Professionals
	Sports And Fitness Jobs
	Transport Associate Professionals
	Legal Associate Professionals
	Business And Finance Associate Professionals
	Sales And Related Associate Professionals
	Conservation Associate Professionals
	Public Service And Other Associate Professionals

Group	Job Details
4	Administrative Jobs: Government And Related Organisations
	Administrative Jobs: Finance
	Administrative Jobs: Records
	Administrative Jobs: Communications
	Administrative Jobs: General
	Secretarial And Related Jobs
5	Agricultural Trades
	Metal Forming, Welding And Related Trades
	Metal Machining, Fitting And Instrument Making Trades
	Vehicle Trades
	Electrical Trades
	Construction Trades
	Building Trades
	Textiles And Garments Trades
	Printing Trades
	Food Preparation Trades
	Skilled Trades
6	Childcare And Related Personal Services
	Animal Care Services
	Leisure And Travel Service Jobs
	Hairdressers And Related Jobs
	Housekeeping Jobs
7	Sales Assistants And Retail Cashiers
	Sales Related Jobs
	Customer Service Jobs
8	Process Workers
	Plant And Machine Workers
	Assemblers And Routine Workers
	Construction Workers
	Transport Drivers And Workers
	Mobile Machine Drivers And Workers
9	Basic Agricultural Jobs
	Basic Construction Jobs
	Basic Process Plant Jobs
	Basic Goods Storage Jobs
	Basic Administration Jobs
	Basic Personal Services Jobs
	Basic Cleaning Jobs
	Basic Security Jobs
	Basic Sales Jobs
0	Student and please identify your subject area
Retired/ Unemployed	Choose the job code for the most appropriate job i.e. your main career

Appendix 3-6 Focus group schedule

Aim: How to improve the use of community pharmacy services to improve people health
Participants: Representatives of general public in Sefton
Time and place: Committee room, Crosby Town Hall - 27th October 2009 6.30-8.30 pm.
Duration for focus group: Approximately 1 hour

Introductory session

- **Introduce group members**
  Good evening everybody and welcome to our group discussion, thank you very much for contributing your time to come for a discussion about community pharmacies today. My name is Kritsanee Saramunee - I am a moderator to lead the discussion. This is Julia Taylor, will assist me in taking notes. This is Adam Mackridge, he is my supervisor as well as an observer today. All of us are from School of Pharmacy and Biomolecular Science, Liverpool John Moores University. Before we start I would like you all to introduce yourself to group members and we will be on your first name basis tonight. I will start from you....
- **Overview of a group discussion**
  Now we know each other. Firstly let me tell you 'why you are invited tonight'. As I have been studying for a period about the health services delivering through community pharmacy in the UK. It was found that the chemists are able to serve you many kinds of health services, not only just medicine and simple advice but also other health service for example smoking cessation, cardiovascular and diabetes screening and so on. Unfortunately, it seemed most people in the public still not perceive well of those additional services. Therefore, we are here to find out why the services are still under used. Hopefully, by the end of the meeting, we will know the root causes why most people don't use pharmacies and how can we improve the use of community pharmacies.
- **Ground rules**
  Before we start our brainstorming discussion, I would like to remind you that we will be on your first name basis which you can see our member name from the name badges I gave. And please feel free to show us how you think based on your experience. Otherwise lets tell us 'how it should be' if you don't have that experience before. The important thing is -- 'there is nothing wrong' but it is just the different ways of thinking or different opinion. The audio-recorder will be on operation through the discussion because we don't want to miss even a little points/comments you have made.

Discussion session

- Show a document listing public health areas and explain these are the issues I want to discuss.
- How do you feel/think about those problems in this area?
  - Prompt:
    Are you worried about these health problems?
    Which one of those problems are you concerned about?
    Why are you concerned about it?
- Where do you think people should go to get advice and support for these issues?
  - Prompt:
    How about pharmacies?
    Do you think pharmacies can provide this sort of advice and support?
    Why or why not?

Appendix 3-6 (continued)

- What do you think would stop (negative factors) or encourage (positive factors) people for using pharmacies as source of advice on public health issues?
    - Prompt:
      What do you think about locations of pharmacies?
      What do you think about the facilities provided by pharmacies?
      What do you think about the skills and trainings of pharmacists and their staff?
      What do you think about the privacy and confidentiality?
      What do you think about opening hours of pharmacies?
      What do you think about accessibility of pharmacies/pharmacists?
- How do you think pharmacy services like cardiovascular screening, weight management or others should be advertised?
    - Prompt
      Should it be advertised by mass media (television, radio, newspaper, Internet etc)

Public health issues in Sefton

a. Smoking
b. Cardiovascular disease
c. Cancer
d. Respiratory disease
e. Alcohol
f. Infant mortality
g. Mental health

Appendix 3-7 Written consent form for focus group discussion

LIVERPOOL JOHN MOORES UNIVERSITY
CONSENT FORM
FOR A GROUP DISCUSSION
AND TO USE A DIGITAL AUDIO RECORDER

Title: General Public Views on Community Pharmacy Services in Public Health

Researcher: Kritsanee Saramunee
School of Pharmacy and Biomolecular Science, LJMU

1. I confirm that I have read and understand the information provided for the above study. I have had the opportunity to consider the information, ask questions and have had these answered satisfactorily. ☐
2. I understand that my participation is voluntary and that I am free to withdraw at any time, without giving a reason and that this will not affect my legal rights. ☐
3. I understand that any personal information collected during the study will be anonymised and remain confidential. Anonymous quote from the discussion may be published. ☐
4. I agree that the whole discussion will be recorded by the audio recorder. ☐
5. I agree to take part in the above study. ☐

.....	.....	.....
(Name of Participant)	(Date)	(Signature)
Kritsanee Saramunee (Researcher)	..... (Date)	..... (Signature)

Appendix 3-8 Invitation letter for semi-structured interview

Faculty of Science

25 November 2009

Dear Pharmacist,

I am a PhD student in the School of Pharmacy & Biomolecular Sciences at Liverpool John Moores University. I am undertaking a study which has been approved by Liverpool John Moores University ethics committee on 07/08/09, study number 09/PBS/005 entitled

'General Public Views on Community Pharmacy Services in Public Health'

I am conducting an individual interview and would like to invite you to be part of this activity. The purpose of the interview is to explore your views on community pharmacy public health services. The interview will take approximately 15-20 minutes and will be conducted on the telephone or if you prefer it can be conducted face-to-face at your workplace or in Liverpool John Moores University.

I enclose a study information sheet and a consent form for you to read through to help you decide if you would like to take part. I will contact you by telephone to determine your interest in participating in this study and to arrange for the interview. If you have any questions, please contact me at; telephone number 0151 231 2070 or email k.saramunee@2009.ljmu.ac.uk or if you prefer you can contact my supervisor, Professor Janet Krska, on 0151 231 2404 or email j.krska@ljmu.ac.uk

Thanking you in advance.

Yours sincerely,

K. Saramunee

Kritsanee Saramunee

PhD student in Pharmacy Practice

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School Website: http://www.ljmu.ac.uk/phc/

This study has been approved by LJMU Research Ethics Committee

Appendix 3-9 Participant information sheet for semi-structured interview

LIVERPOOL JOHN MOORES UNIVERSITY
PARTICIPANT INFORMATION SHEET
FOR CONDUCTING AN INDIVIDUAL INTERVIEW

Project Title: General Public Views on Community Pharmacy Services in Public Health
Researcher: Kritsanee Saramunee
School of Pharmacy and Biomolecular Science, LJMU

You are being invited to take part in an important research study concerning the role of the community pharmacy in improving public health. However, before you decide if you wish to participate, it is important that you understand why this research is being done and what it will involve on your part if you should agree to take part. Please take a few moments to read the following information.

1. What is the purpose of the study?
This study is aimed at exploring the views of the public on how to maximise the appropriate uptake of community pharmacy services with the expectation of generating important information and suggestions for the further development of community pharmacy services in the UK.

2. Do I have to take part?
No. It is up to you to decide whether or not you wish to take part.

3. What will happen to me if I take part?
If you agree to be a part of this study, you will be individually interviewed by telephone or face-to-face which will be audio recorded and last approximately 15-20 minutes. You will be asked to sign the consent form before starting discussion. Any personal data you give us will be destroyed immediately after the interview is completed. We might publish your comments but nobody will be able to identify you.

4. Are there any risks / benefits involved?
There are no risks in taking part in this study. However, we hope this finding will be worth to develop further public health services.

5. Who will know what I have said?
All participants can be assured that all individual responses that you provide will be strictly confidential and will be securely maintained on the LJMU data system. The findings will also be published without any reference to individuals or individual responses.

6. What should I do if I change my mind?
If it is before interview, please contact the researcher.
If during interview, please tell the researcher that you have changed your mind and your answers will be taken out.
If it is after interview, it will not be possible to take out your answer. However, nobody will be able to identify you. All personal data will be destroyed once verification has been completed.

Who should I contact if I have any question?	**Who should I contact if I have any problem?**
Kritsanee Saramunee Phone 0151 231 2070 Email k.saramunee@2009.ljmu.ac.uk	Professor Janet Krska Phone 0151 231 2404 Email j.krska@ljmu.ac.uk

This study has been approved by LJMU Research Ethics Committee

Appendix 3-10 Written consent form for semi-structured interview

LIVERPOOL JOHN MOORES UNIVERSITY
CONSENT FORM
TO BE INTERVIEWED AND USE
A DIGITAL AUDIO RECORDER

Title: General Public Views on Community Pharmacy Services in Public Health

Researcher: Kritsanee Saramunee
School of Pharmacy and Biomolecular Science, LJMU

1. I confirm that I have read and understand the information provided for the above study. I have had the opportunity to consider the information, ask questions and have had these answered satisfactorily. ☐
2. I understand that my participation is voluntary and that I am free to withdraw at any time, without giving a reason and that this will not affect my legal rights. ☐
3. I understand that any personal information collected during the study will be anonymised and remain confidential. Anonymous quote from the discussion may be published. ☐
4. I agree that the whole discussion will be recorded by the audio recorder. ☐
5. I agree to take part in the above study. ☐

.....	.....	.....
(Name of Participant)	(Date)	(Signature)
Kritsanee Saramunee	.....	.....
(Researcher)	(Date)	(Signature)

Appendix 3-11 Semi-structured interview script

Time and place: will be arranged and scheduled dependent upon participants' availabilities.

Duration for interview: Approximately 15-20 minutes

Introduction
I would like to confirm once again that you agree to record the conversation we have made during the interview today. If you are happy with that then I will turn on the recorder now. Thank you.

Current experience of health services provision (For community pharmacists)
- How have you been involved in delivering public health services in community pharmacies?

Experience in delivering health services (For GPs and other stakeholders)
- What public health services have you provided both in the past and at present?

Awareness of pharmacy services provision (For GPs and other stakeholders)
- How do you think community pharmacies currently help to provide health services to improve public's health?

Appropriateness of health services provision
- Where should people get advice and support for their health issues like cardiovascular disease, obesity and others? And why do you think like that?
- Do you think community pharmacies could provide these advice and support?

Extension of health services provision
- What barriers do you think it would stop people from using health services from community pharmacies? (Hint: Convenience, Facilities, Accessibility, Approachability etc)

Training needs
- Do you think pharmacy staffs are sufficiently trained to provide health information related to cardiovascular screening, weight management or other services?

Enhancement of public awareness
- What do you think it could encourage people to use health services in community pharmacies?

Willingness of providing health services (For community pharmacists)
- Would you be willing to provide additional services to improve the public's health?
- If yes, what services would you like to provide? And Why?
- If no, why do you think that?
- Which services would you NOT be willing to provide? And why?

Potential impact of health services provision
- Do you think that pharmacy services would have an impact on the overall health of the public in Sefton?

Appendix 3-11 (Continued)

Demographic information

For community pharmacist

- What is your age group? (□ 18-40 □ 41-60 □ over 60)
- What type of the community pharmacy are you working for? (Small or large chain or independent community pharmacy)
- What is your position held at the moment?
- How long have you been working involve with public health services? (Years)
- What public health services have you provided both in the past and at present?

For GPs and other stakeholders

- What is your age group? (□ 18-40 □ 41-60 □ over 60)
- What type of the business are you working for? (Private or charity organisation)
- What is your position held at the moment?
- How long have you been working involve with public health services? (Years)

Appendix 4-12 Information sheet for the Pilot survey

LIVERPOOL JOHN MOORES UNIVERSITY

PARTICIPANT INFORMATION SHEET

Project Title: *General Public Views on Community Pharmacy Services in Public Health*

Researcher: Kritsanee Saramunee
School of Pharmacy and Biomolecular Science, LJMU

You are being invited to take part in an important research study concerning the role of the community pharmacy in improving public health. However, before you decide if you wish to participate, it is important that you understand why this research is being done and what it will involve on your part if you should agree to take part. Please take a few moments to read the following information.

7. What is the purpose of the study?
This study is aimed at exploring the views of the public on how to maximise the appropriate uptake of community pharmacy services with the expectation of generating important information and suggestions for the further development of community pharmacy services in the UK.

8. Do I have to take part?
No. It is up to you to decide whether or not you wish to take part.

9. What will happen to me if I take part?
If you agree to be a part of this study, you will be asked to respond to a questionnaire, either by face-to-face approach or self-completion, which will take about 10 minutes to complete. You will be asked about the quality of this questionnaire at the end. We might publish your comments but nobody will be able to identify you.

10. Are there any risks / benefits involved?
There are no risks in taking part.

11. Who will know what I have said?
Only researchers will know what you have said. It will not be possible for anyone else to know who made this comments.

12. What should I do if I change my mind?
If it is before you have completed the questionnaire, just throw it away.
If you have returned the questionnaire, it will not be possible to take out your answer because all your answer will be anonymous.

Who should I contact if I have any question?	Who should I contact if I have any problem?
Kritsanee Saramunee Phone 0151 231 2070 Email k.saramunee@2009.ljmu.ac.uk	Professor Janet Krska Phone 0151 231 2404 Email j.krska@ljmu.ac.uk

This study has been approved by LJMU Research Ethics Committee

Appendix 4-13 Invitation letter to focus group applicants for cognitive interview

Faculty of Science

Date .....

Dear .....

I am a researcher in the School of Pharmacy & Biomolecular Sciences at Liverpool John Moores University. I am undertaking a study entitled

'General Public Views on Community Pharmacy Services in Public Health'

You kindly responded to my letter last year asking for people to take part in group discussions. Unfortunately, we were unable to use you in that part of the study but I would like to invite you to take part in a different part of this study.

I have developed a questionnaire called **"What do you think of your pharmacy?"** which aims to explore people's views on pharmacy and health services. Before launching the survey, it is important that the questionnaire is clear and easy for people to follow. I would like to invite you once again to discuss this with me individually. The discussion will take less than one hour and can be held either at LJMU or your home or work place or community centre, whatever is most convenient for you. For this participation, I will offer **£15 voucher** for high street shops or a supermarket and your travel costs if required.

Please read through enclosed information sheet. If you are interested in taking part, please fill in the participation form I sent with this letter and post it back in the freepost envelope to the research team by **(date)**. I will then contact you to arrange time and venue for the discussion.

If you have any questions, please contact **Kritsanee Saramunee**, phone 0151 231 2070 or email k.saramunee@2009.ljmu.ac.uk or if you prefer you can contact my supervisor **Professor Janet Krska**, phone 0151 231 2404 or email j.krska@ljmu.ac.uk

Thank you in advance.

Yours sincerely,

K. Saramunee

Kritsanee Saramunee

SCHOOL OF PHARMACY AND BIOMOLECULAR SCIENCES
James Parsons Building, Byrom Street, Liverpool, L3 3AF
School Website: http://www.ljmu.ac.uk/phc/

This study has been approved by LJMU Research Ethics Committee

Appendix 4-14 Participant information sheet for cognitive interview

LIVERPOOL JOHN MOORES UNIVERSITY

PARTICIPANT INFORMATION SHEET

Project Title: *General Public Views on Community Pharmacy Services in Public Health*

Researcher: Kritsanee Saramunee, LJMU

You are being invited to take part in an important research study. It is to help develop a questionnaire called 'What do you think of pharmacy?' However, before you decide if you wish to participate, it is important that you understand why this research is being done and what you will need to do if you agree to take part. Please take a few moments to read the following information.

13. What is the purpose of the study?
This study is looking at the views of people like you to find out how to best design a questionnaire about new pharmacy services.

14. Do I have to take part?
No. It is up to you to decide whether or not you wish to take part.

15. What will happen to me if I take part?
If you agree to take part, you will be asked to fill in a questionnaire face-to-face and tell us what you are thinking while you do it. The discussion will take less than an hour and be audio-recorded. You will be asked to sign a consent form before starting the discussion. We will only use your comments in the research but nobody will know you made these comments.

16. Are there any risks / benefits involved?
There are no risks in taking part but you will be offered a **£15 voucher** for high street shopping or Tesco plus travel expense if required.

17. Who will know what I have said?
Only researchers will see your responses and comments. It will not be possible for anyone else to know who made these comments.

18. What should I do if I change my mind?
If it is before a discussion, please contact the researcher and your name will be taken off our list.
If during or after a discussion, please tell the researcher that you have changed your mind and your answers will be taken out.

Who should I contact if I have any question?	Who should I contact if I have any problem?
Kritsanee Saramunee Phone 0151 231 2070 Email k.saramunee@2009.ljmu.ac.uk	Professor Janet Krska Phone 0151 231 2404 Email j.krska@ljmu.ac.uk

This study has been approved by LJMU Research Ethics Committee

Appendix 4-15 Participation form for cognitive interview

Participation Form

Please give us your contact details so we can make arrangements for the discussion

TITLE	☐ Mr.	☐ Mrs.	☐ Miss	☐ Other.....
FULL NAME				
CONTACT ADDRESS			**POST CODE** ☐☐☐☐ ☐☐☐	
TELEPHONE		**EMAIL**		
JOB	Please tell us about your job here			
DATE & TIME AVAILABLE	Please tell us time slot that you would be available (Tick all that apply)			
	Weekdays	☐ morning	☐ afternoon	
	Weekends	☐ morning	☐ afternoon	
PREFERRED VENUE	Please select the venue you prefer ☐ LJMU ☐ Your home ☐ Your work place ☐ Community Centre			
VOUCHER	Please select the voucher type you prefer ☐ A high street shop voucher ☐ A Tesco voucher			
Please tell us which age range you are in ☐ 18-40 ☐ 41-60 ☐ over 60				

Please return this participation form in the freepost envelope by ***(date)***

This study has been approved by LJMU Research Ethics Committee

Appendix 4-16 Cognitive interview *schedule*

Cognitive interview (CI) schedule

Time and place: LJMU/Participants' workplace or houses

Duration for interview: Approximately 1 hour

Schedule

Introduction
Good morning/afternoon, My name is Kritsanee from LJMU. Thank you so much for contributing your time to a discussion today. Before we start, let me tell you why we have to do this and how to do it. We have a questionnaire, about pharmacy services and public health, I will ask you to read each question out loud, starting from question 1, and then let you tell me out loud what your answer is and what made you answer in that way as well as any thoughts or problems you have. Please remember, you have to tell me whatever you think out loud. Once we have finished question 1 then we will move onto question 2, 3 ... until the last one.

Warming up
Before we begin the actual interview, I would like to ask you a warm-up question to help you to be more familiar with thinking aloud process.

Try to imagine where you live, and tell me how many windows there are in that place.

Probes:
As you count the windows, please tell me what you are seeing and thinking about.

Actual interview
Now I am going to show you the questionnaire which is designed to explore public opinion on pharmacy/chemists. I would like to ask you to read through each question and then please tell me whether or not you understand it and then please respond to that question honestly based on your experience.

Probes:
What thoughts came to your mind while reading this question?
What made you answer this question like this?
Are there any other choices/options that you would prefer?

In general, I would like to ask you what you think about this questionnaire in term of its difficulty and time to complete.

Closing session

Thank you for contributing your time to answer these questions. Information you have given are very important and valuable to this research project. If you still have any other questions or comments would like to ask or give me then please feel free to tell me now.

This study has been approved by LJMU Research Ethics Committee

Appendix 4-17 Consent form for cognitive interview

LIVERPOOL JOHN MOORES UNIVERSITY
CONSENT FORM
FOR A DISCUSSION AND TO USE A DIGITAL AUDIO RECORDER

Title: General Public Views on Community Pharmacy Services in Public Health

Researcher: Kritsanee Saramunee
School of Pharmacy and Biomolecular Science, LJMU

6. I confirm that I have read and understand the information provided for the above study. I have had the opportunity to consider the information, ask questions and have had these answered satisfactorily. ☐
7. I understand that my participation is voluntary and that I am free to withdraw at any time, without giving a reason and that this will not affect my legal rights. ☐
8. I understand that any personal information collected during the study will be anonymised and remain confidential. ☐
9. I agree that the discussion will be recorded by the audio recorder. Data will be used for the analysis in this research study only. ☐
10. I agree to take part in the above study. ☐

.....	.....	.....
(Name of Participant)	(Date)	(Signature)
Kritsanee Saramunee (Researcher)	..... (Date)	..... (Signature)

This study has been approved by LJMU Research Ethics Committee

Sefton NHS
Primary Care Trust

liverpool JMU

What do you think of your pharmacy?

What we mean by Pharmacies

In this survey, we will talk about ***'Pharmacies'*** which you might normally think of them as the ***'Chemists'*** or bigger shops like Boots or supermarkets, where you can get prescriptions dispensed. We also talk about ***'Pharmacists'*** – these are the people who run the pharmacies and you might call them the ***chemist*** too.

How to fill in this survey

- Please read the instructions for each question carefully
- Please answer all of the questions truthfully, if you do not want to answer a question, please put a line through it and ignore it
- For questions with tick-boxes (☐), please put a tick (✓) or cross (×) in the box that is closest to your answer
- For questions where you are asked to write something, please write in the space given

Example Question:

a. Do you drink coffee? ☑ Yes ☐ No
b. Which brand of coffee do you prefer? *(Please write in the space below)*
Nescafe

Agreeing to take part

Please take the time to read the information sheet that you were given with this survey. If you fill in and return this questionnaire, we will assume that you are happy to take part in the study and that you are 18 years old or over.

This study has been approved by Liverpool John Moores University Research Ethics Committee.

PART A: YOUR PHARMACY

This part is about your pharmacy (chemists)

- What you use it for
- What you think about the service they give and the people who work there

1. On average, how often did you go to a pharmacy for any reason in the last 6 months?
*(Please tick **one** box only)*

☐ Once a week ☐ Once a fortnight ☐ Once a month

☐ Once every 2 months ☐ Once every 3 months ☐ Once in the past 6 months

☐ Never *(go to question 3)* ☐ Not sure *(go to question 3)*

☐ Other ..... *(please tell us here)*

2. How often do you do the things below when you go to a pharmacy?
*(Please tick **one** box for each line)*

	Always	Sometimes	Never
Have a prescription made up	☐	☐	☐
Buy medicines *(e.g. painkillers, things for hay fever or cold, etc...)*	☐	☐	☐
Buy dietary supplements *(e.g. vitamins, mineral etc...)*	☐	☐	☐
Buy toiletries or beauty products *(e.g. toothpaste, shampoo, make-up, etc...)*	☐	☐	☐
Get advice about medicines you have bought or had on a prescription	☐	☐	☐
Get advice about minor health problems *(e.g. skin problems, upset stomach, viruses, etc...)*	☐	☐	☐

3. What is the longest time that you would be happy to wait to get a prescription made up?

☐ No more than 5 minutes ☐ No more than 15 minutes

☐ No more than 10 minutes ☐ More than 15 minutes

4. What is the longest time that you would be happy to wait to see a pharmacist?

☐ No more than 5 minutes ☐ No more than 15 minutes

☐ No more than 10 minutes ☐ More than 15 minutes

5. This question has two parts, please answer both

Please tell us whether you have ever used each of the services below in a pharmacy (❶) and whether you would use them in the future (❷).
*(Please answer **both** questions for each service, even if you have not used the service before)*

	❶ Have you ever done this in a pharmacy?	❷ Would you do this in a pharmacy in the future?		
		Yes	Maybe	No
Get advice about **stopping smoking**	☐ Yes ☐ No	☐	☐	☐
Get advice about **sensible drinking**	☐ Yes ☐ No	☐	☐	☐
Get advice about **losing weight**	☐ Yes ☐ No	☐	☐	☐
Get advice about **keeping your heart healthy**	☐ Yes ☐ No	☐	☐	☐
Get your **blood pressure** checked	☐ Yes ☐ No	☐	☐	☐
Get your **cholesterol** checked	☐ Yes ☐ No	☐	☐	☐
Get your **blood sugar** checked	☐ Yes ☐ No	☐	☐	☐

6. Have you ever used a pharmacy for anything else? ☐ Yes ☐ No

(If yes, please tell us here)

7. What is the longest time that you would be happy to wait in the pharmacy for one of the above services?

☐ No more than 5 minutes
☐ No more than 10 minutes
☐ No more than 15 minutes
☐ More than 15 minutes

8. Would you be happy to make an appointment *to one of* the above services?

☐ Yes ☐ No *(go to question 10)*

9. How long would you be happy to wait for an appointment for one of the above services?

☐ No more than 4 hours
☐ No more than 1 day
☐ No more than 4 days
☐ No more than 1 week
☐ Longer than 1 week

Appendix 4-18 (continued)

10. For each statement below, please tell us what you think

*(Please tick **one** box for each statement)*

Reminder:

- ***'Pharmacy'** means a shop where you have your prescription made up or buy medicines (the chemists)*
- ***'Pharmacist'** means the person in charge of a pharmacy (the chemist)*
- ***'Pharmacy staff'** means the other people working in the pharmacy, who might help the pharmacist to dispense medicines or serve on the counter*

	Agree	Don't mind / Not sure	Disagree
I prefer to use the **same** pharmacy every time	☐	☐	☐
I prefer to use a pharmacy **owned by a large company**	☐	☐	☐
I prefer to use a pharmacy **owned by the pharmacist who works there**	☐	☐	☐
I prefer to use a pharmacy in a **supermarket**	☐	☐	☐
I prefer to use a pharmacy near to where I **live**	☐	☐	☐
I prefer to use a pharmacy near to where I **work**	☐	☐	☐
I prefer to use a pharmacy near to my **doctor's surgery**	☐	☐	☐
I need a pharmacy that is **open in the evening**	☐	☐	☐
I need a pharmacy that is **open on a Saturday**	☐	☐	☐
I need a pharmacy that is **open on a Sunday**	☐	☐	☐
I prefer to visit a pharmacy where I **know the pharmacist**	☐	☐	☐
I prefer to visit a pharmacy where **pharmacy staff know me**	☐	☐	☐
I prefer to talk to a pharmacist who is the **same sex** as me	☐	☐	☐
I prefer to talk to a pharmacist in a **private room**	☐	☐	☐
I trust the **pharmacist** to keep my personal information **confidential**	☐	☐	☐
I trust the **pharmacy staff** to keep my personal information **confidential**	☐	☐	☐

PART B: ADVERTISING PHARMACY SERVICES

This part is about how pharmacy services could be advertised

11. Please read the list below of the different ways that you might find out about a pharmacy service. For each of them, please tell us whether *or not* advertising pharmacy services in that way would encourage you to use them.
*(Please tick **one** box for each line)*

	Would advertising services in this way encourage you to use them?		
	Yes	**Maybe**	**No**
Recommended by my **doctor** or **another health professional**	☐	☐	☐
Recommended by my **family** or **friends**	☐	☐	☐
Advertised on a **poster/leaflet** in a **pharmacy**	☐	☐	☐
Advertised on a **poster/leaflet** in a **doctor surgery**	☐	☐	☐
Advertised on a **poster/leaflet** in a **public place**	☐	☐	☐
Advertised on a **leaflet** dropped through **my door**	☐	☐	☐
Advertised in a **local newspaper/local free paper**	☐	☐	☐
Advertised on **television**	☐	☐	☐
Advertised on a **local radio station**	☐	☐	☐
Advertised by sending information to my **email**	☐	☐	☐
Included on a **healthcare website** *(e.g. NHS choices)*	☐	☐	☐
Included on a **Looking Local TV channel**	☐	☐	☐

12. Do you have any other comments about advertising pharmacy services?

☐ Yes ☐ No

(If yes, please tell us here)

PART C: ABOUT YOU

This part is about your health and lifestyle and has some questions about you to help us understand how different types of people think

13. How would you describe your general health at the moment?

☐ Very good ☐ Good ☐ Fair ☐ Poor ☐ Very poor

14. Do you take any prescribed medicines regularly?

☐ Yes ☐ No

15. This question has two parts, please answer both

Thinking of yourself, please tell us whether you have been told by your doctor that you have any of the followings (❶) and how much you are worried about it (❷) *(Please answer **both** questions for each health problem)*

	❶ Do you have this problem?	❷ How worried are you about it?		
		Very worried	A bit worried	Not worried
High blood pressure *(Hypertension)*	☐ Yes ☐ No	☐	☐	☐
High blood sugar *(Diabetes)*	☐ Yes ☐ No	☐	☐	☐
High cholesterol	☐ Yes ☐ No	☐	☐	☐
Overweight or Obesity	☐ Yes ☐ No	☐	☐	☐
Heart disease *(Cardiovascular disease)*	☐ Yes ☐ No	☐	☐	☐
Smoking related problem *(e.g. lung cancer)*	☐ Yes ☐ No	☐	☐	☐
Alcohol related problem *(e.g. hepatitis)*	☐ Yes ☐ No	☐	☐	☐

16. Thinking of yourself, are there any other health problems that worry you?

☐ Yes ☐ No

(If yes, please tell us about them here)

Appendix 4-18 (continued)

17. Do you smoke tobacco?

☐ Yes ☐ No *(Go to question 18)*

If yes, how many cigarettes,cigars, and/or pipes do you smoke per day? *(Please write in the spaces below)*

Cigarettes _____ Cigars _____ Pipes _____

18. How often do you have a drink that contains alcohol?

☐ Never *(go to question 21)* ☐ Monthly or less ☐ 2-4 times per month

☐ 2-3 times per week ☐ 4 times or more per week

To help answer question 19 – 20, below is a measurement of one standard drink

2 Units	1.5 Units	2 Units	1 Unit	9 Units
				
Pint of Regular Beer/Lager/Cider	Alcopop or Can of Lager	Glass of Wine (175 ml)	Single Measure of Spirits	Bottle of Wine

19. How many units of alcohol do you have on a typical day when you are drinking?

☐ 1-2 ☐ 3-4 ☐ 5-6 ☐ 7-8 ☐ 10 or more

20. How often do you have more than 8 units of alcohol (men) or 6 units (women) on one occasion?

☐ Never ☐ Less than monthly ☐ Monthly

☐ Weekly ☐ Daily or almost daily

21. How much do you weigh?

..... Kilograms ..... / ..... Stones / lbs ☐ Don't know /Not sure

22. How tall are you?

..... Metres ..... / ..... Feet / inches ☐ Don't know /Not sure

Appendix 4-18 (continued)

23. On average, how many portions of fruit or vegetables do you eat per day? *(Some examples of a "portion" would be; a handful of grapes, an orange, a glass of fruit juice, 2 florets of broccoli.)*

..... *(Please tell us here)*

24. How often do you exercise per week?
(Count all the times when you exercise at least 30 minutes e.g. brisk walking, cycling, jogging etc. Also including physical activity that is a part of your job.)

☐ I don't exercise ☐ Less than 3 times a week

☐ About 3 times a week ☐ More than 3 times a week

25. What is your gender?

☐ Male ☐ Female

26. What is your age group?

☐ 24 and under ☐ 25-34 ☐ 35-44

☐ 45-54 ☐ 55-64 ☐ 65 and Over

27. Which ethnic group best describe you? *(Please tick **one** box only)*

☐ White ☐ Mixed ☐ Asian or Asian British

☐ Black or Black British ☐ Chinese ☐ Other .....

28. What is the highest level of education you have completed?

☐ None ☐ Primary/ Few years secondary

☐ Secondary completed ☐ College/Further education

☐ Bachelor degree ☐ Higher degree

☐ Still studying *(Please tell us what level are you in)*

.....

29. What is your current working status?

☐ Full-time ☐ Part-time

☐ Retired ☐ Not working

Appendix 4-18 (continued)

30. What is your current or most recent job? *(Please tick **one** that best describes your occupation)*

☐ Higher managerial and professional occupations
(e.g. manager or director of a large institution, engineer, doctor, lawyer etc...)

☐ Lower managerial and professional occupation
(e.g. nurse, teaching professionals, scientific technician, financial officer, sport player etc...)

☐ Intermediate occupation
(e.g. electronic technician, teaching assistant, secretary etc...)

☐ Small employers and own account workers
(e.g. shopkeeper, beauty salon manager, taxi/cab driver etc...)

☐ Lower supervisory occupation and technical occupation
(e.g. care worker, cleaning supervisor, transport operative etc...)

☐ Semi-routine occupation
(e.g. fitness instructor, receptionist, , road builder, crane driver etc...)

☐ Routine occupation
(e.g. cleaner, packer, hairdresser, bar staff, butcher, florist etc...)

☐ Never worked and long-term unemployed

☐ Other ..... *(Please tell us here)*

31. Please tell us your full postcode *(we will **not** contact you or pass your details on to anyone else)*

☐☐☐☐ ☐☐☐

Thank you very much for taking the time to complete this survey.
Your ideas/opinions will be very important in helping to improve the quality of health services provided in our pharmacies.

Appendix 5-19 Participant information sheet for face-to-face survey

LIVERPOOL JOHN MOORES UNIVERSITY
PARTICIPANT INFORMATION SHEET

Project Title: *General Public Views on Community Pharmacy Services in Public Health*

Researcher: Kritsanee Saramunee
School of Pharmacy and Biomolecular Science, LJMU

You are being invited to take part in an important research study concerning the role of the community pharmacy in improving public health. However, before you decide if you wish to participate, it is important that you understand why this research is being done and what it will involve on your part if you should agree to take part. Please take a few moments to read the following information.

19. What is the purpose of the study?
This study is aimed at exploring the views of the public on how to maximise the appropriate uptake of community pharmacy services with the expectation of generating important information and suggestions for the further development of community pharmacy services in the UK.

20. Do I have to take part?
No. It is up to you to decide whether or not you wish to take part.

21. What will happen to me if I take part?
If you agree to be a part of this study you will be asked to respond to a questionnaire by face-to-face, which will take about 10 minutes to complete. Also if you are willing to take part in the group discussion please fill in the participation form you are given and return in the freepost envelope to the research team. We might publish your comments but nobody will be able to identify you.

22. Are there any risks / benefits involved?
There are no risks in taking part.

23. Who will know what I have said?
Only researchers will know what you have said. It will not be possible for anyone else to know who made these comments.

24. What should I do if I change my mind?
If it is before and during doing a questionnaire, please tell the researcher.
If the questionnaire is completed, it will not be possible to take out your answer but all answer will be anonymous.

Who should I contact if I have any question?	Who should I contact if I have any problem?
Kritsanee Saramunee Phone 0151 231 2070 Email k.saramunee@2009.ljmu.ac.uk	Professor Janet Krska Phone 0151 231 2404 Email j.krska@ljmu.ac.uk

This study has been approved by LJMU Research Ethics Committee

Appendix 5-20 Participant information sheet for telephone survey

LIVERPOOL JOHN MOORES UNIVERSITY
PARTICIPANT INFORMATION SHEET

Project Title: *General Public Views on Community Pharmacy Services in Public Health*

Researcher: Kritsanee Saramunee
School of Pharmacy and Biomolecular Science, LJMU

You are being invited to take part in an important research study concerning the role of the community pharmacy in improving public health. However, before you decide if you wish to participate, it is important that you understand why this research is being done and what it will involve on your part if you should agree to take part. Please take a few moments to read the following information.

25. What is the purpose of the study?
This study is aimed at exploring the views of the public on how to maximise the appropriate uptake of community pharmacy services with the expectation of generating important information and suggestions for the further development of community pharmacy services in the UK.

26. Do I have to take part?
No. It is up to you to decide whether or not you wish to take part.

27. What will happen to me if I take part?
If you agree to be a part of this study you will be asked to respond to a questionnaire on telephone, which will take about 10 minutes to complete. Also if you are willing to take part in the group discussion please fill in the participation form you are given and return in the freepost envelope to the research team. We might publish your comments but nobody will be able to identify you.

28. Are there any risks / benefits involved?
There are no risks in taking part.

29. Who will know what I have said?
Only researchers will know what you have said. It will not be possible for anyone else to know who made these comments.

30. What should I do if I change my mind?
If it is before and during doing a questionnaire, please tell the researcher.
If the questionnaire is completed, it will not be possible to take out your answer but all answer will be anonymous.

Who should I contact if I have any question?	Who should I contact if I have any problem?
Kritsanee Saramunee Phone 0151 231 2070 Email k.saramunee@2009.ljmu.ac.uk	Professor Janet Krska Phone 0151 231 2404 Email j.krska@ljmu.ac.uk

This study has been approved by LJMU Research Ethics Committee

Appendix 5-21 Procedure of generating telephone numbers

A: Create a phone list

1. Look at the residential number section from the phone books for Liverpool and Southport. In these sections, there are approximately 500 pages for Liverpool and 80 pages for Southport containing residential telephone numbers. Each page is divided into 4 columns.
2. You must generate 800 telephone numbers for your study by;
    a. Randomly generate 125 pages numbers for Liverpool phone book and use all pages for Southport.
    b. Randomly generate 4 numbers for each page, which should correspond to the line number of each column where you will start selecting participants.

    Note: Follow section B below to generate random numbers.

3. Turn to the page you have selected, go to the first column and look at the line number you have generated. Make sure that address is located in Sefton PCT (e.g. Bootle, Maghull, Formby, Southport etc – see section C below); Record the occupier's address and telephone number on the spreadsheet. If the address is not located in Sefton PCT then move down the next line; continue to move to the next line until you find a number located in Sefton PCT. If you reach the end of a column without identifying a number in Sefton PCT, begin at the beginning of the column. If there are no numbers in Sefton PCT in a column, ignore this column and select another (using the randomisation outlined below) to select another number.

B: How to generate the random number?

1. Go to the website called random.org (http://www.random.org/integers/).
2. In Part 1: put the amount of number you need in the box of the first line – in this case you have to put 125.
3. On the second line, put a range of numbers you have - in this case for Liverpool you have to put 441 in the first box and 676 in the second one.
4. On the third line, you can ask it to generate the result in many columns – put whatever you prefer e.g. if you put 5 in there – your result will be presented in 5 columns.
5. Click on 'Get Numbers' button.
6. Repeat this process for Southport to randomly select line numbers.

C: A list of sub-areas in Sefton PCT

Aintree	Seaforth	Great Crosby	Maghull	Ince Blundell	Bootle
Old Roan	Litherland	Thornton	Lydiate	Birkdale	Southport
Ainsdale	Crosby	Banks	Melling	Millers Bridge Industrial Estate	
Kirkdale	Waterloo	Sefton	Formby	Brighton-Le-Sands	
Ford	Churchtown	Netherton	Hightown	Little Crosby Village	

Appendix 5-22 Script for conducting telephone survey

Step 1

Good morning/afternoon/evening, my name is ..... from Liverpool John Moores University. We are conducting a project to explore people's views on the services offered by their local pharmacy (you might think of it as the chemists). We would like to speak to some people who are living in Sefton. Can I ask if you are over 18?

If yes - start the interview

If no – "is there someone in who is over 18? – can you please pass the phone to them?

Step 2

If they do not agree to take part then say thank you and terminate the call.

If someone different agrees to take part then reintroduce yourself and project details. This survey will take only 10 minutes to complete. Are you happy to take part?

Step 3

If no, say thank you and terminate the call.

If yes then say - I can assure that your opinions will remain confidential. Your contact number will be removed before analysing the results.

Step 4

If no – I am afraid that you cannot involve to our survey because you are under 18 but thanks very much for contributing your time. Then terminate the call.

If yes – start asking questions follow the questionnaire.

Appendix 5-23 Invitation letter for postal survey

30th March 2011

Dear Sir/Madam,

I am a researcher in the School of Pharmacy & Biomolecular Sciences at Liverpool John Moores University. I am undertaking a study entitled

'General Public Views on Community Pharmacy Services in Public Health'

I have developed a questionnaire called **"What do you think of your pharmacy?"** which aims to explore people's views on pharmacy and health services. I would like to invite someone in your house (who is not a health professional) to respond the enclosed questionnaire. Please pass the enclosed information sheet and questionnaire to the person living in your house who had their birthday most recently and who is aged 18 or over.

Once they have completed the questionnaire, please post it back in the freepost envelope to the research team by **(date)**

Also I will undertake a group meeting to present and discuss about the survey findings once the study has been completed. The meeting, which will last about an hour, will be held at a local meeting room in your area. If you or family members are interested in taking part please give me your contact details on the enclosed participation form and post it back in the same freepost envelope. Then I will contact you to arrange date and time of the meeting. For this participation in the group discussion, I will offer **£25 voucher** for high street shops or a supermarket plus £5 travel cost.

If you have any questions, please contact **Kritsanee Saramunee**, phone 0151 231 2070 or email k.saramunee@2009.ljmu.ac.uk or if you prefer you can contact my supervisor **Professor Janet Krska**, phone 0151 231 2404 or email j.krska@ljmu.ac.uk

Thank you in advance.

Yours sincerely,

K. Saramunee

Kritsanee Saramunee

SCHOOL OF PHARMACY AND BIOMOLECULAR SCIENCES
James Parsons Building, Byrom Street, Liverpool, L3 3AF
School Website: http://www.ljmu.ac.uk/phc/

This study has been approved by LJMU Research Ethics Committee

Appendix 5-24 Participant information sheet for postal survey

LIVERPOOL JOHN MOORES UNIVERSITY
PARTICIPANT INFORMATION SHEET

Project Title: *General Public Views on Community Pharmacy Services in Public Health*

Researcher: Kritsanee Saramunee, LJMU

You are being invited to take part in an important research study about the role of community pharmacies in improving public health. However, before you decide if you wish to participate, it is important that you understand why this research is being done and what you will need to do if you agree to take part. Please take a few moments to read the following information.

31. What is the purpose of the study?
This study is looking at the views of people like you to find out how to help design new pharmacy services.

32. Do I have to take part?
No. It is up to you to decide whether or not you wish to take part.

33. What will happen to me if I take part?
If you agree to be a part of this study, you will be asked to complete a questionnaire which will take about 10 minutes and send it back to us in the freepost envelope.

34. Are there any risks / benefits involved?
There are no risks in taking part.

35. Who will know what I have said?
Only researchers will see your responses and comments. It will not be possible for anyone else to know who made these comments.

36. What should I do if I change my mind?

If it is before sending the questionnaire back, you can throw it away.
If the questionnaire is completed and sent back, please contact the researcher.

Who should I contact if I have any question?	Who should I contact if I have any problem?
Kritsanee Saramunee Phone 0151 231 2070 Email k.saramunee@2009.ljmu.ac.uk	Professor Janet Krska Phone 0151 231 2404 Email j.krska@ljmu.ac.uk

This study has been approved by LJMU Research Ethics Committee

Appendix 5-25 Participation form for focus group discussion

Participation Form

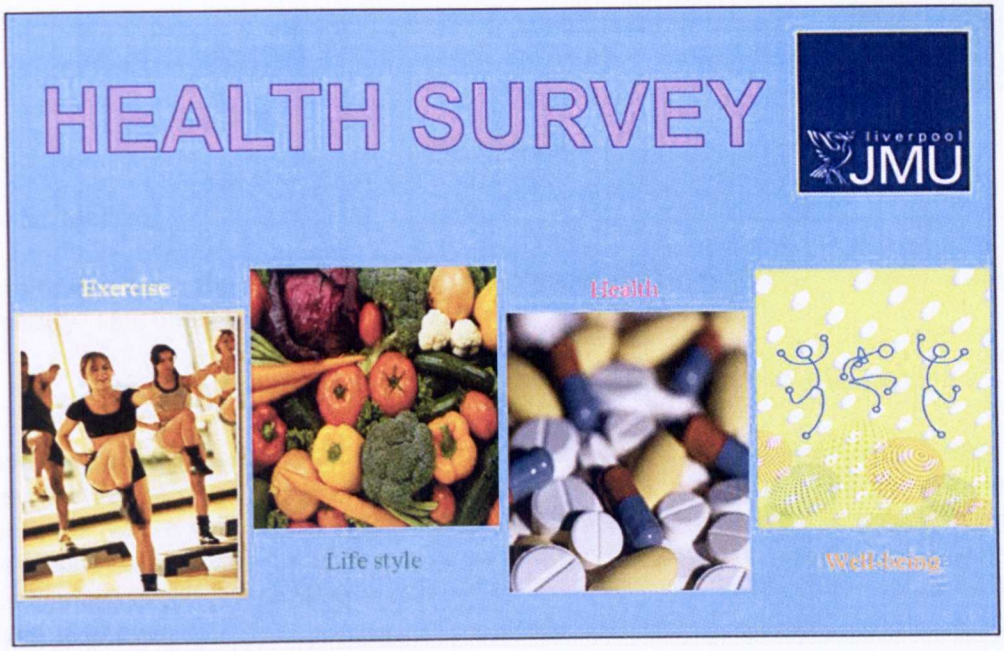
Once the study has been finished, we will set up a group meeting to discuss about survey findings. If you are interested in taking part please give us your contact details so we can make arrangements for the group discussion.

TITLE	☐ Mr.	☐ Mrs.	☐ Miss	☐ Other.....
FULL NAME				
CONTACT ADDRESS			**POST CODE**	
TELEPHONE		***EMAIL***		
JOB	Please tell us about your job here			
DATE AVAILABLE	Please tell us when you would be available (Please tick all that are suitable)			
	☐ Weekdays	☐ morning	☐ afternoon	☐ evening
	☐ Weekends	☐ morning	☐ afternoon	☐ evening
VOUCHER	Please select the voucher type you prefer ☐ A high street shop voucher ☐ A Tesco voucher			
Please tell us which age range you are in ☐ 18-40 ☐ 41-60 ☐ over 60				

Please return this participation form with a completed questionnaire in the freepost envelope by **6th May 2011**

This study has been approved by LJMU Research Ethics Committee

Appendix 5-26 Postcard reminder for postal survey



Dear Sir/Madam

Last week you should have received a letter inviting you to participate in a survey concerning services in pharmacies (the chemists). If you haven't had chance to review it yet, I would appreciate if you could take a moment to look it over, respond to the questions and return it to us as soon as you can.

I am very interested in the opinions of local people such as you, to help us to improve health services in our pharmacies (the chemists).

Your Sincerely,

K Saramunee

Kritsanee Saramunee (Researcher)

Please send to:

For questions or more information, please contact;
Kritsanee Saramunee
School of Pharmacy and Biomolecular Science
Liverpool John Moores University
James Parsons Building, Byrom Street, Liverpool L3 3AF
Phone: 0151 231 2070
email: k.saramunee@2009.ljmu.ac.uk

Appendix 5-27 Invitation letter for postal survey (single-mailing)

15th April 2011

Dear Sir/Madam,

I am a researcher in the School of Pharmacy & Biomolecular Sciences at Liverpool John Moores University. I am undertaking a study entitled

'General Public Views on Community Pharmacy Services in Public Health'

I have developed a questionnaire called **"What do you think of your pharmacy?"** which aims to explore people's views on pharmacy and health services. I would like to invite someone in your house (who is not a health professional) to respond the enclosed questionnaire which will take about 10 minutes to complete. Please pass the enclosed information sheet and questionnaire to the person living in your house who had their birthday most recently and who is aged 18 or over.

Once they have completed the questionnaire, please post it back in the freepost envelope to the research team by (Date)

If you have any questions, please contact **Kritsanee Saramunee**, phone 0151 231 2070 or email k.saramunee@2009.ljmu.ac.uk or if you prefer you can contact my supervisor **Professor Janet Krska**, phone 0151 231 2404 or email j.krska@ljmu.ac.uk

Thank you in advance.

Yours sincerely,

K. Saramunee

Kritsanee Saramunee

SCHOOL OF PHARMACY AND BIOMOLECULAR SCIENCES
James Parsons Building, Byrom Street, Liverpool, L3 3AF
School Website: http://www.ljmu.ac.uk/phc/

This study has been approved by LJMU Research Ethics Committee

Appendix 5-28 Invitation letter to a gate keeper for postal-OGN

Date .....

Dear Office manager

I am a researcher in the School of Pharmacy & Biomolecular Sciences at Liverpool John Moores University. I am undertaking a study entitled

'General Public Views on Community Pharmacy Services in Public Health'

I have developed a questionnaire called "What do you think of your pharmacy?" which aims to explore people's views on pharmacy and health services. I am looking to invite members of the public to complete this questionnaire which will take about 10 minutes to go through. Therefore, I would like to ask if you could distribute some survey packages to your colleagues who is aged 18 or over and might be interested in taking part.

I enclose a study information sheet for you to read through. I will call you next week to kindly determine whether or not you are willing to do this and make further arrangement to send survey packages to you either by post or email as request.

If you have any questions, please contact Kritsanee Saramunee, phone 0151 231 2070 or email k.saramunee@2009.ljmu.ac.uk or if you prefer you can contact my supervisor Professor Janet Krska, phone 0151 231 2404 or email j.krska@ljmu.ac.uk

Thank you in advance.

Yours sincerely,

K. Saramunee

Kritsanee Saramunee

SCHOOL OF PHARMACY AND BIOMOLECULAR SCIENCES
James Parsons Building, Byrom Street, Liverpool, L3 3AF
School Website: http://www.ljmu.ac.uk/phc/

This study has been approved by LJMU Research Ethics Committee

Appendix 5-29 Participant information sheet for a gate keeper for postal-OGN

LIVERPOOL JOHN MOORES UNIVERSITY
PARTICIPANT INFORMATION SHEET

Project Title: *General Public Views on Community Pharmacy Services in Public Health*

Researcher: Kritsanee Saramunee, LJMU

You are being invited to take part in an important research study about the role of community pharmacies in improving public health. However, before you decide if you wish to participate, it is important that you understand why this research is being done and what you will need to do if you agree to take part. Please take a few moments to read the following information.

37. What is the purpose of the study?
This study is looking at the views of people like you to find out how to help design new pharmacy services.

38. Do I have to take part?
No. It is up to you to decide whether or not you wish to take part.

39. What will happen to me if I take part?
If you agree to take part, you will be asked to distribute survey packages to your colleagues.

40. Are there any risks / benefits involved?
There are no risks in taking part.

41. What should I do if I change my mind?
If it is before study information distribution, please contact the researcher.
If during or after a discussion, please tell the researcher that you have changed your mind and all arrangements will be cancelled.

Who should I contact if I have any question?	Who should I contact if I have any problem?
Kritsanee Saramunee Phone 0151 231 2070 Email k.saramunee@2009.ljmu.ac.uk	Professor Janet Krska Phone 0151 231 2404 Email j.krska@ljmu.ac.uk

This study has been approved by LJMU Research Ethics Committee

Appendix 5-30 Consent form for a gate keeper

LIVERPOOL JOHN MOORES UNIVERSITY
CONSENT FORM
FOR DISTRIBUTION OF SURVEY PACKAGES
TO COLEAGUES

Title: General Public Views on Community Pharmacy Services in Public Health

Researcher: Kritsanee Saramunee
School of Pharmacy and Biomolecular Science, LJMU

11. I confirm that I have read and understand the information provided for the above study. I have had the opportunity to consider the information, ask questions and have had these answered satisfactorily. ☐
12. I understand that my participation is voluntary and that I am free to withdraw at any time, without giving a reason and that this will not affect my legal rights. ☐
13. I agree to distribute information packs to my staff to take part in the above study. ☐

.....
(Name of Participant)

....
(Company/organisation name) (Date) (Signature)

Kritsanee Saramunee ....
(Researcher) (Date) (Signature)

This study has been approved by LJMU Research Ethics Committee

Appendix 7-31 A summary report of survey findings

Survey Report

'General Public Views on Community Pharmacy Services in Public Health'

A little background to the study

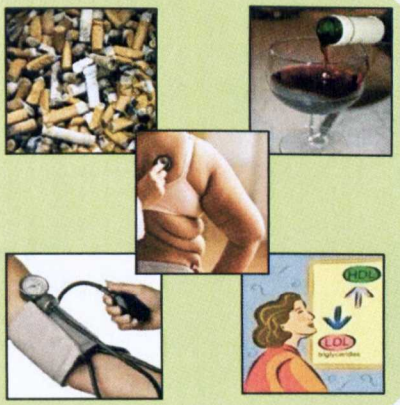
We collected data between January and July this year. We got 903 questionnaires back from people in Sefton PCT.

About respondents

- Just over half of the people that took part were female
- Around half were aged from 35-64
- Just under half live in the more affluent areas in Sefton

About their life style and health status

- About 1 in 5 of our respondents smoke
- 2 in 5 drink alcohol excessively
- Just over half are overweight
- A third were obese
- About a third had high blood pressure
- A quarter had high cholesterol
- 7 in 10 told us that they were in good health

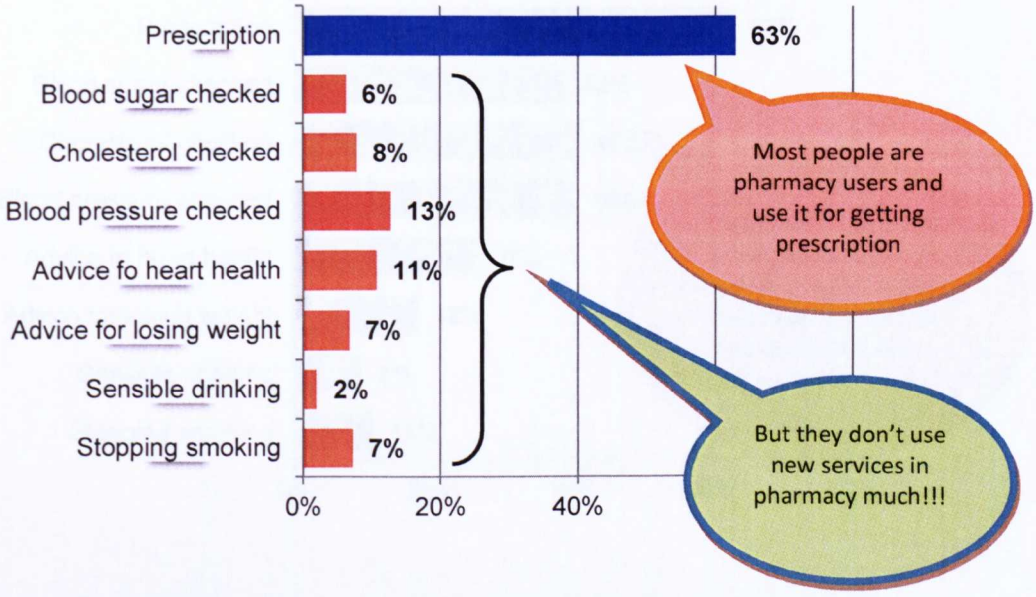


Factors influence pharmacy use

- Most respondents prefer to use the same pharmacy every time, use the one in neighbourhood, use the one nearby GP surgery and need a pharmacy open on Saturday.
- This shows that when people use a pharmacy they would be loyal to a particular pharmacy and most realise about distance and convenience.

Now please go through the next pages, we have several points that need you to help !!!

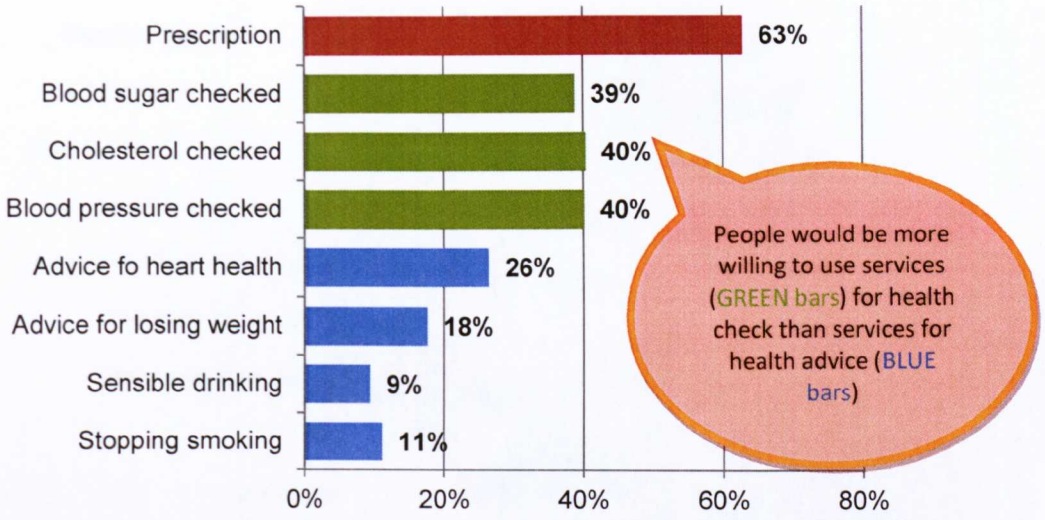
Key point 1: Pharmacy service use



Question:

Why don't people use new pharmacy services?

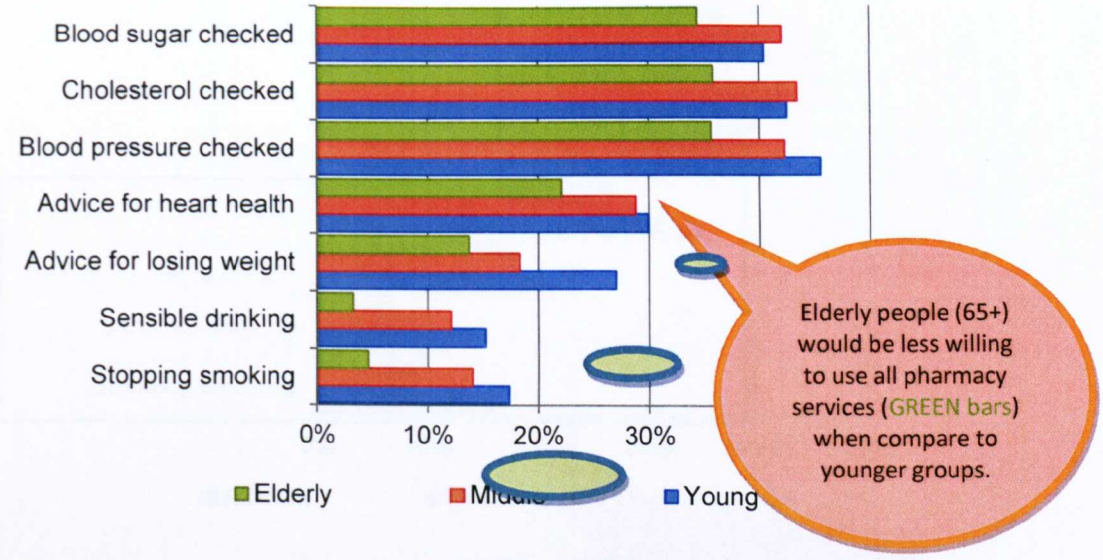
Key point 2.1: Willingness to use services in the future



Questions:

- What make people unlikely to use services related to health advice?
- Why are they more willing to use health checked services?

Key point 2.2: Willingness to use services in the future

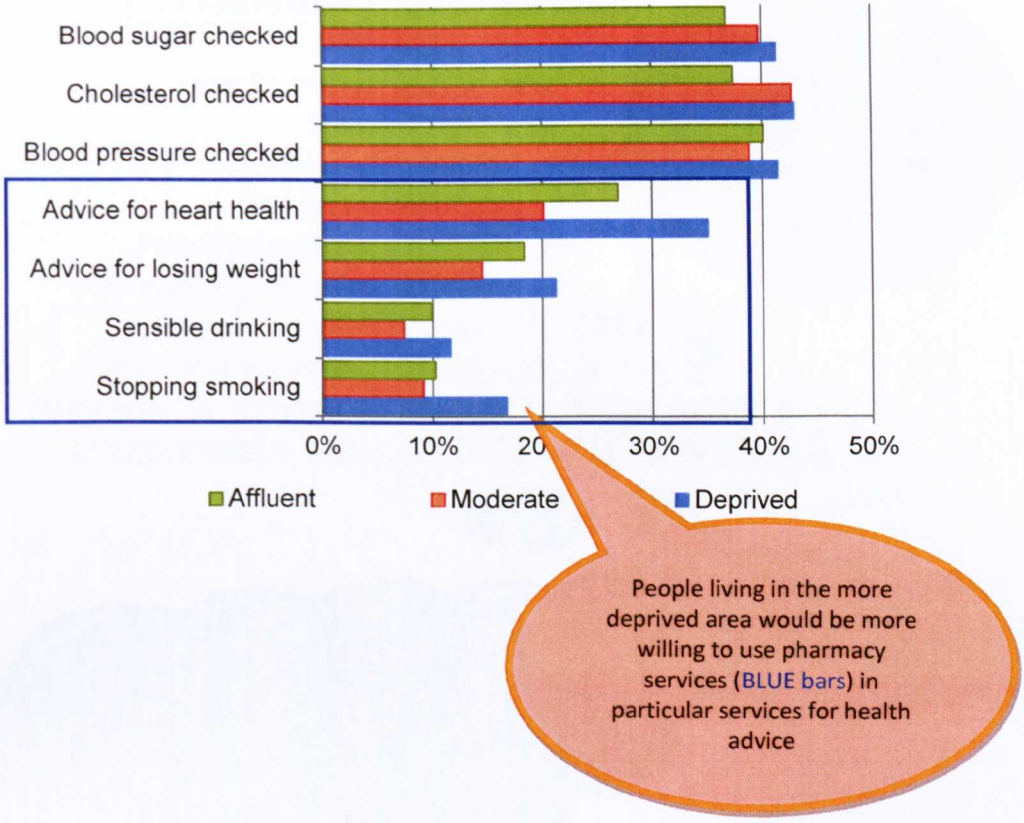


We assume that elderly people is a target group for health services due to more health problems but the result is in contrast !!!

Questions:

- Why would elderly people be less willing to use pharmacy services when compare to younger groups?

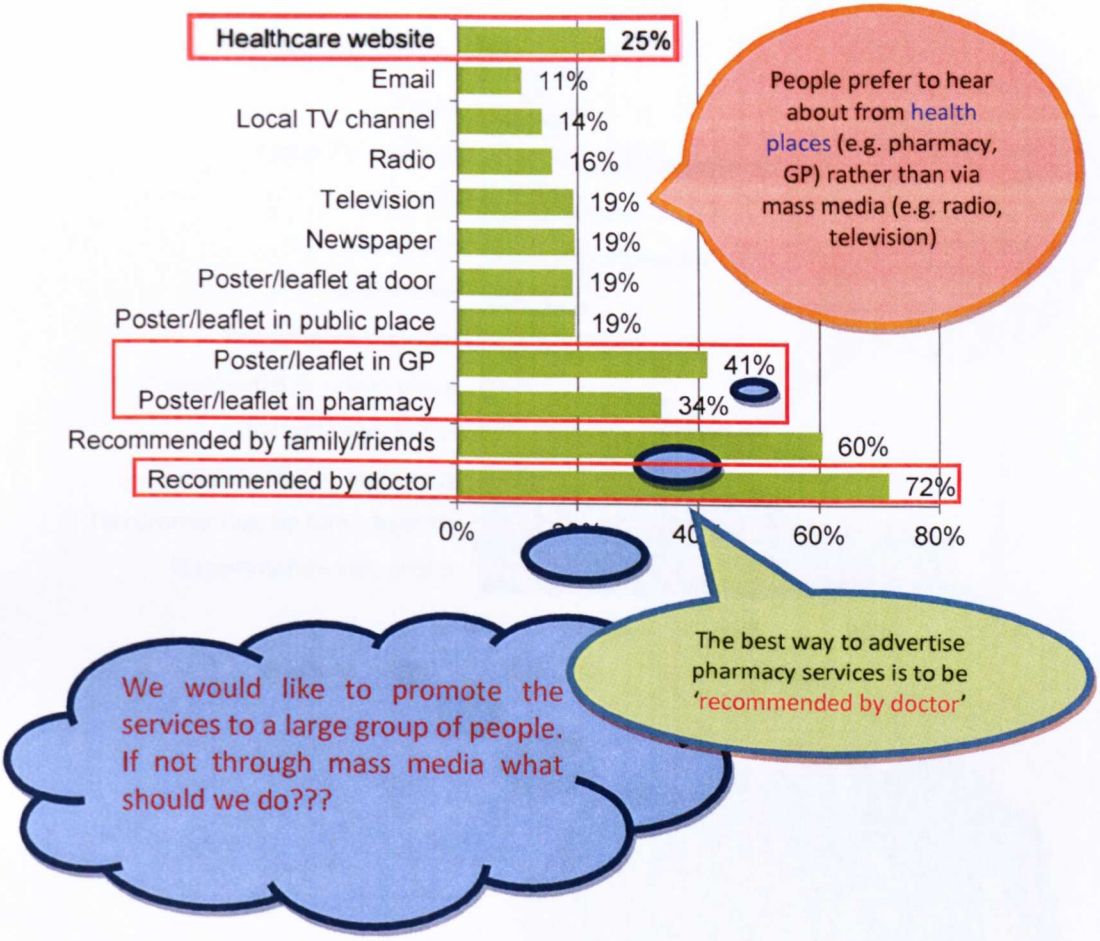
Key point 2.3: Willingness to use services in the future



Questions:

- What make people in deprived areas would be more willing to use pharmacy services when compare to those living in affluent areas?

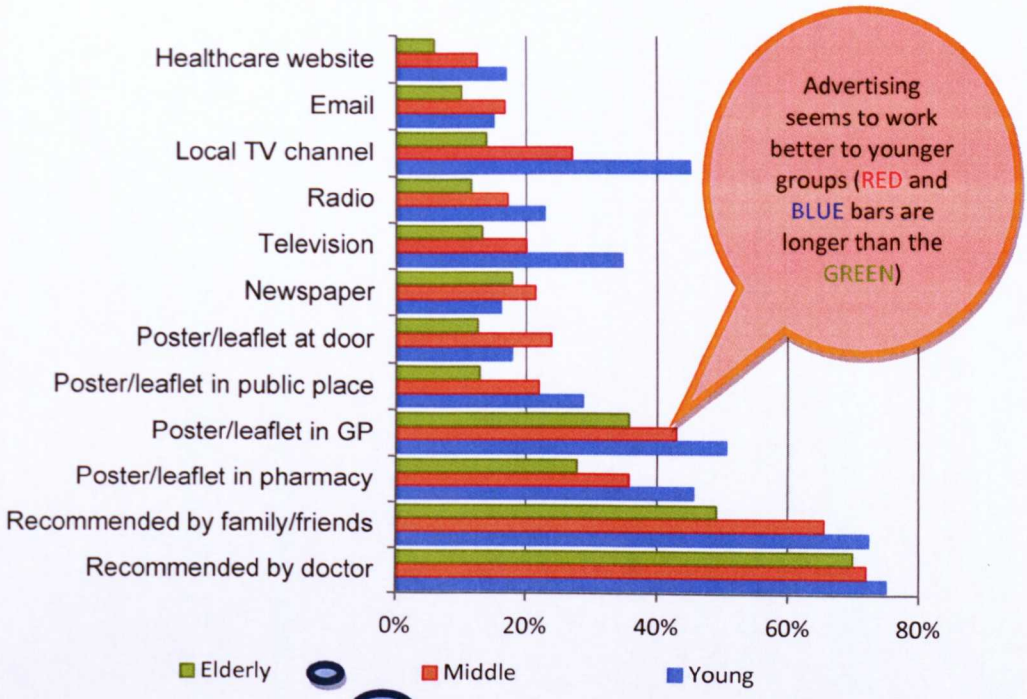
Key point 3.1: Advertising services



Questions:

- Why is 'recommended by doctor' is the best way?
- How can we have a doctor to help advertising pharmacy services?
- Why do people prefer to know about pharmacy services from health places?
- If not through mass media, how can we advertise pharmacy services and target to large group of people?

Key point 3.2: Advertising services



But we expect that elderly people also our target group for health services because of their health problems

Questions:

- Why does advertising work better to younger group?
- How should we promote services to older people?