AN EXAMINATION OF THE UK COMMUNITY PHARMACIST'S ROLE IN FACILITATING PATIENT SELF-MANAGEMENT OF CARDIOVASCULAR DISEASE THROUGH LIFESTYLE BEHAVIOURS

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Abstract

The progression of cardiovascular disease (CVD) is largely modifiable through lifestyle behaviours. UK pharmacists are contractually obliged to facilitate patient self-management of chronic conditions such as CVD. Pharmacists are easily accessible health professionals who are well placed to identify "at risk" patients through medication regimes. Research has identified varying attitudes towards and levels of involvement in pharmacist-led health promotion activity. Given the diverse and exploratory nature of the work, a pragmatic, mixed methods approach was used to explore community pharmacists' role in facilitating patient self-management of CVD. The thesis presents four studies: a qualitative study with pharmacists; a cross sectional questionnaire of community pharmacists; a systematic review and a qualitative study with patients with CVD. The qualitative study with pharmacists gave an insight into pharmacists' experiences of giving patients with CVD lifestyle advice and the factors underpinning commonly cited barriers to providing public health services. This informed the development of the cross-sectional questionnaire which identified the predictors of pharmacists' intentions to give two different types of advice to facilitate patient self-management. The systematic review identified a small number of interventions to prepare pharmacists to facilitate patient lifestyle behaviour change and evaluated the theories and behaviour change techniques used in successful interventions; however due to poor study quality and poor reporting of the interventions limited conclusions about the efficacy of the interventions could reliably be drawn. Finally, the qualitative study gave an insight into the experiences of patients with CVD using community pharmacy services and their expectations of the service they receive from community pharmacists. Recommendations about changes to pharmacy policy and practice in order to support pharmacists' provision of CVD self-management advice are made.

Dedication

In loving memory of my grandfathers Bill Brown and Hugh Morton, and my late father-in-law Anthony Killick; I wish we'd had more time.

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List of Abbreviations

BCT	Behaviour Change Technique
CCG	Clinical Commissioning Group
CRD	Centre for Reviews and Dissemination
CS-SRM	Common Sense-Self Regulation Model (Leventhal, 2003)
CVD	Cardiovascular Disease
DoH	Department of Health
GP	General Practitioner
HLD	Hyperlipidaemia
HLP	Healthy Living Pharmacy
HTN	Hypertension
MMAT	Mixed Methods Appraisal Tool (Pluye et al., 2011)
MUR	Medicines Use Review
NHS	National Health Service
NMS	New Medicines Service
ONS	Office of National Statistics
PBC	Perceived Behavioural Control
PCT	Primary Care Trust
PIANA	Pharmacy In A New Age
RCT	Randomised Controlled Trial
RPS	Royal Pharmaceutical Society
SCT	Social Cognitive Theory (Bandura, 1977)
SN	Subjective Norm
TIB	Theory of Interpersonal Behaviour (Triandis, 1979)
TPB	Theory of Planned Behaviour (Ajzen, 1991)
WHO	World Health Organisation

1 Chapter One: General Introduction

1.1 Introduction and Literature Review

Cardiovascular disease (CVD) is the leading cause of death worldwide (WHO, 2011). In 2013, 28% of deaths in England and Wales were from circulatory diseases such as heart disease and stroke, and CVD was the leading cause of death in women (ONS, 2014). The development and progression of CVD is largely modifiable through lifestyle-related health behaviours such as eating a healthy diet, consuming alcohol in moderation, smoking cessation and engaging in regular physical activity (WHO, 2011). UK community pharmacists are easily accessible health professionals who are well placed to identify "at risk" patients through medication regimes. Furthermore, UK community pharmacists are contractually obliged to facilitate patient self-management of chronic conditions such as CVD (DoH, 2005). Research has examined the efficacy of public health interventions delivered by pharmacists, with some studies concluding that pharmacist-led public health services resulted in improvements in patients' cardiovascular health (Blenkinsopp, Anderson, & Armstrong, 2003; Machado, Bajcar, Guzzo, & Einarson, 2007; Santschi, Chiolero, Burnand, Colosimo, & Paradis, 2011; Tsuyuki, 2002). Furthermore, varying attitudes of both patients and pharmacists regarding pharmacist-led public health services and varying levels of pharmacist involvement in public-health related activities have been identified (Anderson, Blenkinsopp, & Armstrong, 2003, 2004b; Bush, Langley, & Wilson, 2009; Eades, Ferguson, & O'Carroll, 2011; Laliberte, Perreault, Damestoy, & Lalonde, 2012; Maunder & Landes, 2005; O'Loughlin, Masson, Déry, & Fagnan, 1999). This introductory chapter will review the literature relating to pharmacy practice and cardiovascular disease and the contribution the field of health psychology can make to understanding pharmacists' behaviour. Previous research and policy will be summarised, gaps in knowledge will be identified and the programme of work conducted to address these gaps will be outlined.

1.2 Focus on cardiovascular disease

Cardiovascular disease (CVD) is an umbrella term used to describe diseases of the heart, vascular diseases of the brain and diseases of blood vessels. CVDs can be further categorised into those caused by atherosclerosis (see below for an explanation) and those caused by other factors (WHO, 2011). CVDs which are not caused by atherosclerosis are less common and include congenital heart disease (abnormalities in heart structure which are present from birth), rheumatic heart disease (damaged heart muscle and valves as a result of rheumatic fever), cardiomyopathies (disorders of the heart muscle) and cardiac arrhythmias (disorders of the electrical conduction system in the heart) (WHO, 2011).

The work presented in this thesis focuses on how pharmacists can support patients with CVDs caused by atherosclerosis to self-manage their condition. Atherosclerosis is a complex disease process which occurs in the blood vessels. Fats and cholesterol are deposited inside arteries over a number of years. This build up (referred to as a plaque) causes the inner surface of the blood vessels to become irregular, in turn narrowing the space the blood has to pass through and consequently making it more difficult for blood to flow. Over time, the build-up of the plaque can rupture, triggering the formation of a blood clot. If the blood clot forms in a coronary artery (an artery leading to the heart) it can cause coronary heart disease which can lead to angina (chest pain) or myocardial infarction (heart attack). If the blood clot forms in the brain it can result in cerebrovascular disease, the most common types being stroke (disrupted blood supply to the brain) and transient ischemic attack (temporary lack of oxygen to the brain) (WHO, 2011). Factors which predispose an individual to atherosclerosis include: high blood pressure (hypertension), high cholesterol (hypercholesterolemia), diabetes, diet, being overweight or obese, physical inactivity, smoking, and a variety of psychosocial factors (WHO, 2011). The majority of the aforementioned risk factors are modifiable and therefore both the development and progression of CVD can be prevented through engaging in healthy lifestyle behaviours(WHO, 2011).

As previously highlighted, CVDs are the leading global cause of death (WHO, 2011). It is estimated that in 2008, 17.3 million people died from CVDs, accounting for 30% of deaths worldwide. The incidence of CVD is on the increase, and the WHO (2011) estimate that by 2030 nearly 23.6 million people will die from CVDs. The majority of such deaths will be from heart disease and stroke, and consequently the WHO projects that heart disease and stroke will continue to remain the leading global causes of death. CVD is regularly implicated in premature death, defined as death before reaching 75 years of age. More than three million of the 17.3 million worldwide deaths attributable to CVD in 2008 occurred in individuals aged less than 60 years (WHO, 2011) whilst in 2010 CVD accounted for 22% of deaths in individuals aged under 75 living in England (DoH, 2014).

1.3 CVD self-management

Effective self-management of chronic conditions has been shown to improve patient outcome (Lorig & Holman, 2003). At present, there is no 'gold standard' definition of the term 'self-management'. Barlow, Wright, Sheasby, Turner, and Hainsworth (2002)defined self-management as an individual's ability to manage symptoms, treatment and the psychological and social consequences associated with living with a chronic condition. The authors stated that successful self-management is dependent on an individual's ability to monitor their condition and orchestrate the cognitive, behavioural and emotional responses required to enjoy a satisfactory quality of life, emphasising that this is a dynamic, ongoing process of self-regulation.

Effective self-management is crucial for patients with CVD in order to prevent further progression of the condition. The recommended treatment for CVD is a combination of lifestyle behaviours, and for some patients, taking medication. Recent NICE guidelines issued for primary and secondary prevention of CVD state that patients should be advised to eat a 'cardioprotective diet' (consisting of a total fat intake of 30% or less of total energy intake, saturated fats 7% or less of total energy intake, dietary cholesterol intake less than 300 mg/day and where possible replacing saturated fats with mono-unsaturated and polyunsaturated fats); engage in 75 minutes of vigorous aerobic activity or 150 minutes of moderate intensity aerobic activity a week; lose weight if overweight or obese; stop

smoking if they smoke and reduce their alcohol consumption (a maximum of 3-4 units daily if male and 2-3 units daily if female) (NICE, 2014). The guidance states that patients should be encouraged to make the above lifestyle changes and given a CVD risk assessment before being prescribed statins (to lower cholesterol levels). Patients with hypertension should be prescribed antihypertensive medication and be given the lifestyle advice described above periodically (NICE, 2011). In addition to this, treatment guidelines also state that relaxation therapies may be beneficial for patients with hypertension (NICE, 2011).

Hypertension (high blood pressure) and hyperlipidaemia (an umbrella term for raised blood lipids which includes high cholesterol, also known as hypercholesterolemia) are major risk factors for the development of CVD (WHO, 2012). It has been estimated that people with hypertension are almost twice as likely to have a heart attack as those with normal blood pressure, whilst those with hyperlipidaemia are three times more likely to have a heart attack than those with normal blood lipids (Yusuf et al. 2004). Hypertension is a common condition; at least 25% of adults under 60 and more than half of adults aged over 60 have hypertension (NICE, 2O11). Untreated hypertension is associated with a progressive rise in blood pressure, and with each 2mmHg rise in systolic blood pressure there is a 7% increased risk of dying from ischaemic heart disease and a 10% increased risk of mortality from stroke. (NICE, 2011). Raised cholesterol is also a common condition; in England in 2008 the prevalence of high cholesterol levels (>5.0 mmol/l total cholesterol) was 61% in women and 58% in men (Scarborough et al., 2010).

Therefore in order to effectively self-manage the condition, patients with CVD must engage in a number of self-management behaviours including engaging in lifestyle behaviours and, for many patients with CVD, adhering to prescribed medication. Adherence has been defined by Horne (2005) as:

> *'the extent to which the patient's behaviour matches agreed recommendations from the prescriber' (p33)*

This definition acknowledges that, for many patients, not taking medicines as prescribed is a rational response to their perceptions of illness and treatment (Horne, 2005). Adherence is normally considered in relation to medication taking, however adherence also relates to other non-pharmacological treatment including lifestyle behaviours. Pharmacological treatment is recommended for patients at increased risk of cardiovascular disease, and patients with a number of risk factors may be prescribed multiple medications to decrease their risk of having/having further cardiovascular events (van Geffen et al. 2011). Adherence to medication, including that prescribed for CVD is problematic. A recent meta-analysis of studies examining patient adherence to drugs used in primary and secondary prevention of CVD, totalling 376,162 participants, found that approximately one third of patients who had experienced a heart attack and approximately one half who had never experienced a heart attack did not adhere to cardiovascular preventive treatment (Naderi, Bestwick, & Wald, 2012).

The Perceptions and Practicalities Approach (PPA) was developed by Horne (2001) to provide a framework for developing interventions to improve adherence. The PPA classifies non-adherent behaviour as 'intentional' or unintentional'. Horne (2001) suggests that unintentional non-adherence is the result of capacity and resource limitations and practical barriers affecting an individual's intentions to adhere to treatment. Examples of unintentional non-adherence include: forgetting or misunderstanding treatment instructions; problems administering treatment; the cost of treatment and forgetting to take the treatment. Conversely, intentional non-adherence refers to a conscious decision not to adhere to treatment influenced by the individual's beliefs about treatment. Horne, Weinman and Hankins (1999) used principal components analysis to assess statements of participants' beliefs about prescription medicines, finding that the responses could be grouped into "necessity beliefs" and "concerns".

Necessity beliefs are defined as an individual's beliefs concerning their perceived need for treatment whilst concerns are the worries individuals have about taking treatment (commonly relating to adverse effects and dependency). The Necessity Concerns Framework (Horne, 2003) posits that

adherence is determined by individuals weighing up the extent to which they believe they need treatment with concerns about adverse effects. According to the Necessity Concerns Framework, non-adherence may be a common sense response to a necessity-concerns dilemma. A more recent meta-analytic review of the Necessity Concerns Framework of 94 studies (n= 25,072) found that higher adherence was associated with stronger perceptions of necessity of treatment ($p<0.0001$) and fewer concerns about treatment ($p<0.0001$) (Horne et al., 2013). This relationship remained significant when stratified by study size, country the research was conducted in and the type of adherence measures used.

The Common Sense Self-Regulation Model (Leventhal et al., 1980) can be applied to understand the self-management behaviours of patients with hypertension and hyperlipidaemia. Leventhal and colleagues posit that people cope with symptoms or illnesses in the same way they deal with other problems. The CS-SRM assumes that people are motivated to maintain equilibrium (health) and if the person encounters a change or problem (such as symptoms or illness) they will be motivated to solve the problem and return to their usual state of health. The CS-SRM proposes that this occurs in three stages: interpretation, coping and appraisal. The interpretation stage describes when an individual is presented with the problem of potential illness through symptom perception or social messages (such as diagnosis from a health professional). Leventhal et al. (1980) suggest that the individual is motivated to return to their status quo (health) and need to assign meaning to the problem in order to do so. The CS-SRM suggests that this occurs through individuals assessing their existing illness cognitions and/or developing new illness cognitions.

Leventhal et al. (1991) suggest that illness cognitions give patients a framework for understanding their illness, telling them what to watch out for and give an indication that they are getting ill. The CS-SRM posits that illness cognitions are developed in five domains: identity, cause, consequences, timeline and cure/control. Identity refers to the label given to the illness and the symptoms experienced whilst 'cause' describes the patients' perception of what caused the illness. This includes both biological and psychological causes such as a virus or stress. 'Consequences' describes the effect

patients perceive that an illness will have on their lives. This can refer to physical effects such as lack of function or mobility, emotional consequences such as loneliness due to lack of social contact as a result of illness, or a combination of both physical and psychological consequences. 'Timeline' refers to patients' beliefs about how long an illness will last and patients may have an acute or a chronic model of their illness. Finally, 'curability/control' concerns patients' perceptions of whether their illness can be treated and cured. It also incorporates the extent to which patients feel they have control over their illness.

In addition to illness cognitions, the CS-SRM posits that patients also form emotional representations which identify if the illness will result in changes to the individual's emotional state. The CS-SRM states that both illness cognitions and emotional representations inform the identification of previous successful coping strategies or the development of new coping strategies to return the patient to equilibrium (health). The third stage of the model, the appraisal stage, involves the patient evaluating the coping strategy they have selected. If deemed successful, the individual will continue with their original coping strategy. If the individual believes that the coping strategy is not effective they will select a new coping strategy and/or update their illness cognitions accordingly. This process is dynamic and iterative, with the three components interrelating with each other. Individuals will move back and forth through the stages until they return to a state of equilibrium.

Unlike the other CVD risk factors, hyperlipidaemia and hypertension are largely asymptomatic. Therefore patients with hypertension and/ or hyperlipidaemia need to engage in self-management behaviours to control their condition (objectively measured cholesterol levels/ blood pressure) but subjectively will not experience symptoms because hypertension and hyperlipidaemia are asymptomatic conditions. As described above, according to the CS-SRM, coping behaviours are guided by illness representations which are activated in response to the patient's interpretation of a symptom and social cues. The absence of symptoms associated with hypertension and hyperlipidaemia has been found to affect patients' self-management of the condition. This may

mean that patients with hypertension or hyperlipidaemia may need different support to self-manage the conditions compared to patients with a symptomatic chronic condition.

A recent synthesis of qualitative studies examining patients' perceptions of hypertension found that despite hypertension being an asymptomatic condition, a large proportion of patients believed that hypertension produced symptoms of dizziness, headaches and sweating (Marshall, Wolfe, & McKevitt, 2012). Marshall et al. (2012) found patients commonly believed that stress caused their hypertension, perceiving their blood pressure to have improved when they were not stressed or did not experience perceived symptoms, reporting that they did not need to take antihypertensive medications at these times. Furthermore a study examining the relationship between illness cognitions and medication adherence in patients with hypercholesterolaemia(high cholesterol) (Brewer, Chapman, Brownlee, & Leventhal, 2002) found that patients who believed that hypercholesterolaemia was a stable, asymptomatic condition had better cholesterol control and self-reported medication adherence than patients who believed hypercholesterolaemia produced physical symptoms. The work in this thesis focused on pharmacists facilitating patient self-management of patients with diagnosed with and taking medication for hypertension and/or hyperlipidaemia, given the particular importance of lifestyle behaviours in preventing the progression of the condition.

1.4 The Role of UK community pharmacists in public health

Community pharmacists are frequently described as the most accessible health professionals in the UK. Pharmacists regularly interact with patients on a one-to-one basis, operating in pharmacies which are geographically well-placed to provide local services (Holland, Brooksby, Ashton, et al., 2007). Members of the public do not require an appointment to seek advice from a community pharmacist and pharmacies are accessed by people with both good and poor health, and those who may not otherwise interact with health professionals (Eades et al., 2011). Anderson et al. (2003) suggest that the dual health and commercial roles of pharmacies offer the opportunity to target services at healthy people as well as those with health problems, presenting pharmacists and their

staff with the chance to give advice on health and/or medicines to a large proportion of the population on a regular or ad hoc basis.

Usage of community pharmacy is reportedly high, however statistics on pharmacy usage in the UK are difficult to access. A survey of pharmacy usage in the UK in 1996 found that 94% of the population visits a pharmacy at least once a year, with each adult making an average of 12 visits a year. Of the 1.8 million visits to community pharmacies every day, 260,000 of them (14%) are specifically to seek health advice (Royal Pharmaceutical Society of Great Britain, 1996). A later study which examined data from a stratified sample of 6322 UK adults aged 35 years or above found that 59% cent of respondents had collected a prescription medicine and 40 per cent had purchased an over-the-counter medicine from a pharmacy in the last month, whereas only 12 per cent had asked for advice (Boardman, Lewis, Croft, Trinder, & Rajaratnam, 2005). Specifically in relation to cardiovascular health, around 266 million prescriptions were issued for CVDs in England in 2008 (British Heart Foundation Statistics Database, 2010). Patients collecting prescriptions for medicines to treat CVD present potential opportunities for pharmacists to facilitate patient self-management through the provision of advice on healthy lifestyles and the importance of adhering to medication.

The landscape of community pharmacy has changed dramatically in the past 40 years. The pattern of pharmacy ownership has changed, with increasing numbers of pharmacists now employed by multiple pharmacy chains as opposed to working as independent pharmacists who own their own pharmacy business. Traditionally the role of pharmacists centred on compounding medicines from constituent ingredients and subsequently dispensing the medicine (Harding & Taylor, 1997; Taylor & Harding, 2003). The expansion of the pharmaceutical industry arguably threatened the professional status of pharmacy, (Harding & Taylor, 1997; Taylor & Harding, 2003) with the development of pre-packaged medicines containing information leaflets about medicine dosage, frequency and possible adverse effects reducing the pharmacists' input in the supply process. Similarly, technological advances such as software in GPs surgeries and pharmacies which identify drug interactions and inappropriate prescription doses and produce medicine labels with directions and warnings arguably

reduce the need for pharmacists' input based on their knowledge and expertise in medicine (Roberts, 1988). Medicines have also increasingly become available from non-pharmacy outlets such as petrol stations, with which comes the association that the no "expert" supervision or advice is required to sell these drugs (Harding & Taylor, 1996).

This has led to debate regarding the professional role of pharmacists, with some questioning whether pharmacy should be considered a profession at all. There are a number of theories concerning the attributes which make a profession a profession. Traulsen and Bissel (2004) applied the trait theory of professions, suggesting that pharmacy has a number of the characteristics which distinguish a profession according to the theory. Examples of these include: a monopoly over compounding and medicines (with few exceptions); a monopoly on the sale of pharmacy medicines in the UK; having specialised knowledge and completing lengthy training and pharmacists regulating their own professional conduct. However this notion has been contested, with Denzin and Metlin (1966) arguing that pharmacy is not a "true" profession, asserting that pharmacists do not have social control over the object of their practice (medicines). They also suggested that pharmacists are motivated by commercial interests which arguably conflicts with the altruistic, service oriented nature of professions. This was supported by Knapp and Knapp (1968) who argued that pharmacy had not clearly defined its professional function and role, positing that medicines were controlled by the medical profession and community pharmacists were caught between professionalism and commercialism.

Sociologists have cited the process of the pharmacy profession losing activities that were considered as core to its professional status as an example of 'de-professionalisation', arguing that the increasing automisation of tasks traditionally associated with the pharmacists' role undermined the basis for pharmacy's claim to professional status (Jiwa et al., 2014). It has been suggested that community pharmacists underwent a process coined 're-professionalisation' in response to role ambiguity caused by the loss of the aforementioned activities which were traditionally the associated with the role of the pharmacist (Bush et al., 2009), promoting the pharmacy profession as the providers of a

wider range of services (Harding & Taylor, 2008). Anderson and Rajyaguru (2002) describe UK pharmacists as having reclaimed their traditional role in health promotion, expanding the role beyond the provision of medicines by moving to a disease and patient centred approach to making pharmaceutical decisions which includes chronic condition self-management support and opportunistic lifestyle advice.

Pharmacy In A New Age (PIANA) was a project conducted by the Royal Pharmaceutical Society of Great Britain (the former regulatory and professional body for pharmacists and pharmacy technicians in England, Scotland and Wales) between 1995 and 1999 which created a strategy to achieve a vision for the future of pharmacy. It was adopted by subsequent governments and shaped future government policy (Wilcock et al., 2013). The functions and aims for pharmacists outlined in PIANA are as follows: for pharmacists to be involved in and provide advice about the management of long term conditions; for pharmacists to be seen as the primary source of advice on common ailments; for pharmacists to have a role as advisors on healthy lifestyles which was fully recognised and integrated into NHS services and for pharmacists to advise and support other health care professionals. The vision outlined in PIANA was adopted by the Labour government and in 2003 the Department of Health published 'A vision for Pharmacy in the New NHS' which described pharmacists as "an integral part of the NHS family". The Chief Pharmaceutical Officer at the time (Jim Smith) highlighted the importance of the pharmacist's traditional role, but argued that changes in patient needs, technology and scientific advancements meant that pharmacists needed to change their contribution and provide a wider range of pharmacy services. The report suggested that UK pharmacists are well placed to make an important contribution to improving public health and the promotion of health in areas such as smoking cessation, sexual health, reducing obesity and minimising health inequalities.

The NHS pharmacy contract (DoH, 2005) implemented objectives set out in *A vision for pharmacy in the new NHS* (DoH, 2003). The contractual framework is comprised of three service types: essential services (which all pharmacists must provide, commissioned by NHS England); advanced services (which requires accreditation of the pharmacist providing the service and/or the pharmacy premises

meeting specific requirements, commissioned by NHS England) and enhanced services (which are commissioned and funded by Care Commissioning Groups (CCGs), local authorities and NHS England in response to the needs of the local population). These were formally funded by Primary Care Trusts until they were dissolved. The services associated with each category are outlined in table 1.1.

Table 1.1: Pharmacy services in NHS contractual framework

Service Level	**Description**
Essential	Public Health (Promotion of healthy lifestyles) • signposting to health promotion and education services • proactively participating in six public health campaigns a year • promoting healthy lifestyles to people who present prescriptions for diabetes, coronary heart disease and those who smoke or are overweight through discussion about smoking cessation, appropriate alcohol intake, diet and exercise
	Dispensing medicines, appliances and repeat dispensing
	Clinical Governance
	Disposal of unwanted medicines
	Signposting patients to other health and social care providers
	• Support for self-care • advice to help patients and carers manage long term conditions • opportunistic health promotion advice • advice on non-prescription medications used for self-care of minor illnesses and long term conditions.
Advanced	Medicines Use Reviews • discussion of patient's use of medicines to improve adherence and reduce medicines wastage
	New Medicines Service
	Appliance Use Reviews
	Stoma Appliance Customisation
Enhanced	Substance Misuse
	Weight management services
	Supplementary prescribing
	Smoking cessation services
	Sexual health services
	NHS Health Checks for people aged 40-74 years
	Alcohol Misuse Services
	Pandemic and Seasonal Flu Services

Adapted from PSNC website.

To accompany the introduction of the pharmacy contract, a document which outlined the strategy for pharmacists' contribution to public health was published. 'Choosing Health through Pharmacy' (DoH, 2005) aimed to maximise how pharmacists and their staff contributed to health and health inequalities through extending their role, outlining how "pharmaceutical public health" and the "health promoting pharmacy" may look in 2015 by providing best practice guidelines.

Choosing Health through Pharmacy followed on from the White Paper 'Choosing Health: Making healthy choices easier' (DoH, 2004) which positioned informed choice as its underpinning principle. Choosing Health posited that individuals want to make their own health decisions, however expected government to enable them to do so. However the policy acknowledges that making healthy choices is easier for some individuals in comparison to others and therefore proposed a strategy to reduce health inequalities through a co-ordinated effort from different organisations to deliver personalised services, tailored to individuals' lives. Jepson, Hewison, Thompson, and Weller (2005) state that individuals should be provided with 'adequate, high quality relevant, unbiased information' in relation to all the consequences of their decision in order to enable an individual to make an informed choice. It is part of the pharmacists' role to provide patients with such information; Choosing Health through Pharmacy (2005) posits that the provision of information and advice is an important role for pharmacists in all settings. Specifically in relation to reducing health inequalities, the document states that pharmacists should signpost to or provide services targeted at specific groups. Such services include: smoking cessation services for pregnant women and unskilled workers; services to manage and prevent risk factors for cancer and coronary heart disease in people aged over fifty and in 'manual social groups' and providing space in pharmacies to enable other services to be accessed in disadvantaged communities.) However it has been argued that that informed choice and sharing decision making between patients and health professionals can increase health inequalities, benefitting patients who naturally seek out information, have higher levels of education and can advocate for themselves whilst marginalising patients who are socially disadvantaged (Coulter & Collins, 2011). A recent systematic review of interventions to promote shared decision

making to reduce health inequalities by Durand et al (2014) found a significant positive effect of shared decision making interventions on disadvantaged patients. The narrative synthesis suggested that shared decision making interventions increased knowledge, informed choice and participation in decision making although the authors state that caution should be exercised when interpreting the results due to small sample sizes and study heterogeneity.

The DoH (2005) envisaged the 'health promoting pharmacy' in 2015 to incorporate: information and advice; a range of health improvement services including smoking cessation, weight management, sexual health, substance misuse; immunisation; the identification of people at risk of disease and the provision of self-management advice; working with other organisations to improve other social determinants of health; linking with schools, workplaces and other community settings to provide health advice; acting as a health advocate in the community; supporting people with long term conditions; working in partnership with other health organisations; enhancing the extended pharmacy team through training and research, and using communications technology to provide health information and access electronic health records. The document situated most pharmacists as part of the 'wider public health workforce', defined as:

> *"health care professionals or teachers who make a positive contribution to public health through their work but do not spend the majority of their time on public health" (p13)*

Despite frequently referring to the term 'pharmaceutical public health', the report did not give a definition of what is meant by this term and rather cited the list of activities that a health promoting pharmacy might provide described above which address both prevention and management of chronic conditions in addition to other activities. The services outlined in the pharmacy contract (DoH, 2005) of particular relevance to cardiovascular health include: providing smoking cessation advice and resources, identifying individuals at risk of developing diseases and offering lifestyle assessments, offering information and self-care support and contributing to the care of people with long term conditions through encouraging appropriate use of medications, promoting self-care and healthy lifestyles and carrying out Medicines Use Reviews (an advanced service which involves the

pharmacist reviewing the patient's use of medication, ensuring the patient understands why they have been prescribed and know how to use their medication, identifying any problems with the patient's medication use and providing feedback to the patient's GP if necessary (PSNC, 2014).

In addition to *Choosing health through pharmacy*, a more recent report on the NHS's role in public health states that all healthcare professionals in the NHS should "make every contact count" by using every contact with individuals to maintain or improve their physical and mental health if possible, regardless of the health professional's specialism or the individual's reason for the contact with them (NHS Future Forum, 2012). The report found that pharmacy staff, along with other health professionals, were enthusiastic about their "broader health and well-being responsibilities". Furthermore, the report cited a Healthy Living Pharmacy (see page 27 for definition) as an example of good practice.

Concerns surrounding pharmacists' training to deliver the newer public health roles outlined in the pharmacy contract have been raised, with systematic reviews investigating pharmacists' perceptions of their role in public health finding that pharmacists believed that they required further training to enable them to fulfil their public health role (Anderson et al., 2003; Eades et al.,2011). A survey of US pharmacy schools in 2005 found that few institutions gave pharmacy students the opportunity to gain knowledge and skills about lifestyle change that can improve health and wellbeing and prevent disease, with only four out of the fifty schools which responded to the survey offering a mandatory course on lifestyle change (Lenz, Monaghan & Hetterman, 2007). A comparable survey of UK pharmacy schools has not been conducted.

It also should be noted that since the introduction of *Choosing health through pharmacy* (DoH, 2005) and the pharmacy contract (DoH, 2005), there have been substantial changes to the structure of the NHS which have implications for pharmacy practice, many of which occurred while the studies presented in this thesis were being conducted. The introduction of *The Health and Social Care Act* 2012 brought about the biggest reforms since the NHS was formed. Amongst other reforms, the NHS in England was restructured, dissolving Primary Care Trusts (PCTs) and Strategic Health Authorities

and transferring the commissioning of health services from PCTs to Clinical Commissioning Groups (CCGs) run partly by GPs. A new body, Public Health England, was created, resulting in responsibility for commissioning public health services being transferred from the NHS to local authorities. This has implications for community pharmacies, which provide public health services. Under the new reforms, the Department of Health continues to determine the NHS reimbursement prices of medicines and appliances dispensed in community pharmacies. NHS England is responsible for the administration of the pharmacy contact whilst Local Area Teams, CCGs and local authorities can commission NHS pharmaceutical services including essential, advanced and enhanced services.

Despite the introduction of the pharmacy contract (DoH, 2005) and *Choosing Health through Pharmacy* (2005) which outlined a role for pharmacy in public health and facilitating patient self-management of chronic conditions, the process of 're-professionalisation' has not been straightforward. Pharmacies can only be sustained if they are profitable businesses, and 80% of an average UK pharmacy's income comes from dispensing NHS prescriptions (Conisbee, 2003). This can lead to conflict between the pharmacist's desire to provide a health service and their need for the pharmacy to function as a successful business (Bush et al., 2009). Pharmacists have reported a reluctance to offer potentially unwelcome health advice as part of public health services for fear of offending patients (Anderson et al., 2003; Eades et al. 2003) who notably also have the dual role of customers to the pharmacy which is a business as well as a provider of healthcare. Role extension has also been perceived by pharmacists to cause an increased workload resulting in stress and decreased job satisfaction for English community pharmacists (Gidman, 2011). Furthermore, the extended role of community pharmacists has been met with some opposition. Some doctors have expressed concern about this extended role encroaching on their economic and professional domains (Bush et al., 2009).

1.5 Evidence for pharmacist-led public health services

There have been several systematic reviews examining the efficacy of a range of community pharmacist-led public health services. The findings relating specifically to CVD and the respective risk factors are discussed below.

A commonly cited large-scale RCT conducted by Tsuyuki (2002) evaluated a pharmacist-led lipid management programme for 675 patients at high risk of developing CVD. Patients who were randomly assigned to the intervention received a cardiac risk assessment, lifestyle advice and referral to other health professionals where appropriate, whereas patients assigned to the standard care group received an information pamphlet on CVD and usual pharmacy services. The primary outcome measure or primary endpoint was patients' 'cholesterol risk management', which consisted of the patient's blood cholesterol levels and whether they had been prescribed cholesterol-lowering medication/ had had their cholesterol lowering medication adjusted. Patients randomly assigned to the intervention group reached the primary endpoint more frequently than patients in the standard care group (57% vs. 31% respectively).

An older systematic review conducted by Blenkinsopp et al. (2003) evaluated the effectiveness of community pharmacy based interventions to reduce risk factors and risk behaviours for coronary heart disease both in the UK and internationally, published between 1990-2001. The included studies were: five studies assessing smoking cessation interventions (two RCTs and three non-randomised experimental designs); two RCTs assessing lipid management interventions; one small descriptive study assessing a blood pressure management intervention and three studies using case finding interventions (which used pharmacy patient medication records to identify patients at risk of hyperlipidaemia). Blenkinsopp et al. (2003) concluded that there was good evidence demonstrating the efficacy of the role of community pharmacy in smoking cessation and cholesterol management, and that pharmacists can contribute to coronary heart disease prevention. However the authors questioned the generalisability of the studies given that they were conducted in the UK, Canada and the USA, raising questions about how transferable the results are between the different countries

and their respective care systems. Blenkinsopp et al. (2003) also noted that many of the studies were both conducted and evaluated by pharmacists, suggesting that this may have led to them drawing unduly positive conclusions about the future role of pharmacists in health promotion.

Anderson et al. (2003)conducted reviews of both the peer reviewed and non-peer reviewed UK and international literature published between 1990 and 2002, assessing the contribution community pharmacy could make to the public's health. The review of the peer-reviewed literature identified 35 trials or other experimental studies in 40 papers, and 34 descriptive studies. The studies were found to be heterogeneous in design with varying outcome measures. The robustness of the study designs was also found to be variable. The services which were deemed to have good evidence of clinical and cost effectiveness along with being well received by patients at an international level, were smoking cessation services and lipid management to prevent the development of coronary heart disease, with wider provision of such services in the UK recommended by the authors. Anderson et al. (2003) concluded that whilst studies evaluating diabetes, anticoagulation therapy and weight reduction services looked promising, there was not a sufficient evidence base for the effectiveness of pharmacists providing these services. The authors found little evidence of pharmacy users' views of services being tested and little evidence of user involvement in the development of services. The findings of the review of the non-peer reviewed literature supported the conclusions of the review of the peer-reviewed literature.

Whilst the review described the tools used to assess the quality of the studies, it did not give a detailed overview of the quality of the included studies, just noting that the 'robustness' of the study designs varied. It is also noteworthy that the evaluation of efficacy of the pharmacists offering smoking cessation services was based on two randomised controlled trials, for which no information about study quality was provided. Anderson, Bleinkinsopp and Armstrong (2009) conducted an update of the evidence base for community pharmacist involvement in public health, including 186 studies published over an eighteen year period (1990-2007). They suggested that there was a substantial evidence base supporting the contribution pharmacists can make to public health with

smoking cessation services and diabetes and lipid management included in the services deemed to have the strongest evidence for their efficacy. Hypertension services and cardiovascular disease prevention and management services were found to have some evidence supporting pharmacist involvement whilst Anderson et al. (2009) concluded that more research was required to determine the efficacy of pharmacist-led weight management services.

A Cochrane systematic review was conducted by Nkansah et al. (2010) to evaluate the effect of outpatient pharmacy services other than, or in addition to, drug compounding and dispensing on patient outcomes and prescribing patterns. Ten of the 43 included studies were conducted in a community pharmacy setting. Nkansah et al. (2010) found that an improvement in most outcomes measured was found with pharmacist intervention; however this was not consistently statistically significant. The heterogeneity of study designs and interventions made it difficult for the authors to summarise the overall benefit of community pharmacist intervention however they concluded that the evidence supported the role of pharmacists in medicines management and counselling patients about other public health issues. Meta-analyses performed on hypertension and glycaemic control studies with comparable study characteristics showed a beneficial effect of pharmacist intervention on blood pressure and HbA1c levels respectively.

Peterson, Fitzmaurice, Krupp, Jackson & Rasiah (2010) conducted a study which aimed to assess the suitability of Australian community pharmacies as a site specifically for CVD risk screening and evaluate the potential role of community pharmacists in identifying asymptomatic individuals at high risk of developing CVD. A projected 10 year risk assessment was calculated and explained to the participants in addition to providing psycho-educational material and verbal information about cardiovascular risk factors, diet and the role of exercise. No specific behavioural change was prescribed. Patients completed a questionnaire after three months to assess the outcomes of the intervention. Over a quarter of the 644 patients who participated in the study were identified as at increased risk of having a cardiovascular event and advised to consult a doctor whilst 73% of those screened were considered at increased risk because of their estimated 10 year cardiovascular risk or

abnormal test results. The patients were found to have a positive attitude towards pharmacists providing screening for risk of CVD. The majority of 'high risk' participants identified by the pharmacist reported discussing it with their doctor, and 50% of the 346 questionnaire respondents reported engaging in lifestyle modification or starting a new medication. Peterson et al. (2010) concluded that the pharmacist-led screening programme was feasible, and demonstrated the potential benefit of pharmacy screening as part of an intervention to alter cardiovascular risk.

A more recent literature review conducted by Brown, Portlock, and Rutter (2012) reviewed the services provided by pharmacies that promote healthy living in order to identify services that should be provided in 'Healthy Living Pharmacies' (HLPs). Brown et al. (2012) define HLPs as a new concept designed to meet public health needs through pharmacy services commissioned through a tiered commissioning framework and tailored to meet local needs and tackle health inequalities. The review included 377 studies, and only discussed the studies the authors deemed to be of the highest quality (the number of these studies was not specified). Overall, Brown et al. (2012) concluded that there was 'good' evidence in support of community pharmacy services for smoking cessation, CVD prevention, hypertension and diabetes. Brown et al. (2012) concluded that the evidence for the efficacy of pharmacist-led weight management was weak.

The review found good evidence for the effectiveness of hyperlipidaemia management, based upon a meta-analysis conducted by Machado et al. (2007) of 2246 patients in 13 studies which found that pharmacists' interventions significantly reduced systolic blood pressure whilst control participant systolic blood pressure remained the same. Brown et al. (2012) therefore concluded that pharmacists could promote better cardiovascular health through cholesterol reduction. Brown et al. (2012) concluded that there was good evidence demonstrating that interventions delivered by pharmacists significantly reduced systolic (not diastolic) blood pressure but regular patient review was needed for this to be maintained. Based on the evidence, Brown et al. (2012) concluded that regular patient review and medicine adjustment and pharmacists collaborating with other healthcare professionals were the most effective interventions. Patient self-monitoring, patient education and

appointment reminders in isolation were not found to be as effective. Brown et al. (2012) concluded that there was 'moderate' evidence demonstrating that pharmacist interventions resulted in effective weight loss, and sustained weight loss over repeat pharmacy visits. Finally, whilst Brown et al. (2012) concluded that community pharmacy had the potential to screen patients for alcohol abuse and provide advice on healthier drinking they suggested that more research is required to explore the role of the pharmacist in giving alcohol advice concluding that there was weak evidence to demonstrate that pharmacists were interested in adopting this role.

In contrast to the findings of Brown et al. (2012) regarding pharmacist-led weight management services, a systematic review to identify evidence for the efficacy and cost effectiveness of weight management interventions in the community pharmacy found that there was insufficient evidence for both the efficacy and cost-effectiveness of such interventions (Gordon, Watson, & Avenell, 2011). The review included studies with weight management as a primary focus conducted in a community pharmacy setting between 1999 and 2009, with weight loss as a primary outcome measure. Ten studies met the inclusion criteria, totalling 2,583 service users and 582 pharmacies. All of the interventions were comprised of multiple components, including a dietary element, yet none included a clear description of what the intervention incorporated, and all studies were judged to have reporting and methodological weaknesses by Gordon et al. (2011). The authors concluded that the interventions resulted in small but significant weight loss from baseline, however the effectiveness of the interventions was unclear. It is noteworthy that three studies used self-reported weight loss as an outcome measure, participant attrition was high and post-intervention follow up times were short. Gordon et al. (2011) also note that none of the studies assessed pharmacists' attitudes towards overweight and obese participants, citing research (Flodgren et al., 2010; Puhl & Heuer, 2009) that has shown that health providers' attitudes may be barriers to the efficacy of weight loss interventions.

Santschi et al. (2011) carried out a systematic review of RCTs to evaluate the effect of pharmaceutical care on outpatient management of major modifiable CVD risk factors in this case smoking,

hyperlipidaemia, hypertension, diabetes and obesity. Thirty RCTs were included, comprising of 11,765 patients. The review found that pharmacist interventions resulted in statistically significant reductions in blood pressure (diastolic and systolic), cholesterol (total and LDL) and risk of smoking, leading Santschi et al. (2011) to conclude that pharmacists are beneficial in the management of major CVD risk factors. However, as stated in relation to previous reviews, most studies included in this review were conducted in the US and Canada raising questions about the generalisabilty of the results given the different health care systems. Furthermore, the content of the interventions (including the frequency of delivery) ranged widely. This led the authors to conclude it was difficult to identify which aspects of the interventions were most effective in managing CVD risk factors, and more research is needed in this area. Patient satisfaction/evaluation was also not included as an outcome measure of the efficacy of the intervention therefore the acceptability of the interventions to patients is unknown.

Evans et al. (2012) conducted a systematic review to assess the efficacy of community pharmacist interventions aimed at preventing or managing diabetes and/or cardiovascular disease and/or their major risk factors. Studies examining community pharmacist interventions for diabetes, CVD and their risk factors were included whilst studies focusing on patient screening were excluded. Literature published between 1978 and 2010 was searched; of the 40 studies included in the review, study designs varied, and whilst some randomised controlled trials (RCTs) were included, the majority of the studies were uncontrolled 'before and after' studies. Included studies had sample sizes ranging from eight to 1,493 and the authors concluded that the quality was poor in over half of the studies. The most common interventions were patient-education, patient follow-up and identifying medicine-related problems and subsequent referral to a doctor, which were found to be successful at producing a significant difference in the primary outcome measure (which varied across the studies) in most of the studies. The authors concluded that most studies demonstrated that community pharmacist intervention was beneficial for the reduction or management of diabetes or cardiovascular disease and their risk factors, however the quality of the studies overall was poor,

interventions were time consuming and none of the studies showed a change in major health outcomes.

To summarise, there is evidence demonstrating the effectiveness of public health services delivered by pharmacists, both generally and specifically in relation to cardiovascular health. However caution should be exercised when interpreting these findings, given that concerns have been raised about the quality and heterogeneity of the studies.

1.6 Pharmacists' involvement in public health services

Research suggests that pharmacists' actual involvement in delivering public health services does not always reflect their desired involvement or that indicated in the pharmacy contract and the 'Choosing health through pharmacy' best practice guidelines. Bush et al. (2009) examined the public health activities of 1023 (response rate: 51%) community pharmacists using self-administered questionnaires. They found that the public health activities of pharmacists varied in accordance with the ownership of their employer. Supermarket pharmacies were less likely to provide emergency hormonal contraception, needle exchange schemes and supervised administration of medicine (the most common of which are medicines used to support drug addiction withdrawal) than independent and multiple pharmacies whilst multiple and supermarket pharmacies more likely to provide screening services than independent and small chain pharmacies. Participating pharmacists believed that larger pharmacy chains and supermarkets with large turnovers would hold favourable positions when attempting to attract funding to develop new services. The implications of this being that independent community pharmacies would not be able to provide such a comprehensive range of public health services as supermarket and large chain pharmacies. Pharmacists working in corporate pharmacies also reported conflict with commercial interests as a significant barrier to providing the set public health agenda. This finding supports those of a study conducted by Maunder and Landes (2005) who examined the role of community pharmacists in oral healthcare. Most of the participating pharmacists reported that they would like to participate in oral health promotion, however employees of multiple ownership pharmacies stated that permission to engage in health

promotion would have to be sought from the company. The pharmacists identified this as a barrier to health promotion activities, indicating that senior management may not agree with their involvement in such activities. A recent Canadian study investigated pharmacists' ideal and actual involvement in health promotion and prevention (Laliberte et al., 2012) Of the 574 pharmacists who returned the questionnaire (46% return rate), most believed that they should be 'very involved' in health promotion and prevention, particularly relating to smoking cessation (84.3%), screening for hypertension (81.8%), diabetes screening (76.0%) and dyslipidaemia (56.9%). However, when reporting their actual involvement in these activities, a smaller proportion of pharmacists reported being 'very involved' in providing such services. Only 4.5% of pharmacists reported being very involved in providing lifestyle services (including smoking cessation) whist fewer pharmacists were actively involved in providing hypertension screening (44.5%), diabetes (34.8%) and hyperlipidaemia (6.5%) screening respectively. As with previous studies, barriers to providing such services were identified as lack of: time; coordination with other health care professionals; staff or resources; remuneration and clinical tools. A study exploring Scottish community pharmacists attitudes towards and provision of advice on alcohol use found that only 5% of 497 respondents reported exploring how much patients drink once a week or more whilst 29% of respondents had never asked patients how much they drink (McCaig, Fitzgerald, & Stewart, 2011a).

The gap between ideal and actual involvement in public health activities was also identified in the only study to date which has examined community pharmacists' attitudes towards pharmacist-led public health provision specifically for cardiovascular health. O'Loughlin et al. (1999) examined 455 Canadian pharmacists' participation in health promotion and disease prevention as part of an initiative to raise awareness of CVD. The study found that pharmacists had high levels of interest in developing a prevention role; with 60% of participants rating integrating prevention into their daily practice as "very important" and 31% rating it as "important". Despite this, few pharmacists reported routinely engaging in preventative practice, with less than one third reporting initiating a conversation with a patient about their health. The pharmacists demonstrated less interest in

developing projects relating to physical activity, diet and smoking. In line with this, only 17-18% of the participants reported frequently advising clients about behavioural changes to reduce the risk of CVD. Few pharmacists reported identifying “at risk” patients and providing them with educational information. O’Loughlin et al. (1999) suggested that this may be due to advice regarding behaviour change falling further outside of the pharmacist’s traditional role. In line with the findings of Laliberte et al. (2012), the most important perceived barriers to incorporating prevention into daily pharmacy practice were: lack of skills, staff shortage, not receiving remuneration in return for the provision of prevention services and a lack of consultation space. One third of the pharmacists surveyed reported that the barriers prevented them “a lot” or “somewhat” from engaging in prevention intervention practices.

1.7 Health Professional behaviour and psychological theory

The main purpose of this thesis was to understand pharmacists’ behaviour in relation to supporting patient self-management of CVD through lifestyle behaviours. A significant amount of work has examined health behaviour change in patients, however there has been less research examining how to change health professional behaviour in order to facilitate patient behaviour change. As outlined, there is some evidence to suggest that pharmacists can have a positive effect on the outcome of patients with CVD. However research suggests that pharmacists’ involvement in the provision of services to promote patient self-management of CVD and the provision of public health services in general does not match their desired involvement (Bush et al., 2009; Laliberte et al., 2012; Maunder & Landes, 2005; O'Loughlin et al., 1999) or that outlined in the UK pharmacy contract (DoH, 2005).Therefore it appears that the behaviour of pharmacists needs to change in order for them to facilitate patient behaviour change.

Psychological theories traditionally used to understand, explain and in some cases change, patient health behaviours have increasingly been applied to understand health professional behaviour. The publication of a paper by Marteau and Johnston (1991) was seminal in the field of health professional behaviour research. Marteau and Johnston (1991) argued that psychologists had not

accounted for the health professional as a source of variance in the health outcomes of patients, suggesting that this may be the result of adopting the implicit assumption that health professional behaviour is based on medical knowledge and therefore all health professionals hold the same set of empirically driven beliefs. Any deviation in health professional behaviour is therefore attributed to a lack of knowledge, forgetting or consciously choosing to disregard knowledge. Marteau and Johnston (1991) challenged this assumption, citing evidence of variation in health professional behaviour to the same clinical situations and attributing this to health professionals having their own beliefs about health and illness like patients. Marteau and Johnston (1991) made three key arguments: health professional behaviour is influenced by other factors in addition to medical knowledge; psychological models used to investigate patient behaviour could be used to explain, predict and change health professional behaviour and in order to achieve effective patient care, health professional behaviour needs to be examined alongside the behaviour of patients.

Subsequent research has supported the assertions made by Marteau and Johnston (1991). Godin, Belanger-Gravel, Eccles, and Grimshaw (2008) conducted a systematic review of factors influencing health professional behaviour based on social cognition theories. The 76 included studies examined a range of behaviours including hand washing, clinical exams, counselling and clinical guideline adherence across different health professional groups including pharmacists, doctors and nurses. The review found that social cognition models accounted for, on average, 31% of the variance in the prediction of health professional behaviour and 59% of the variance in intention. As suggested by Marteau and Johnston (1991), these findings are similar to those of patient health behaviours. Furthermore a series of studies which assessed five types of clinical behaviour (taking dental radiographs, performing dental restorations, placing fissure sealants, managing upper respiratory tract infections without prescribing antibiotics and managing low back pain without ordering x-rays) in two populations (doctors and dentists) using multiple theories found that psychological models used to predict patient behaviour were also predictive of health professional behaviour (Eccles et al., 2012). The Theory of Planned Behaviour (Ajzen,1991), Social Cognitive Theory (Bandura, 1977),

Implementation Intentions (Gollwitzer, 1999) and Learning Theory (Bandura, 1977) predicted 25-42.6% median variance in intention and 6.2-16% in behavioural simulation and 2.4-6.3% in objectively measured behaviour. The Knowledge-Attitudes-Behaviour model, which assumes that knowledge will change attitudes which will change behaviour (Eccles et al., 2012) was not a predictor of health professional intention or behaviour, and performed poorly across the studies.

The Theory of Planned Behaviour (TPB) (Ajzen, 1991) was one of the psychological theories of behaviour considered in the current programme of work. The TPB is the most widely used social cognition model and has been used to understand a range of behaviours including: dietary behaviours, physical activity, safer sex, smoking cessation and abstinence from drugs of abuse (McEachan, Conner, Taylor, & Lawton, 2011) as well as health professional behaviour (Eccles et al., 2012; Godin et al., 2008)The TPB has been used to examine pharmacists' behaviour in a number of areas including: intention to report serious drug events (Gavaza et al., 2011); counsel children with asthma (Pradel, Obeidat, & Tsoukleris, 2007); use a drug monitoring database (Fleming et al., 2014); and dispense over-the counter medication (Walker, Watson, Grimshaw & Bond, 2004).

An extension of the Theory of Reasoned Action (Fishbein and Ajzen 1975, Ajzen and Fishein, 1980), the TPB (and its predecessor) assume that people form attitudes through careful consideration of all the information available to them. The TPB proposes that individuals' intentions to perform a behaviour along with their evaluation of the control they have over performing the target behaviour (perceived behavioural control) are the proximal determinants of them engaging in the behaviour. Behavioural intentions represent an individual's conscious plan or decision to attempt to perform the behaviour (Conner & Norman, 2005) and are considered an important precursor to engaging in behaviour, reflecting the premise that people tend to engage in behaviours that they intend to perform.

The TPB posits that intention is underpinned by three factors: attitude (towards the behaviour), perceived behavioural control (PBC) and subjective norm. Attitudes are formed by the individual's beliefs about the consequences of engaging in the target behaviour based on their perception of the

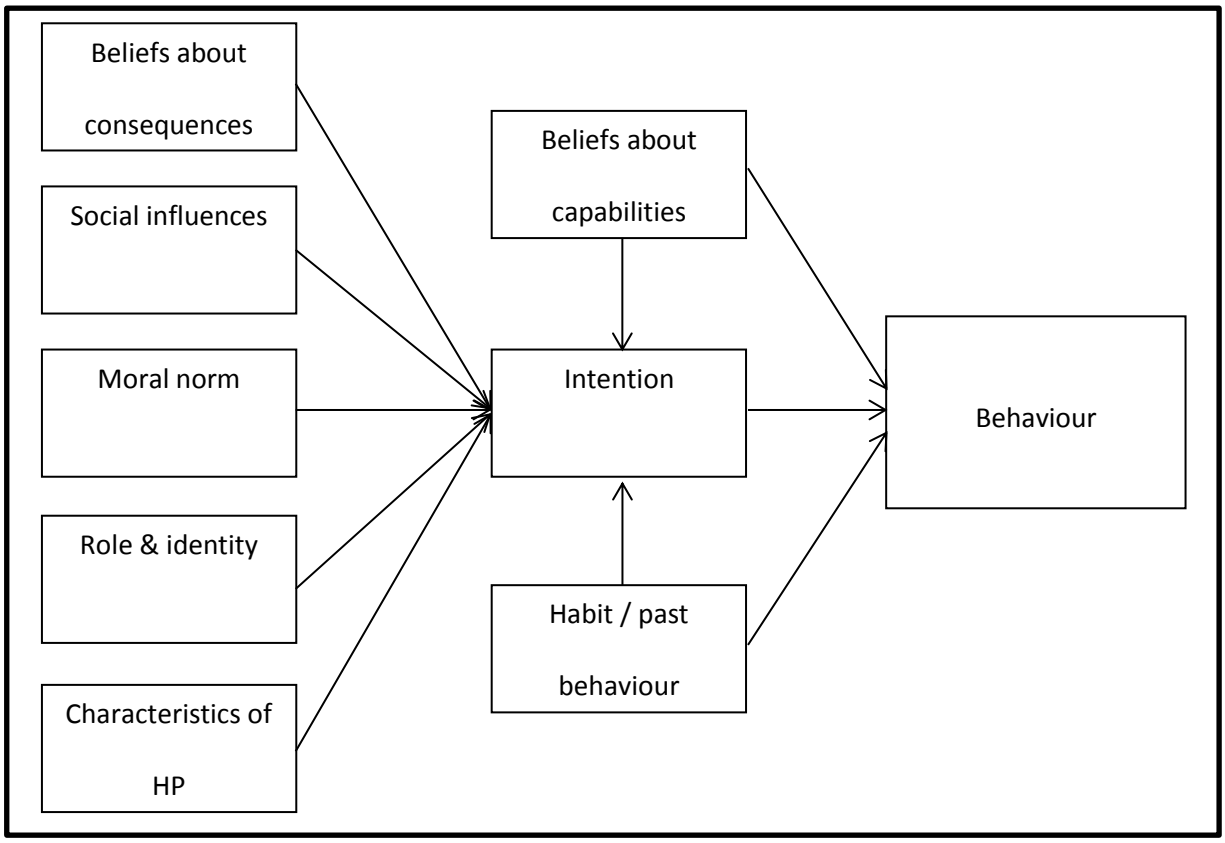
outcome of performing the behaviour along with an evaluation of this outcome (e.g. “giving a patient smoking cessation advice may help them quit smoking, helping them quit smoking is good”). Subjective norm refers to an individual’s perception of important others’ beliefs regarding whether they should perform the behaviour in question. This is comprised of beliefs about whether significant others think that the individual should engage in the behaviour and the individual’s motivation to comply with the perceived expectation of significant others (e.g. “my boss wants me to give patients smoking cessation advice and my boss’s opinion is important to me”). Finally perceived behavioural control, defined as an individual’s beliefs about their ability to execute the behaviour, is the result of consideration of the power of both internal control factors (such as skills, abilities, emotions) and external control factors (such as barriers, opportunities and reliance on others) to facilitate or prevent execution of the behaviour (e.g. “I have the ability to give patients smoking cessation advice despite the pharmacy being busy”).

The effectiveness of the TPB has been demonstrated in various studies. An early review of 87 studies conducted by Godin and Kok (1996) found that the TPB predicted an average of 41% of the variance in intention and 34% of the variance in behaviour whilst a widely cited systematic review and meta-analysis of 185 studies by Armitage and Conner (2001) found that the TPB accounted for 27% of the variance in behaviour and 39% of the variance in intention. A recent systematic review of 237 independent prospective studies of patient health behaviours conducted by McEachan et al. (2011) found that the TPB accounted for 19.3% of the variability of health behaviour and intention to be the strongest predictor of behaviour. Specifically in relation to health professional behaviour, Godin et al. (2008) found that studies using the TPB (and some studies utilising the precursor of the TPB, the Theory of Reasoned Action, (Ajzen & Fishbein, 1975; 1980))were significantly more predictive of health professional behaviours than studies using other theories and that the TPB was the best theoretical model at predicting health professional behaviour in their systematic review of factors influencing health professional behaviour based on social cognitive theories.

Whilst Godin et al. (2008) concluded that the TPB (Ajzen, 1991) was best at predicting health professional behaviour, the review concluded that another social cognitive model, Triandis' Theory of Interpersonal Behaviour (TIB) (Triandis, 1979) was the best theory at capturing the variables underpinning health professionals' intentions to engage in clinical behaviour. The TIB (Triandis, 1979) posits that behaviour is determined by three factors: intention (referring to an individual's motivation to perform a behaviour), facilitating conditions (factors that can make it easy to carry out a behaviour verses barriers that can prevent realisation of the target behaviour) and habit (referring to how frequently a behaviour has been carried out in the past). According to the TIB, the determinants of intention are attitude, social factors and affect. Attitude is comprised of the individual's beliefs about outcomes and their evaluation of outcomes. Social factors are comprised of norms (social rules about what should and should not be done), roles (beliefs about behaviours considered appropriate for an individual given their age, gender and social status) and self-concept (the level of congruence between an individual's perception of themselves and the characteristics they associate with engaging in the target behaviour). Finally, affect refers to the emotional state the individual experiences when performing the behaviour.

Based on the their findings, Godin et al. (2008) proposed a theoretical framework for health professional behaviour based upon the categories of variables most associated with health professionals' intention and clinical behaviour (see Figure 1.1). This includes variables from the TPB (Ajzen, 1991) and the TIB (Triandis, 1979) described above. The two categories that most frequently predicated behaviour were intention and beliefs about capabilities whilst five categories of variables were found to significantly contribute to health professionals' intention to adopt clinical behaviour: beliefs about consequences; moral norm; role and identity and characteristics of the health professional.

Figure 1.1: Godin et al. (2008) Framework of health professional behaviour



HP: Healthcare professional

Beliefs about capabilities (also referred to as self-efficacy) is a central component of Social Cognitive Theory (SCT) (Bandura, 1977), another commonly cited social cognitive model that has been used in health professional behaviour research. A recent study examining the performance of different theoretical models across five clinical behaviours implemented by GPs and dentists, (Eccles et al., 2012) concluded that SCT (along with the TPB) was successful at predicting health professionals' intention to engage in clinical behaviours. SCT suggests that a key determinant of behaviour is self-efficacy, which refers to an individual's belief in their ability to perform a task and achieve a desired outcome. Proximal goals (the equivalent of intention in the TPB) and outcome expectations (physical, social and self-evaluative expectations of performing behaviour) and self-efficacy are direct predictors of behaviour when SCT is operationalised (Bandura, 1998). Unlike most theories of behaviour, SCT specifies how to modify self-efficacy (the main determinant of behaviour in this

model) through four techniques: mastery experiences, modelling, persuasion and 'physiologically similar experiences'.

Self-efficacy, a central component of STC (Bandura,) has been identified as playing an important role in pharmacists' public health activity. Systematic reviews by Anderson et al. (2003) and Eades et al. (2011) found that pharmacists lacked confidence in their abilities to offer public health services and that pharmacists reported needing further support to behaviour based health promotion. Further studies exploring pharmacists' experiences of giving patients lifestyle advice also found they lacked confidence in their abilities to give such advice (Dhital, Whittlesea, Milligan, Khan, & Norman, 2013; Horsfield, Sheridan, & Anderson, 2011). Both Anderson et al. (2003) and Eades et al. (2011) concluded that training was fundamental in changing pharmacists attitudes towards and engagement in public health services, with Eades et al. (2011) suggesting that pharmacists' self-efficacy should be targeted in future interventions to change pharmacists' public health-related behaviour. Some studies have sought to change pharmacists' public health related behaviour. However at present, no literature is available on the efficacy of interventions to change pharmacists' behaviour with the view to change patients' lifestyle behaviours, and the components of the interventions that work.

1.8 Pharmacists' attitudes towards their public health role

As previously discussed, psychological theories such as the TPB (Ajzen, 1991) state that attitudes are a determinant of behaviour. This was demonstrated in a study by (Laws et al., 2008) who found that Australian clinicians who reported high levels of engaging in conversations with patients about lifestyle behaviours had different attitudes and beliefs to clinicians who reported low levels of discussing lifestyle behaviours with patients. Another study by Cockburn and Pit (1997) examined the effect of General Practitioners (GPs) perceptions of patient expectations on the GPs' medication prescribing behaviour, finding that GPs perceptions of patient expectations were the strongest determinant of medication prescribing behaviour. The study found that patients who expected to be prescribed medication were three times more likely to be prescribed medicine for a new condition

and patients were ten times more likely to be prescribed medication if the GP perceived that the patient expected to be prescribed medication. Finally a study by Little et al. (2004) found that whilst perceived medical need was the strongest predictor of GP behaviour, a considerable minority of patients were prescribed medication (19%), examined (15%), investigated (46%) or referred onto another service (22%) when the GPs believed there was a slight or no medical need to do so. After controlling for perceived medical need, GPs perceptions of patient pressure was an independent predictor of all GP behaviours measured (prescribing, examining, investigating and referring). It is therefore important to understand health professionals (including pharmacists) attitudes towards their role in facilitating patient self-management of CVD through giving lifestyle advice.

Previous research has found variation in pharmacists' attitudes towards their role in public health. In a study investigating Scottish pharmacists' views and attitudes towards public health practice and competence, the majority of participating pharmacists agreed or strongly agreed that public health was an important component of their professional practice. Fifty-six per cent of participating pharmacists agreed or strongly agreed that they were public health practitioners (Pfleger, McHattie, Diack, McCaig, & Stewart, 2008). On the other hand, research has identified that pharmacists perceive their role in public health to be of less importance than other roles. A study examining community pharmacists' attitudes towards their professional practice conducted in the Republic of Moldova found pharmacists rated public health activities of lower importance than other areas of practice such as dispensing(Cordina, Safta, Ciobanu, & Sautenkova, 2008). Furthermore, when participating community pharmacists were asked to rate their preference of hypothetical jobs, Scott, Bond, Inch, and Grant (2007) found that pharmacists would rather provide a minor illness service than provide health promotion advice, and were prepared to forgo £2798 in hypothetical remuneration as a result.

Anderson, Blenkinsopp and Armstrong (2003) conducted a systematic review of peer reviewed and non-peer reviewed studies published between 1990 and 2001 investigating pharmacists' attitudes towards and perceptions of their role in improving public health, identifying twelve studies for

inclusion in the review. Anderson et al. (2003) concluded that community pharmacists were largely enthusiastic about the role of pharmacy in public health. However in practice, the review found that pharmacists' health promotion activities tended to be based around use and supply of medication. Pharmacists reported a reactive rather than proactive approach to health promotion which appeared to be driven by pharmacists' concern of appearing "intrusive" to customers by delivering potentially unwelcome health advice. Pharmacists' dispensing duties were identified as the key barrier to increased engagement with health promotion which Anderson et al. (2003) attributed to the way in which pharmacies are remunerated by the National Health Service (per prescription item dispensed), suggesting this causes dispensing to be prioritised above other activities.

The findings of the Anderson et al. (2003) review were consistent with that of a later review conducted after the introduction of the pharmacy contract in England. Eades et al. (2011) concluded that the attitudes and beliefs of pharmacists could be categorised into four main topic areas: perceptions of role; competence and confidence; barriers; and training. The majority of pharmacists held positive attitudes towards providing public health services and viewed it as an important role. However, the review found that pharmacists considered their public health role as secondary to traditional medicine-related roles and were less confident in their abilities to provide public health services. In line with the findings of Anderson et al. (2003), Eades et al. (2011) found that pharmacists adopted a reactive rather than proactive approach to health promotion. The majority of studies found lack of patient demand for services and negative customer reactions were not a barrier to public health practice; however some pharmacists still perceived this to be a problem. Training was found to have a positive effect on pharmacists' attitudes, and the review concluded that pharmacists are aware of the role they can play in health promotion and self-care. Eades et al. (2011) suggested that future interventions should target pharmacists' low confidence in their abilities to provide public health services (self-efficacy). They assert that supporting pharmacists to become more proactive in their approach would increase patients' exposure to public health services, which in turn would have a positive effect on the health and attitudes of the general public. Eades et al. (2011) called for future

research to investigate the efficacy of strategies to increase pharmacists' confidence and change their public health practice behaviour.

There have been other more recent studies examining pharmacists' perceptions of their public health role since the publication of the Eades et al. (2011) systematic review, all of which are in keeping with the findings of the review. Horsfield et al. (2011) conducted a qualitative study with 22 English pharmacists and 18 New Zealand pharmacists to explore pharmacists' perceptions of providing screening and brief interventions for excessive alcohol consumption. They found that views on providing this service were mixed, with some pharmacists seeing a potential role for community pharmacists whilst others believed that providing brief alcohol interventions was not part of their role. Some pharmacists were apprehensive about providing the advice due to potentially offending patients. The pharmacists identified time, lack of experience and confidence, and privacy in the pharmacy as barriers to providing brief interventions whilst training, a public health campaign and screening tools were identified as facilitators. The authors concluded that there was potential for pharmacists to provide alcohol screening and brief interventions in a pharmacy setting, however suggest future research is required to examine implementation strategies and the efficacy of such interventions. Another study investigating pharmacist's provision of advice on alcohol use found mixed views about the perceived appropriateness of pharmacist involvement in giving advice about alcohol use. McCaig, Fitzgerald, and Stewart (2011b) found that 13% of respondents strongly agreed that pharmacists had the right to ask patients about alcohol use whilst 26% of responding pharmacists strongly disagreed with this statement.

1.9 The effect of patients on pharmacists behaviour

As previously outlined, according to psychological theory, attitudes are determinants of behaviour. Given that there is evidence to suggest that health professionals' perceptions of patients' behaviour influence health professionals' behaviour, it is also important to consider patients' attitudes towards pharmacists as this is likely to affect patient behaviour which in turn may affect pharmacists' behaviour.

In the past decade two systematic reviews of patients' perceptions of the community pharmacist's role in public health have been conducted. A systematic review of the peer and non-peer reviewed literature published before the introduction of the 2005 England and Wales pharmacy contract by Anderson et al. (2004b) found that pharmacy users did not view the pharmacy as a source of health advice and did not utilise it for this purpose; rather, pharmacists were viewed as 'drugs experts'. In studies where participants did receive health advice from a community pharmacist, the majority of participants evaluated the pharmacist's input positively. In their later systematic review Eades et al. (2011) noted the consistency in findings with the Anderson et al. (2004) review despite the significant changes to the pharmacy landscape within that time. Eades et al. (2011) found that most pharmacy users had not been offered public health services at the pharmacy, nor did they expect to be offered them. Despite this, the public held positive attitudes towards pharmacy-based public health provision, and consumers who had experienced public health services at the pharmacy were highly satisfied. However, pharmacy users' perception of pharmacists' ability to provide public health services was mixed, and as found by Anderson et al. (2004), lack of privacy in the pharmacy was cited as a concern. More recently, Perepelkin (2011) conducted a questionnaire telephone survey with 403 participants in a Canadian province to assess their perception of pharmacists. In general respondents held positive attitudes towards community pharmacists, although this varied within the sample. Gender, age and socio-economic status were found to influence public perceptions of community pharmacists. The majority of respondents (65%) viewed themselves as customers, with only 14.9% of respondents describing themselves as patients when visiting the pharmacy.

Despite CVD being the leading cause of death worldwide (WHO, 2011), only a small number of studies have assessed pharmacy service utilisation specifically in relation to cardiovascular health from the perspective of the general public and patients diagnosed with/at risk of CVD. Peterson, Jackson and Hughes (2010) conducted 505 telephone interviews to assess the Australian public's perception of community pharmacists' role in CVD prevention and management. As with previous studies, the majority of participants were happy with the service provided at the pharmacy.

Participants perceived pharmacists to be most capable at providing medication information, with 90% of participants happy to seek this advice from a pharmacist. Peterson et al. (2010) concluded that participants believed that community pharmacists were capable of providing screening services for hypertension and diabetes (with 52% of participants indicating this); however the results suggest that participants were more likely to use these services if provided by a doctor (97% of participants indicated this). Peterson et al. (2010) concluded that participants lacked awareness of the services available at the community pharmacy and knowledge of community pharmacists' abilities. Another study conducted by van Geffen et al. (2011) in the Netherlands examined the attitudes of 578 new and chronic users of cardiovascular medication using a questionnaire design. The authors aimed to establish whether patients felt that they had received enough information about their cardiovascular medications in addition to ascertaining the extent to which these patients experienced counselling activity at the pharmacy. The authors concluded that a large proportion of patients were dissatisfied with the information they received on cardiovascular medication. Furthermore two thirds of respondents indicated that they had never experienced five of the eight listed counselling activities. Two thirds of respondents saw their GP as a primary source of information and their first point of contact should they experience any problems with their CV medication. New users of cardiovascular medications were less satisfied with their experience at the pharmacy in comparison to chronic medication users (those who had collected at least 40 prescriptions for CV medications in the last three years). The authors of the study support the assertions of Peterson et al. (2010) and suggest that patients are unfamiliar with what they describe as the crucial role that pharmacists can play in the management of chronic illness through education and counselling activities.

Finally, in one of the few UK based studies, Clark et al. (2005) conducted a qualitative exploration of community pharmacists' contribution to chronic heart failure management (CHF) in Scotland, interviewing 50 patients with CHF and 30 of their primary caregivers. Participants reported a range of unmet needs in relation to their medication. Unlike participants in the van Geffen et al. (2011) study,

many patients were reluctant to consult their GP with problems but felt comfortable to ask pharmacists who were perceived as knowledgeable about medication and CHF and easily accessible.

1.10 Theory and behaviour change

So far, it has been demonstrated that pharmacists' involvement in public health services does not match their desired behaviour or that outlined in the UK pharmacy contract (DoH, 2005), and the use of theory to explain and predict pharmacists' behaviour has been advocated. However there are problems associated with theories of behaviour; whilst theories of behaviour explain and predict behaviour, they do not specify how to change behaviour (Eccles, Grimshaw, Walker, Johnston & Pitts, 2005).Taking the example of using the TPB (Azjen, 1991) to explain pharmacists' lifestyle advice-giving behaviour, pharmacists' attitude towards giving lifestyle advice, subjective norms surrounding giving lifestyle advice and pharmacists' perceived behavioural control over giving lifestyle advice will lead to pharmacists forming (or not forming) intentions to engage in lifestyle advice-giving behaviour. Therefore, according to the TPB, to change pharmacists' lifestyle advice-giving behaviour, the aforementioned behavioural determinants should be targeted. However the TPB does not specify *how* to target the determinants in order to change behaviour. This was raised in recent criticism of the TPB (Ajzen, 1991) by Sniehotta, Presseau, and Araújo-Soares (2013) who argued that the TPB has lost its utility and does not aid the development of behaviour change interventions as the theory does not specify how to change behaviour. Azjen (2014) refuted Sniehotta et al.'s (2013) assertion that the TPB does not provide an adequate basis for behaviour change interventions, arguing that the TPB was developed as a theory to aid prediction and explanation of intention and behaviour rather than of behaviour change *per se*, however that the theory could be useful the development of behaviour change interventions.

Given that theories of behaviour generally do not specify how to change behaviour, a different set of techniques are required for this. Michie and Johnston (2012) suggest that in order to understand the mechanisms that underpin behaviour change, clear and agreed standards are required to identify the 'active ingredients' in behaviour change and to effectively design, report and evaluate behaviour

change interventions. They highlight that there is variation in the effectiveness of behaviour change interventions, and that a full understanding of the reasons for this variation is yet to be reached. Michie and Johnston (2012) suggest that in order to achieve this, specification and descriptions are required of: the target behaviours to be changed; the techniques used to change behaviour; the competencies required by individuals delivering the behaviour change techniques; the way the techniques are delivered, and the level of intervention. The behaviour change taxonomy (Abraham & Michie, 2008) was developed to aid behaviour change intervention design, reporting and evaluation by providing standardised definitions of BCTs. The behaviour change taxonomy was reached by expert consensus and now consists of 93 individual BCTs (Michie et al., 2013).

There is on-going debate within the health psychology literature concerning whether interventions based on psychological theory are more effective than interventions that are not based on psychological theory. At present the evidence is unclear. There is some evidence that interventions based on theory are more effective than interventions not based on psychological theory. A systematic review and meta-analysis which assessed the use of the online interventions to promote health behaviour change (Webb, Joseph, Yardley, & Michie, 2010) found that more extensive use of theory was associated with increases in effect size ($p=0.049$) and interventions that used more behaviour change techniques (BCTs) (defined as "observable and replicable components of behaviour change interventions"(Michie & Johnston, 2012) were associated with higher effect sizes that interventions that used fewer behaviour change techniques.

Prestwich et al. (2013) highlighted that whilst there is some evidence demonstrating that use of theory in behaviour change interventions is associated with larger intervention effects, other studies have found no association between use of theory and intervention effectiveness. Prestwich et al. (2013) conducted a systematic review and meta-analysis to assess whether the use of theory influenced the effectiveness of interventions targeting physical activity and healthy eating, finding that interventions based on theory were no more effective than those that did not report using a theory base to design the intervention. Furthermore a systematic review and meta-analysis of

interventions to limit gestational weight gain in pregnant women found that the two studies included in the review that evaluated interventions based on psychological theory had less impact on weight outcomes than interventions that did not report using theory to design the intervention (Gardner, Wardle, Poston, & Croker, 2011). However it is noteworthy that the authors state that due to poor reporting of the interventions and underuse of theory in gestational weight gain interventions, is it unclear if the 'wrong' theories were used, appropriate theories were not correctly applied, or the expected link between theory and intervention effectiveness was not present, problems that are applicable to the evaluation of behaviour change interventions in general (Michie, Jochelson, Markham & Bridle, 2009).

Based on the evidence, the view taken in this thesis was that despite there being a lack of definitive evidence demonstrating that theory-based interventions are more effective than interventions not based on theory, the use of psychological theory in explaining, predicting and changing behaviour is beneficial. A clear description of the theoretical basis of an intervention facilitates an understanding of its 'active ingredients' and makes it easier for researchers to replicate interventions with confidence. The work presented in this thesis is of an exploratory nature and does not seek to develop an intervention to change pharmacists' behaviour. Rather, the studies presented seek to explore pharmacists' experiences of facilitating patient self-management of CVD through lifestyle advice and use psychological theory to understand pharmacists' advice-giving behaviour. In order to change behaviour an understanding of the behaviour in question is required. Gaining an understanding of pharmacists' lifestyle advice giving behaviour using theories of health behaviour is necessary in order to form an evidence base from which interventions using BCTs to change pharmacists behaviour can be developed. This thesis therefore also sought to review the efficacy of interventions that have been designed to change pharmacists' lifestyle advice giving behaviours and identify if any BCTs were effective at doing so. Finally, it has been demonstrated that patient's expectations and behaviour shape health professionals' behaviour therefore an understanding of

patients' perceptions and expectations of pharmacists' role in facilitating patient CVD self-management is required.

1.11 Research aims and objectives

The overarching aim of the work presented in this thesis was to understand and explain the behaviour of UK community pharmacists in relation to facilitating patient self-management of CVD through lifestyle behaviours. At present, not enough is known about pharmacists' perceptions of and behaviour in relation to this role. A mixed methods programme of work comprising of four studies was developed. The specific objectives of each of the studies were as follows:

i. To explore community pharmacists' experiences of giving lifestyle advice to patients with CVD (a qualitative study).
ii. To identify the predictors of pharmacists' lifestyle advice-giving behaviour in a cross-sectional sample of pharmacists (a quantitative study).
iii. To systematically review evidence examining the efficacy of interventions designed to enable pharmacists to facilitate patient lifestyle behaviour change and identify what theories and behaviour change techniques, if any, had been used in effective interventions.
iv. To explore the experiences of patients with hypertension and/or hyperlipidaemia related to having CVD and using community pharmacy services (a qualitative study)

2 Chapter Two: Methodology

2.1 Introduction

Combining qualitative and quantitative methods, typically referred to as 'mixed methods', is potentially difficult and contentious, with some qualitative and quantitative researchers expressing concern regarding whether the two methodologies can and should be combined. The debate stems

from the differences in theoretical perspectives and paradigms on which qualitative and quantitative research are based (Yardley & Bishop, 2008). This chapter will summarise the theoretical assumptions underpinning qualitative and quantitative research and make the case for a mixed methods approach underpinned by Pragmatism to examine the role pharmacists can play in facilitating patient self-management of cardiovascular disease.

2.2 The differences between qualitative and quantitative methods

Qualitative and quantitative research methods are often viewed as having opposing and competing paradigms (Todd, Nerlich, McKeown, & Clarke, 2004). At a very basic level, as described by Dures, Rumsey, Morris, and Gleeson (2011) researchers who work within a quantitative framework believe that reality is universal, objective and can be measured whilst qualitative researchers argue that reality is socially constructed by and between those who experience it. Hammersley (1991) outlined differences between qualitative and quantitative research as follows: the use of words in qualitative research and the use of numbers in quantitative research; the focus on meaning in qualitative research verses a focus on behaviour in quantitative research; the adoption of a natural science model by quantitative researchers versus rejection of this model by qualitative researchers; the use of an inductive approach by qualitative researchers verses the use of a deductive approach by quantitative researchers and the exploration of cultural patterns by qualitative researchers verses quantitative researchers seeking scientific laws.

The differences between the approaches, for some researchers, are such that the debate about the use of qualitative verses quantitative methods has been referred to as “the paradigm wars” (Yardley & Bishop, 2008). Traditionally there has been an assumption that qualitative and quantitative approaches are incompatible paradigms to study the social world because of the differences in the assumptions the approaches make about the nature of reality (ontology) and how knowledge is studied and obtained (epistemology) (Dures et al., 2011). The ‘incompatibility thesis’ (Ericcsson & Simon, 1993) posited that qualitative and quantitative methods were incompatible with one another

and therefore could not and should not be mixed (Onwuegbuzie & Leech, 2005). The debate between the two epistemologies is neatly summarised by Todd et al. (2004):

> *"…whereas qualitative researchers accuse quantitative ones of positivism, reductionism, determinism and objectivism, quantitative researchers accuse qualitative ones of fuzziness and subjectivity…" (p5)*

Qualitative research tends to be associated with 'interpretative' or 'constructivist' paradigms whilst quantitative research tends to be associated with 'scientific' or 'positivist' paradigms. The following sections will further define the assumptions associated with each approach.

2.3 Positivist/ Scientific Paradigm

The positivist approach traditionally has dominated psychology research, and arguably continues to do so (Ponterotto , 2005; Yardley & Bishop, 2008). Yardley and Bishop (2008) state that the epistemology that underpins the 'scientific' or 'positivist' paradigm dates back to Descartes, who suggested that the only direct available knowledge is of our own mind, and therefore all other knowledge must be gained through direct observation. From an ontological perspective, positivists believe that there is a single 'true' reality that is identifiable and quantifiable, referred to as naïve realism (Ponterotto, 2005). This epistemology highlights the importance of observations being as accurate as possible to gain the 'correct' understanding of the world. Consequently positivist methods can be seen as a way to achieve the most accurate observations through using controlled environments to account for sources of variability and the use of measures to avoid 'inaccurate' subjective observations (Yardley & Bishop, 2008).

2.4 Constructivist/Interpretivist Paradigm

In the 1960s, some psychologists became dissatisfied with using a quantitative approach to understand human behaviour, and adopted methods which they believed gave a more 'naturalistic, contextual and holistic' understanding of behaviour; methods which later became known as qualitative methods (Todd et al., 2004). In terms of ontology, constructivists believe that there are

multiple realities constructed by the individual's experiences and perceptions, rather than there being a single true reality (Ponterotto, 2005). A constructivist paradigm therefore argues that the way we see the world (our reality) is guided by our individual subjective and socio-cultural experiences, suggesting that it is impossible to separate the values and assumptions which make up an individual's identity and guide their activities. Constructivists therefore conclude that 'objective knowledge' cannot be achieved (Yardley and Bishop, 2008).

Qualitative methods focus on the interpretative or hermeneutic understanding of the meaning of behaviour (Todd et al., 2004). A hermeneutic approach assumes that meaning is hidden and is accessed through deep reflection which can be achieved through studying the interaction between a participant and researcher (Ponterroto, 2005). Therefore the researcher and the participant create findings together through interaction and interpretation, referred to as 'co-construction' (Ponterroto, 2005). Qualitative researchers aim to assume the viewpoint of the participant being studied and recognise their role in the construction of knowledge and thus engage in reflexivity. By focusing on understanding rather than measuring the experiences of the participants they are studying, qualitative researchers aim to obtain a better understanding of human thoughts and behaviours (Todd et al., 2004). Constructivists argue that controlled experimental studies of behaviour remove elements such as individuality and social context which give the behaviour meaning. Furthermore, from this perspective standardised measures may prevent participants expressing contradictory perspectives and impose the researcher's preconceptions onto the participant's responses (Yardley & Bishop, 2008).

2.5 Logics of inquiry

Some researchers have taken a different approach and argued that the focus on methods per se is unhelpful. Hiles (2014) argued that the focus should be on the logic of inquiry rather than the type of data collected, and called for the terms 'qualitative' and 'quantitative' methods to be abandoned. Hiles (2014) proposed that all research makes paradigm assumptions and decisions about research design, data collection methods, data analysis and critical evaluation. Taking this approach, the

differences between qualitative and quantitative approaches are not just about the different types of data collected (and therefore concerns about opposing epistemologies) but about different strategies of research design and their underlying logic of inquiry.

Hiles (2014) argues that there are three logics of inquiry: deduction, induction and abduction. Deduction is referred to as a theory driven approach and concerned with testing the prediction of data (findings) from theory. Quantitative research tends to be primarily deductive, with the researcher making theoretically driven predictions which are tested. Induction is referred to as a data driven approach and is concerned with generating theory from the data. Qualitative research tends to be data driven and based on 'inductive inference'. The third logic, abduction, is described as a two way explanatory relationship between theory and data whereby the goal is not to test theory or to generate new theory but to make use of existing theories to make sense of the data. Hiles (2014) suggests that this type of design will often employ 'mixed measures', the term Hiles uses to describe research designs commonly referred to as 'mixed methods'.

2.6 Mixed Methods

Yardley and Bishop (2008) argued that the differences between qualitative and quantitative approaches, summarised above, have been exaggerated and can be overcome. Mixed methods research has grown in popularity in the last ten or fifteen years and has become a research movement with a recognised name and identity (Denscombe, 2008). The growth has been such that mixed methods research has been described by Johnson, Onwuegbuzie and Turner (2007) as the third research paradigm whilst Bryman (2006) describes the practice of combining qualitative and quantitative methods as having become 'unexceptional and unremarkable' in recent years. Johnson et al. (2007) position qualitative and quantitative methods at extreme ends of a continuum, with mixed methods falling in between, trying to respect the assumptions of both approaches whilst finding a workable solution to research problems.

Several, differing, definitions of 'mixed methods' have been suggested. In their handbook of Mixed Methods Research, Tashakkori and Teddlie (2003) defined mixed methods research as:

> *"studies [which] use qualitative and quantitative data collection and analysis techniques in either parallel or sequential phases" (p11).*

A highly cited paper by R. B. Johnson et al. (2007) sought to identify a consensus definition of mixed methods research. Through reviewing nineteen definitions of mixed methods research, they suggested the following definition:

> *"Mixed methods research is the type of research in which a researcher or team of researchers combines elements of qualitative and quantitative research approaches (e.g., use of qualitative and quantitative viewpoints, data collection, analysis, inference techniques) for the broad purposes of breadth and depth of understanding and corroboration." (p.123)*

The use of mixed methods is based on the premise that there are multiple ways of making sense of the world and differing viewpoints on what knowledge is important and valuable (Greene, 2008). Mixed methods researchers subscribe to the viewpoint that an enhanced understanding of a phenomenon under study can be gained through using different methods and that no method (qualitative or quantitative) is 'inherently superior' in order to gain insights (Dures et al., 2008). However Yardley and Bishop (2008) stress the importance of researchers being aware of the different aims and theoretical assumptions of qualitative and quantitative research, suggesting that the assumptions and aims of the different approaches may be violated or not met if not acknowledged. This could result in the researcher applying irrelevant and inappropriate criteria for validity assessment of qualitative research (e.g. reliability, objectivity or use of a large random sample) and drawing unjustifiable conclusions (e.g. causal relationships) whilst equally lack of awareness of quantitative approaches could result in researchers not using a large, representative sample, reliable measures and appropriate statistical tests (Yardley & Bishop, 2008).

2.7 Pragmatism

The absence of a framework that incorporates both qualitative and quantitative approaches equally can lead to problems integrating the findings from each method (Yardley & Bishop, 2008). Pragmatism has been posited as a framework to embrace and combine the differences between qualitative and quantitative approaches, and is widely accepted as the philosophical underpinning of mixed methods research. The premise of Pragmatism is combining different kinds of research without compromising the integrity of the method (Yardley & Bishop, 2009). Research underpinned by pragmatism seeks to achieve a richer account of human experience rather than seek truth independently from human experience. From a pragmatic perspective, there is no fundamental contradiction between the objectives and characteristics of qualitative and quantitative research despite differences between the methods of inquiry and the process of validation for each approach (Yardley & Bishop, 2009). Pragmatism rejects the incompatibility thesis, and pragmatist researchers view the research question as of primary importance rather than the method used or the paradigm underlying the method (Tashakkori and Teddlie, 2003).

2.8 The case for mixed methods in pharmacy practice research

Based on a literature review, Greene, Caracelli, and Graham (1989) developed a theoretical framework for conducting mixed methods research which identified five reasons for conducting mixed methods research: triangulation; complementarity; development; initiation and expansion. A more recent paper identified sixteen reasons for conducting mixed methods research (Bryman, 2006). Despite an increase in the use of mixed methods by healthcare researchers (O'Cathain, Murphy, & Nicholl, 2007), it has been argued that mixed methods is not commonly used in pharmacy practice research (Hadi, Alldred, Closs, & Briggs, 2013). The work presented in this thesis was conducted from a pragmatist perspective and thus used a mixed methods approach. There are

several advantages to using a mixed methods approach to conduct the research presented in this thesis and these are outlined below.

A multifaceted approach was required to meet the aim of the current research: to explore the role pharmacists can have in facilitating patient self-management of CVD. The premise of mixed methods, underpinned by pragmatism, is for the research question and the phenomenon under research to dictate the research method(s) rather than the researcher having an allegiance with a qualitative-only or quantitative-only methodology and choosing the method in accordance with this. A mixed methods approach allows the researcher to choose and combine different methodologies to develop the best method to answer a research question in the most comprehensive way (Creswell & Plano Clark, 2011). In order to meet the overall aim of the current study, an understanding of both pharmacists' experiences of facilitating patient self-management and patients' experiences of receiving self-management support from pharmacists was required. Detailed qualitative research is required to understand the perceived factors that underpin pharmacists' provision of self-management support for patients with CVD. In line with this, detailed qualitative research is also required to understand the experiences of patients when managing CVD, how this relates to their interactions with pharmacists and what support patients with CVD expect and/or perceive that they need from pharmacists. This programme of work also sought to identify the predictors of pharmacists' intentions to engage in two types of advice giving behaviour, for which a quantitative approach is most appropriate. Thus according to Hiles (2014), the current programme of work utilised an abductive approach.

There are many advantages to using a mixed methods approach. Mixed methods research can give the answers to questions that could not be answered by quantitative or qualitative research alone. One of the primary advantages of using mixed methods is that it provides strengths that counteract the disadvantages of both qualitative and quantitative methodologies when used independently (Creswell& Plano Clark, 2011). It has been argued that quantitative research does not account for the social context in which the phenomenon which being researched occurs nor does it tend to

acknowledge the researcher's personal bias, which qualitative research does. Conversely, qualitative research is often criticised for being subjective and not generalisable, whereas carefully conducted quantitative research can avoid these weaknesses. The environment pharmacists practice in has been associated with barriers to providing public health services (see chapter one). The use of qualitative methods in the present studies allowed an in-depth exploration of the phenomenon in the social context in which it occurred (from the perspective of both pharmacists and patients) which informed the development of a quantitative study conducted with a generalisable sample of community pharmacists. Therefore the use of mixed methods in the current project counteracts the disadvantages of studies using qualitative or quantitative methodologies in isolation.

2.9 Summary

A mixed methodology underpinned by Pragmatism was selected to conduct the work presented in this thesis in order to give the researcher the freedom to select the research method which best answered the research question for each study. This was chosen to facilitate the collection and analysis of rich data to give an insight into the experiences of patients and pharmacists in the social context in which they occurred.

3 Chapter Three: Pharmacists' experiences of giving lifestyle advice to patients with CVD

3.1 Introduction

This chapter presents the findings of a qualitative study which explored pharmacists' experiences of giving lifestyle advice to patients with CVD in order to facilitate patients' self-management of their condition. A paper reporting the findings was published in Research in Social and Administrative Pharmacy: Morton, K, Pattison, H., Langley, C., & Powell, R. (2015). A qualitative study of English community pharmacists' experiences of providing lifestyle advice to patients with cardiovascular disease. *Research in Social and Administrative Pharmacy, 11*(1), e17-e29. doi: http://dx.doi.org/10.1016/j.sapharm.2014.04.006. A copy is provided in appendix 9.1.

As outlined in chapter one, health behaviours associated with lifestyle such as diet, physical activity, tobacco use and alcohol consumption are responsible for approximately 80% of coronary heart disease and cerebrovascular disease, two of the major forms of cardiovascular disease (CVD) (WHO, 2011). The risk of individuals with CVD developing further cardiovascular problems can be reduced through lifestyle behaviours such as: smoking cessation; regular physical activity; reducing alcohol and dietary salt consumption as well as taking medication to treat high blood pressure (hypertension) and high cholesterol (hyperlipidaemia) (WHO, 2011). Such behaviours are largely under the control of individuals and therefore can be regarded as part of patient self-management of CVD.

Chapter one established that there is potential for UK pharmacists to play an influential role in facilitating patient self-management of CVD. UK community pharmacists are frequently described as the most accessible of health professionals given that they are geographically well-placed to provide local services and regularly interact with patients on a one-to-one basis, a service for which members of the public do not require an appointment to seek health advice (Holland, Brooksby, Lenaghan, et

al., 2007). Recent UK government policy suggests that health professionals, including pharmacists, should view every interaction with patients as an opportunity to promote healthy lifestyle choices (NHS Future Forum, 2012). Furthermore, UK pharmacists have a contractual obligation to promote engagement in healthy lifestyles and provide support to individuals with chronic conditions (DoH, 2005). This includes supporting patients with hypertension and hyperlipidaemia, forms of CVD. These patients can be identified when they collect prescription items dispensed at the community pharmacy, creating an opportunity for pharmacists to facilitate patient self-management of CVD through advising patients to self-manage their condition (and prevent the development of further CVD) through engaging in health behaviours such as eating a healthy diet, engaging in regular physical activity, supporting smoking cessation and drinking alcohol in moderation.

Research has demonstrated that pharmacists' extended roles can have a positive effect on patient outcome however the quality of the evidence base has been questioned. A Cochrane systematic review conducted by Nkansah et al. (2010) concluded that there was evidence to support the role of pharmacists in medicine management and counselling patients (Nkansah et al., 2010). Furthermore, a review by (Brown et al., 2012) concluded that 'good evidence' exists for pharmacist-led smoking cessation, cardiovascular disease prevention, hypertension and diabetes services whilst evidence to support the efficacy of pharmacist-led services to provide weight management was deemed as weak. However the review by Brown et al. (2012) was not systematic and only presented the evidence they deemed of best quality to support pharmacist-led public health services. Specifically in relation to cardiovascular health, two recent systematic reviews found that pharmacist interventions were beneficial for the reduction or management of cardiovascular disease and associated risk factors (Santschi et al., 2011; Evans et al., 2012).

As previously noted, pharmacists in the UK have a contractual obligation to provide public health services. However international and UK based research has identified varying levels of, and attitudes towards, pharmacist engagement in public health related activities (Cordina et al., 2008; Eades et al.; Laliberte et al., 2012; Pfleger et al., 2008; Scott et al., 2007). It is important to understand

pharmacists' attitudes towards providing public health services as, according to psychological theory and previous research examining health professional behaviour, this will affect whether pharmacists perform the behaviours necessary to provide such services (Ajzen, 1991; Godin et al., 2008).

Two systematic reviews which examined pharmacists' attitudes towards providing public health services found that pharmacists were generally positive about their role in providing public health services, however this role was perceived as secondary to dispensing activities(Anderson et al., 2003; Eades et al., 2011). Pharmacists' confidence in their ability to perform public health related roles was moderate to low. Many barriers to pharmacists achieving more involvement in public health services have been identified and include: workload; time pressure; lack of remuneration; fear of a negative patient reaction; lack of communication with other health professionals; and lack of training (Anderson et al., 2003; Eades et al., 2011; Laliberte et al., 2012; O'Loughlin et al., 1999). Additionally, pharmacy ownership has been found to influence pharmacists' public health activity. Bush et al. (2009) found that pharmacists employed by pharmacy multiples reported conflict with commercial interest as a significant barrier to them achieving the set public health agenda. A recent Canadian study found marked differences between pharmacists' ideal and actual involvement in health promotion and preventative services (Laliberte et al., 2012). The majority of the 577 participants indicated that ideally they should be "very involved" in health promotion services such as smoking cessation and CVD risk factor screening, however, in practice, only 5.7% of pharmacists described their pharmacy as being "very involved" in lifestyle related services.

In their systematic review of pharmacist-led interventions to prevent CVD, Santschi et al. (2011) state that in order to use the expertise of pharmacists in CVD care effectively, research is necessary to understand their role and contribution to patient care. To date, the only known publication assessing pharmacists' attitudes specifically towards CVD prevention and promotion was conducted in Canada (O'Loughlin et al., 1999). The study found pharmacists had high levels of interest in developing a prevention role, with the majority of participants indicating it was important or very important to integrate prevention into their practice. Despite this only 17-18% (exact figure not given) of the

participants reported that they frequently advised clients about behavioural changes to reduce the risk of CVD. It would appear that no study has explored the community pharmacist's experience of providing lifestyle advice for patients with CVD in a UK setting.

Pharmacy settings differ across the world. In Australia, unlike the USA and the UK, pharmacies can only be owned by registered pharmacists, who can own up to three community pharmacies. Like in the UK, community pharmacists in Australia are commissioned to offer a range of services such as blood pressure measurement and cholesterol testing. They conduct medicines use reviews in patients' own homes/residential homes as opposed to in the community pharmacy and receive greater reimbursement for doing so than UK pharmacists (Rawal, 2009). In the USA, approximately 62% of pharmacists are employed as community pharmacists, the majority of whom work as employees of pharmacy chains (Bott, 2010). Unlike the UK, the healthcare system in the USA is for-profit and insurance based. Pharmacists in the USA train for longer than UK pharmacists, completing a six year doctor of pharmacy degree as opposed to a four year masters of pharmacy degree in the UK, and pharmacists in the USA are required to complete between 500 and 1500 intern hours as part of their training.

Unlike systems in place within other countries, in the UK community pharmacists are employed by community pharmacies (private businesses) which act as contractors to the publicly funded National Health Service (NHS), with 80% of pharmacy profits derived from the NHS prescription business (Conisbee, 2003). This sets the UK apart from other countries and therefore the impact of the setting pharmacists practice in on pharmacists' advice-giving behaviour needs to be explored.

To date, no study has sought to understand UK pharmacists' experiences of supporting patients with CVD to manage the condition through lifestyle behaviours and examine the factors that may influence pharmacists' implementation of lifestyle advice. Given the paucity of high quality qualitative research in this area and the need to understand pharmacists' experiences in more depth, an inductive qualitative approach was deemed the most suitable method to collect this data.

Aim

The study aimed to explore community pharmacists' experiences of giving lifestyle advice for patients with CVD.

3.2 Methods

3.2.1 Study design

This was a qualitative study. Ethical approval for the study was obtained from Aston University Research Ethics Committee (reference number 584).

3.2.2 Study Setting

Fifteen semi-structured interviews were conducted with community pharmacists face-to-face in a private room at their workplace or by telephone. Initially the researcher had planned to conduct all of the interviews with pharmacists face-to-face, however when the researcher was attempting to recruit participants for the study a number of pharmacists indicated that they would find it easier to be interviewed by telephone when the pharmacy was quiet or on their day off. Therefore the decision was made to offer pharmacists the option of participating in the study by telephone in order to allow more pharmacists the opportunity to participate in the study.

3.2.3 Participants

Fifteen community pharmacists participated in the study. These were six men and nine women, mean age 30.8 years (range: 23-55 years). Seven participants were interviewed in person and eight participants were interviewed by telephone. Pharmacy ownership was categorised according to the classification used by Bush et al. (2009) : supermarket; multiple (200 outlets or more); large chain (more than 20 outlets but fewer than 200); small chain (20 outlets or fewer but more than 5); independent (5 outlets or fewer). One participant was employed by a supermarket community pharmacy, seven by multiple community pharmacies, two by small chain pharmacies and four

participants by independent pharmacies. The mean time participants had practiced as qualified pharmacists was 7.2 years (range: 6 weeks to 34 years).

A variety of methods were used to advertise the study to pharmacists: writing to community pharmacies and following up with a telephone call; presenting at a pharmacist professional development event and word-of-mouth and snowballing techniques. Pharmacists were purposively sampled from supermarket, multiple and independent community pharmacies to obtain as much breadth of perceptions and experiences as possible within the sample. One participant was interviewed but excluded from the analysis as she had stopped practising as a community pharmacist ten years ago.

3.2.4 Data Collection

The interviews were conducted at a time and place convenient to the participant (by phone or in person at their home or workplace and lasted on average 30 minutes (range: 20 to 50 minutes). The researcher explained what study participation would involve and gave the participant the opportunity to read through the Participant Information Sheet (PIS) (see Appendix 9.2), which they had received prior to the interview taking place. Participants were given the opportunity to ask the researcher any questions before being asked to sign a consent form indicating that they understood what participation involved and were happy to proceed with participation in the study (see Appendix 9.3). Participants interviewed by telephone were read the consent form and gave their consent verbally. The researcher sat in a private room when conducting the telephone interviews in order to ensure the participant's confidentiality. Participants were assured that the interview was not a test of their knowledge or professional practice, that the interview was strictly confidential and that they were free to withdraw at any point without providing a reason for doing so.

A pre-prepared interview schedule was used to guide the interview. Open-ended questions allowed the participant to shape the direction the interview took, with the interviewer adopting a facilitative role, using the interview schedule to identify areas of interest and provide cues (see appendix 9.4).

The schedule covered the following topics: facilitators and barriers to giving lifestyle advice; experience of delivering lifestyle advice; relationships with patients and other health professionals; the role of the community pharmacist and the suitability of the community pharmacy environment for receiving advice.

The interview began in an open-ended manner, asking participants to 'tell me about your typical working day as a community pharmacist', then slowly moving to more sensitive topic areas such as 'describe your working relationship with other professionals involved in cardiovascular healthcare' once a rapport between the participant and interviewer had been established. The interviews were audio recorded and transcribed verbatim. After the first three interviews the interview schedule was reviewed to ensure that it was suitable and allowed the participants to easily give an account of their experiences. No problems with the interview schedule were identified by the participants or the researcher therefore the interview schedule was deemed an effective facilitator and no changes were made. The interviews were conducted until no new themes emerged.

3.2.5 Analysis

The interview transcripts were analysed thematically, focussing primarily on the participants' experience (Braun & Clarke, 2006). The analysis was interpretative, recognising the interaction between the researcher and the data. A Framework approach was used to structure the analysis (Ritchie & Spencer, 1994). Framework Analysis is a five stage process of: familiarisation, forming a thematic framework, indexing, charting and mapping and interpretation. Familiarisation with the data was achieved through a process of reading and re-reading a small number of interview transcripts, noting the participants' use of language, repetition of words or thought patterns emerging from the data and any contradictions within the participants' accounts. This enabled the identification of emergent themes. The researcher defined emergent themes as: a collection of references indicating a pattern in participants' experience of giving patients advice or how they perceived patients' behaviour, the participants' use of language to describe their experience of giving lifestyle advice and any conflicting ideas identified within or between the participants' accounts. A

thematic framework was constructed using the emergent themes identified as described above, the interview schedule and prevalent themes in the literature identified through the literature review reported in chapter one. Commonalities between emergent themes from the data and themes identified through the a-priori literature review were identified, with all themes given an equal weighting within the thematic framework. Each emergent theme and its associated sub-themes were assigned a number thus creating a numerical index to apply the thematic framework to the data. The researcher repeated the initial process of familiarisation and annotation with the remaining interview transcripts, adding any additional emergent themes to the thematic framework and applying the new items on the framework to previously analysed transcripts. This enabled the construction of charts which summarised extracts from participants' interviews and where they were situated within the data grouped by emergent and a-priori themes identified from the extant literature. The charts were analysed for patterns, similarities and differences between the participants' accounts and provided a framework to aid reporting the study findings. The researcher (KK) continually verified the findings with her supervisory team (HP, CL and RP) to ensure the validity of interpretations. An example of the analysis is provided in appendix 9.5.

3.3 Results

The thematic analysis produced three main themes with associated sub-themes (see Table 3.1). In the reported analyses, participant pseudonyms were created to provide information about: pharmacy ownership [Supermarket ('Super') or multiple ('Multi') or independent ('Indep') which incorporated both independent and small chain pharmacy ownership; community pharmacist participant number (e.g. CP 1) and number of years the participant had been a practicing pharmacist (e.g. 8 yrs). In the quotations below, where respondents emphasised particular words, these words are italicised.

Table 3.1: Emergent themes and sub-themes

Theme	**Sub-theme**
Pharmacists' perceptions of patients	Categorising patients
	Beliefs about patients with CVD
Barriers to providing lifestyle advice	Time and workload
	Patient perceptions of pharmacists
	Confidence in providing lifestyle advice
Professional identity	Health professional-patient relationship
	Lifestyle advice in Medicines Use Reviews
	Future direction of the profession
	Lack of remuneration in professional role
	Pharmacy as a business and associated role conflict

3.3.1 Pharmacists' perceptions of patients

3.3.1.1 Categorising patients

The way many of the pharmacists described their interactions with patients suggests that they primarily categorised patients in accordance with their medical condition and/or prescribed medication. IndepCP3(2yrs) described differentiating between patients according to their prescription type (acute or chronic):

> *"…either they walk in with the prescription straight from the doctor's so which is usually an acute prescription like amoxicillin or something like that or erm just repeat prescription…" IndepCP3(2yrs).*

This process appeared to be used to guide the advice the pharmacist provided,

"…if someone is on a statin, you always offer like…the ways to err reduce your cholesterol such as eating oily fish and stuff like that and eating your five a day, promoting exercise…" MultiCP4 (0.1yr).

The pharmacists had models of different 'types' of patients which they used to categorise the patients they encountered. One supermarket pharmacist described how staff identified patients whom they perceived would respond well to receiving lifestyle advice:

"...so they know which ones who you can talk to and which ones ...won't talk to you, which ones will follow through, which ones can provide advice for..." SuperCP1(8yrs).

Within the context of a busy, pressured workplace environment and a legal responsibility to ensure that patients are dispensed the correct medication, it makes sense that pharmacists would develop cognitive 'shortcuts', also known as stereotypes, to interpret patients' behaviour and be able to respond accordingly (Haslam, Turner, Oakes, Reynolds, & Doosje, 2002). The stereotypes created by pharmacists are important, as they are likely to influence the interactions the pharmacist has with patients and may influence the care patients receive. It follows that patients categorised as "ones" who "won't talk" may be less likely to be given lifestyle advice than patients the pharmacist perceived to be more open to receiving lifestyle advice.

3.3.1.2 Beliefs about patients with CVD

Some pharmacists believed that patients with CVD lacked knowledge about their condition and appropriate self-management,

"…when I do medicines use reviews with patients or we discuss blood pressure with patients they have no idea what it is." IndepCP5(1yr).

Yet many pharmacists simultaneously believed that the majority or all of patients, with CVD or otherwise, were aware of the direct association between health behaviours and poor health, citing this as a reason for not providing patients with uninvited lifestyle advice,

"...in all honesty there's nobody on this planet that doesn't know that they need to lose weight or doesn't know that they need to cut their drinking a bit and so on, they know that, I don't believe there's anybody that doesn't know that maybe they could be healthier" IndepCP6(26yr).

Furthermore, many of the CPs interviewed appeared to conceptualise lifestyle advice as 'common sense',

"...it's not a high level of information is it really...it's not high level information, and that's not because I'm saying pharmacists can't deliver anything complicated it's not a high level of information, most of it is common sense and it's repetitive." IndepCP1(23yrs).

Whilst patients may be aware that they need to change their behaviour, information and knowledge alone are not sufficient to change behaviour. This did not appear to be recognised by many of the pharmacists, and many of the pharmacists did not discuss doing anything to help patients change their behaviour other than giving information.

3.3.2 Barriers to providing lifestyle advice

3.3.2.1 Time and workload

The most frequently cited barriers were time and workload, which were evident throughout the accounts of all the participants. Many pharmacists described balancing multiple roles in a time-limited environment which placed them under pressure,

"…a large part of community pharmacy, ehh probably I'd say 80% of it is just checking prescriptions… so you don't really get too involved with err specific individuals erm unless...for example if there is an [medication] interaction to pick up on … but otherwise you don't really have time to go and review everybody…" MultiCP6(1yr).

MultiCP6(1yr) appeared to believe that pharmacists have the capacity to provide individualised advice on cardiovascular health but did not have time to do so. Interestingly, through the use of the word "just" he appears to downplay the safety checking of prescriptions, which traditionally is a

"core" role of community pharmacist. Another pharmacist described the different roles she has to balance within time constraints in order to run the pharmacy. This appeared to cause her frustration,

> *"…obviously the time as well, often these services are all very good but there's only the one pharmacist so trying to balance you know getting the day to day stuff done as well as providing all of these services." MultiCP1(1yr).*

The pharmacists employed by multiple and supermarket pharmacies in particular described pressure to meet targets and provide a quick service,

> *"…companies are asking for more and more even though we haven't really got the time to do it [laughs]…we are under a fair amount of pressure because you're under pressure to deliver services." MultiCP6(1yr).*

This appeared to leave some pharmacists resigned to not being able to offer patients advice,

> *"…people are waiting so obviously you can't really talk to people …unless it's a quiet period which is rarely that we're quiet..." MultiCP4(6 weeks).*

The word 'obviously' gives a sense he is resigned to the notion that he cannot speak to patients if there are other patients waiting. Conversely, other pharmacists, notably more often those employed by independent pharmacies, appeared more confident to base the provision of advice on clinical need rather than the time available:

> *"…the patients that we find need our time, they get our time and whether that means other people have to wait, they have to wait…" IndepCP3(2yr).*

It appeared that the respondent did not fear the repercussions of keeping patients waiting which contrasts with the experiences of many of the pharmacists employed by multiple community pharmacies. Interestingly, the pharmacy manager of a multiple community pharmacy had a different perspective,

"…we have targets…it's the world we operate in, I know that people can feel pressurised about non delivery but actually…we can't operate in a world where nobody has an aim or a goal or a target, we can't just have a free for all when it just doesn't work like that." MultiCP7(34yr).

Through this statement, the pharmacy manager appears to minimise other pharmacists' experiences of targets placing them under pressure and justify the use of targets to influence pharmacists' behaviour, appearing to imply that targets are necessary to maintain order.

3.3.2.2 Patient perceptions of pharmacists

Many of the pharmacists felt that the role of the community pharmacist was not clearly defined which meant patients did not have a good understanding of the pharmacists' professional capacities. The pharmacists reported that the lack of a defined role made it difficult for them to provide lifestyle advice, as patients did not consider this part of the pharmacists' role,

"…I still think the pharmacist's role isn't as defined as it should be… people still…maybe because of the area I work in we have a lot of elderly people erm and obviously they still think the doctor's word is… they will always go to the doctor first, erm I don't think they realise what the pharmacist in the pharmacy can do…" MultiCP1(1yr).

"I think a lot of patients just think the pharmacist gives out my tablets…" IndepCP5(1yr).

The retail environment in which the pharmacists practice appeared to contribute to this perception,

"…a lot of patients don't see pharmacists as a healthcare professional, they see them as glorified shop owners…" MultiCP4(0.1yr).

It was also perceived that patients expected a quick service from pharmacists; it may be that the retail environment was responsible for this, leading to expectations of the kind of service associated with sales staff rather than health professionals. This expectation of brief transactions appeared to make providing lifestyle advice difficult,

"… I think that is the main issue with pharmacy is that pharmacy is all about erm in and out, in and out, in and out, they, they don't really see…very few patients see community pharmacists as a resource to be used like, like a GP…" MultiCP6(1yr).

It is important to note that the perception that patients are not receptive to advice from pharmacists is an assumption made by the pharmacists. It may be that through assuming that patients do not understand the pharmacist's role or are not interested in receiving advice from pharmacists prevents pharmacists from offering advice to patients who may be interested.

3.3.2.3 Confidence in providing lifestyle advice

The pharmacists' confidence to provide lifestyle advice appeared to develop over time, however even experienced pharmacists could be reluctant to offer lifestyle advice uninvited:

"…much as we're supposed to do it… I will not just speak to someone who is clearly overweight and start a conversation about weight..." IndepCP6(26yr).

Many pharmacists found it particularly difficult to initiate conversations about body weight:

"…obviously it's a touchy subject, you know, if you've got a genuinely er larger person in front of you…you don't want to insult them, you don't want to...to make them feel uncomfortable so it's a catch 22 a little bit…" IndepCP5(1yr).

These pharmacists appeared to construct obesity as a taboo, making them reluctant to raise the topic with patients. However this reluctance was not limited to opportunistic advice which according to UK government policy (NHS Future Forum, 2012) should be offered to patients regardless of their reason for visiting the pharmacy. One pharmacist was so concerned about eliciting a negative patient response that she avoided informing a patient that they were overweight even after weighing them. The reluctance to initiate conversations about lifestyle behaviours with patients appears to stem from pharmacists expecting a negative reaction from patients in response to their advice:

"…people can get aggressive but not many people do but you just don't wanna offend someone, that the biggest thing… you still want to make them happy but give them advice." MultiCP4(0.1yr).

The perception that patients may react negatively to lifestyle advice may make pharmacists reluctant to have conversations with patients about their lifestyle and the impact health behaviours can have on the management of CVD. Some of the pharmacists felt that they did not receive appropriate skills training to prepare them to offer patients lifestyle advice:

"…there is a lack of training as to how we will approach patients which I say is one of the challenges and how we would approach patients on you know, giving smoking [cessation advice] erm sort of the social skills side as well, having a general conversation with people and how we would convince them [to change their behaviour] …". MultiCP1(1yr).

Another pharmacist noted:

"…a lot of university now is focused around healthcare, public health… but the way to put it across to people, there's not much, you've got to develop your own way…" MultiCP4(0.1yr).

This statement is particularly noteworthy, given that the pharmacist who does not feel he received appropriate training to convey public health messages (which often incorporate lifestyle advice) is a recent graduate and therefore has received his training after the introduction of the revised pharmacy contract which outlined the role of pharmacists in providing public health services. A perceived lack of training may also contribute to pharmacists' reluctance to offer lifestyle advice if pharmacists do not feel they have the skills to offer such advice to patients.

3.3.3 Professional Identity

3.3.3.1 Health professional-patient relationship

The pharmacists expressed positive opinions about the role community pharmacy has, or could have, in promoting health behaviours to varying extents. In line with the 'health professional' identity and

role of the community pharmacist, many of the pharmacists actively endorsed a patient-centred, collaborative approach to pharmaceutical practice:

> *"…some patients will have a giggle, we have a bit this, we have a bit of that, but, you know what I mean, it's...I say to them, I'm not there to stop you from having [certain types of food] that's your choice...but we're doing it to ensure that you know what I mean, maybe if you would reduce some saturated fats...let's see what happens to your cholesterol..." SuperCP1(8yrs).*

The use of 'we' suggests that it is a joint venture to help the patient reduce their cholesterol levels whilst he ensures that the patient retains ownership of the behaviour, reinforcing that it is the patient's choice to change their behaviour. The fact that he shares some humour with some patients suggests that he is creating an interaction where patients feel at ease. However the perceived importance of forming relationships with patients appeared to differ according to the status of pharmacists' employers. When asked what the most important part of his working day was, one independent pharmacist said:

> *"I think the biggest one is engaging with patients, I think that's the biggest thing that pharmacists have to do" IndepCP5(1yr).*

Pharmacists employed by independent and notably the supermarket-owned pharmacies seemed to place more emphasis on the importance of building a relationship with patients than multiple-ownership pharmacists. One pharmacist commented on the difference that they perceived between interactions with patients at her workplace and at other community pharmacies:

> *"…the main difference [between the Independent workplaces and other pharmacies] is having a little talk with them about their medication … offer extra advice to them so they feel like somebody actually cares …" IndepCP7(2yr).*

3.3.3.2 Lifestyle advice in Medicines Use Reviews

The pharmacists conceptualised providing lifestyle advice as an activity that was performed as part of additional services offered in some English community pharmacies such as the Medicines Use Review (MUR) and New Medicines Service (NMS) which should incorporate advice on patients' diet, exercise and smoking status, rather than a behaviour linked to routine dispensing practice. Most of the pharmacists appeared to be comfortable giving lifestyle advice in this setting as the advice was in conjunction with advice about medicines:

> *"I try and tie it in with the medication first, erm whether I counsel them on new tablet that they've got or invite them in for a MUR, we'll talk through the medication first and then if there are sort of lifestyle advice and things to go with it then we'll feed that in…" IndepCP2(2yrs).*

However there appeared to be a clear distinction between providing lifestyle advice as part of MURs/NMS, which pharmacists reported as a common occurrence, and "core" aspects of community pharmacy practice such as checking and dispensing medication which did not appear to frequently incorporate lifestyle advice. Providing lifestyle advice appeared not to be a priority for some pharmacists:

> *"…pharmacists have a number of other stuff to do…sometimes, I feel, [lifestyle advice] it becomes an afterthought….because…you feel…you've gotta get all the other stuff [to do]…." SuperCP1(8yrs).*

It appeared that giving lifestyle advice was seen as secondary to "core" aspects of pharmacy practice such as dispensing. However many pharmacists expressed a desire to do more for patients with CVD:

> *"…from my branch we don't do a huge amounts of other things related to cardiovascular…probably not as much as sometimes I'd like to…" IndepCP2(2yrs).*

This statement was echoed by many of the pharmacists who suggested a number of community pharmacy based initiatives aimed at CVD prevention but cited barriers discussed in the previous theme as preventing them from being able to put this into practice.

3.3.3.3 Future direction of the profession

The pharmacists had differing, sometimes conflicting, opinions on the future of community pharmacy. Some pharmacists described their wish to move away from traditional roles and build upon the 'health professional' identity that involves giving lifestyle advice:

> *"…ultimately my aim is to provide a high level of service and get away from the dispensing process and be more involved in, in you know … diagnosing blood pressure, promoting these sorts of things, erm doing medicines reviews, helping patients get the best out of their medicines that they are on but also to prevent them from having to take more because they're not taking them correctly so it's all about that for me, it's pushing pharmacy towards a clinical role rather than the old dispensing." IndepCP5(1yr).*

This pharmacist was very keen for pharmacists to have more direct involvement in patient care and to move away from the traditional dispensing process. However his use of the word 'pushing', which denotes a lack of agreement or readiness, suggests that he believes that not all pharmacists share his vision, and some pharmacists may be resistant to their role changing. Despite describing how much she enjoys providing additional pharmacy services, which incorporate lifestyle advice, one pharmacist suggested that this is not a view point shared by all pharmacists:

> *"…some people hate the additional services that they are doing now, they think that they should still be dispensing, dispensing, dispensing, I personally love the extra services…" IndepCP6(26yr).*

Another pharmacist questioned whether lifestyle advice should be part of the community pharmacists' role at all,

"…as the population gets more elderly and we get more obese and our intake of junk food gets worse we are looking at a nightmare scenario in the future and it would be good if somebody could stop it, but whether that is the role of the pharmacist or not I don't know. It comes back again to time and our payment structure and I don't think that's going to be solved easily." IndepCP1(23yrs).

This pharmacist is unsure whether it should be the pharmacist's responsibility to offer patients lifestyle advice. She cites barriers such as time constraints and the way pharmacists are remunerated as factors which she perceived to prevent pharmacists offering lifestyle advice. This is an important insight, with remuneration identified by many pharmacists as an important factor in the provision of lifestyle advice.

3.3.3.4 Lack of remuneration in professional role

Some pharmacists highlighted the importance of the dispensing process as dispensing NHS prescription items provides the main source of the community pharmacy's income,

"…obviously the dispensing process is important because that's where we get our, our core funding from erm at the moment…" IndepCP5(1yr).

A number of the pharmacists suggested that current remuneration practices were not conducive to delivering lifestyle advice and health promotion:

"….if you are stopping a heart attack then they're not going to be taking any medicines and that's ultimately putting yourself out of business so it's not in your interests to keep people healthy as a pharmacist at the moment… what other profession does something to stop their future payments?" IndepCP1(23yrs).

Some pharmacists indicated that current remuneration practices resulted in there being less incentive to provide lifestyle advice than other activities in the pharmacy which are remunerated,

"…you're providing the [lifestyle] advice …erm and you're getting no monetary reward for it… so most pharmacists will think oh I can't be bothered to be giving that advice, when there's no value to it for me". MultiCP6(1yr)

The pharmacist describes an inherent conflict between their role as a health professional with a responsibility to promote health through giving patients lifestyle advice, and their business employee role which focusses on financial return, which giving lifestyle advice does not currently provide. This may result in pharmacists not being motivated to provide lifestyle advice, as suggested by MultiCP6(1yr).

3.3.3.5 Pharmacy as a business and associated role conflict

Most pharmacists explicitly made reference to the community pharmacy being a business environment in addition to a provider of healthcare, and discussing remuneration for the services they provided appeared to cause some of the pharmacists discomfort. This highlights an important issue of potential conflict in the community pharmacist's role, which combines the roles of a healthcare professional advising patients on their health and working as an employee for a company/independent contractor. A pharmacy manager for a multiple chain community pharmacy described the experience he would like people to have when they visit community pharmacies owned by his employer,

"…we are trying to always differentiate on customer care…the need and the expectation is that that person will sort of somehow when they next need some advice think "ooh, that nice person in that shop, I'll go and see them again"". MultiCP7(34yr).

Targeting the patient-pharmacist interaction as an opportunity to increase custom raises the question as to whether developing a patient-clinician relationship and enhancing profits are interlinked. In keeping with this, another pharmacist described how building a relationship with patients and business success are related,

"…making sure that you go that extra mile for people and then that gives them the confidence and trust in you to come and speak about their health problems, they take you more seriously if you do health promotion with them and that is what builds your business, it kind of goes into both." IndepCP6(26yrs).

The apparent overlap of business and health professional roles may cause further role conflict, as pharmacists may be less inclined to discuss health issues that they think may upset the patient. One pharmacist described her hesitance to offer potentially unwelcome health advice for fear it may affect custom to the pharmacy:

"I mean it's a business environment…erm so if you lose loads of customers your boss is on your back… if you insult somebody by telling them they look fat then you're going to lose that customer [laughs]" IndepCP2(2yrs).

Her belief that this would reflect on her employment status could lead to her not offering lifestyle advice, which conflicts with her health professional role. Another component of the pharmacists' role as a business employee identified by the pharmacists was having business targets to meet. Again, this potentially presents role conflict for community pharmacists, and some pharmacists expressed concern at company targets to perform a specified number of MUR consultations conflicting with the clinical need of patients:

"…because I know colleagues....who are quite...they push it quite hard...but the problem is that I think the patient doesn't get anything out of it because it's just...I feel the patient's being...cajoled into a room because you want to do something..." SuperCP1(8yrs).

The company targets appear to be structuring the pharmacists' behaviour and therefore potentially influencing clinical decisions, presenting a challenge to the pharmacists' autonomy as a health professional.

3.4 Discussion

This study aimed to explore community pharmacists' experiences of providing lifestyle advice for patients with CVD within a UK setting. A thematic analysis using a Framework approach was conducted from which three themes emerged: 'pharmacists' perceptions of patients', 'barriers to providing lifestyle advice' and 'professional identity'.

A novel finding from the study concerns the pharmacists' perceptions of patients which appeared to influence the pharmacists' provision of lifestyle advice. In addition to categorising patients by medical condition or the type of medication patients were prescribed, the pharmacists appeared to categorise patients in terms of 'types' of patients who were open to receiving lifestyle advice and those who were not. Importantly, these stereotypes may influence whether some patients are given lifestyle advice by pharmacists. The pharmacists also appeared to believe that patients with CVD lacked awareness and knowledge of CVD and CVD self-management , however simultaneously perceived lifestyle advice as "common sense" and that these patients were aware of the role health behaviours play in CVD development and management. Additionally, some pharmacists believed that some patients with CVD were not motivated to change their behaviour. These beliefs may lead pharmacists to believe that giving lifestyle advice will not benefit patients with CVD, and consequently such advice may not be a high priority activity in a busy pharmacy. Street Jr, Gordon, and Haidet (2007) found physician communication behaviours to correlate with the physicians' perceptions of patients, with physicians being more patient-centred, less contentious and showing more positive emotions towards patients who they perceived to be better communicators, more actively involved in the consultation, more likely to adhere to treatment and more satisfied with treatment. Notably it may be that patients who are not 'actively involved' in consultations, or perceived to be of a 'type' not open to receiving advice may in fact need more assistance than patients who are able to actively engage in encounters with health professionals.

Furthermore, pharmacists in the present study believed that giving patients lifestyle advice may provoke a negative response, with some participants alluding to the potential of patients to become

aggressive. This supports the findings of previous systematic reviews which found that pharmacists feared 'interfering' with or offending patients (Anderson et al., 2003; Eades et al., 2011). A recent qualitative study exploring pharmacists' attitudes towards providing advice about alcohol consumption also found that having concerns about offending or alienating customers was a major barrier to offering the service (Horsfield et al., 2011). Research conducted with Australian clinicians (nurses, Aboriginal health workers and allied health professionals including social workers, speech therapists and psychologists) found the clinicians' perceptions of how acceptable clients felt it was for them to offer lifestyle advice affected providing such advice, with 'low implementers' expressing concerns of appearing judgmental, receiving negative reactions from clients and damaging the clinician-client relationship (Laws et al., 2008). Many pharmacists in the present study also believed that many patients did not fully understand the pharmacists' role and did not expect or want to receive lifestyle advice from a community pharmacist. Believing that patients do not understand pharmacists' professional capabilities and do not want or expect to receive lifestyle advice in a community pharmacy may paradoxically lead to pharmacists not giving lifestyle advice to patients who are open to receiving it.

Professional identity emerged as a prominent theme in relation to the provision of lifestyle advice, appearing to underpin many of the perceived barriers to providing lifestyle advice. At the core of this appeared to be the retail environment in which community pharmacists practise, resulting in a dual role of health professional and business employee. In keeping with previous research (Anderson et al., 2003; Eades et al., 2011), most of the pharmacists were positive about playing a role in public health (in this case providing lifestyle advice) but reported difficulties achieving this due to barriers such as time, high workload and pressure to meet targets. It should be noted that there was not unanimous support for lifestyle advice provision being a part of the pharmacists' role, and there was variation within the participants' beliefs about the extent to which pharmacists should adopt additional roles more in line with a 'clinician' identity.

Remuneration appeared key to pharmacists' provision of lifestyle advice for patients with CVD, with the pharmacists suggesting that current remuneration practices hindered their provision of lifestyle advice. Some pharmacists suggested that providing lifestyle advice was not in their best interests because they received no financial return for doing so. This may result in pharmacists not being motivated to provide lifestyle advice, and many pharmacists reported prioritising other activities (primarily dispensing) over providing lifestyle advice, again supporting the findings of previous studies (Anderson et al., 2003; Eades et al., 2011; O'Loughlin et al., 1999).

However, the way barriers to providing lifestyle advice were perceived by pharmacists employed by different pharmacy ownerships varied. Despite reporting high workloads and time pressure, pharmacists employed by independent pharmacies appeared to be more comfortable spending time offering patients lifestyle advice, even if other patients were waiting to be seen. In contrast, these barriers seemed more salient to pharmacists employed by multiple pharmacies, with the supermarket pharmacist and many multiple pharmacists reporting pressure to provide a quick service and not keep other patients waiting. This in turn appeared to be underpinned by pressure to meet company targets, causing potential conflict between the pharmacist's health professional and business employee roles. This has implications for pharmacists providing lifestyle advice, and in the current study appeared to manifest in two ways: pharmacists conducting consultations to meet company targets rather than in response to clinical need and pharmacists not offering potentially unwelcome health behaviour advice to patients, fearing that this may have repercussions on their employment status if the patient reacts badly. This supports previous research which found that pharmacists working in multiple pharmacies experienced conflict with commercial interests as a significant barrier to providing the set public health agenda (Bush et al., 2009).

The retail environment of the community pharmacy was perceived to affect patients' perceptions of the pharmacists' role, with participants inferring that patients did not recognise the community pharmacist as a health professional. Consequently lifestyle advice provision was reportedly affected, due to patients not fully recognising the pharmacists' professional opinion. This appeared to relate to

the retail environment of the community pharmacy. It may be that the 'shop' appearance of the community pharmacy results in patients having different expectations and perceptions of community pharmacists than they have of other health professionals. This may result in patients perhaps expecting the 'customer service' that they expect in a retail environment, resulting in less tolerance to wait to be seen by a community pharmacist than other health professionals operating in a more traditional clinical environment.

In their respective systematic reviews, Anderson et al. (2003) and Eades et al. (2011) suggested that pharmacists have a reactive approach to public health provision and are most comfortable giving advice around medicines, which also appeared to be the case in the present study. The pharmacists seemed happy to provide lifestyle advice if the patient asked for it or if it related to medicine. The pharmacists appeared to conceptualise lifestyle advice as part of MURs, pharmacy services which provide some patients with a yearly consultation with a pharmacist to assess the patient's use of medicine, incorporating some questions about their lifestyle. However, importantly, other than in these consultations there appeared to be a dichotomy between dispensing and lifestyle advice, and the pharmacists did not report routinely integrating lifestyle advice with their regular dispensing practices. This appeared to relate to a lack of time, fear of a negative patient response and a lack of confidence in giving lifestyle advice. According to Bandura (1977), self-efficacy (defined as confidence in one's ability to carry out a behaviour), is a key predictor of whether the behaviour is performed. Some pharmacists reported a lack of confidence in their abilities to initiate conversations about health behaviours with patients, with some pharmacists reporting that they had not received appropriate training to enable them to provide lifestyle advice. Interestingly, this was not restricted to pharmacists who had qualified before the introduction of the pharmacy contract; newly qualified pharmacists also reported a lack of self-efficacy to give patients lifestyle advice. This supports the findings of previous reviews which concluded that pharmacists had low to moderate levels of self-efficacy and required more training to increase their confidence in providing public health services.(Anderson et al., 2003; Eades et al., 2011).

The present study found that pharmacists reported their provision of lifestyle advice to be reactive rather than the provision of opportunistic lifestyle advice outlined in the "best practice" guidelines *Choosing health through pharmacy* (DoH, 2005) and the NHS Forum Report (2012). This supports the findings of previous systematic reviews by Anderson et al. (2003) and Eades et al, (2011). It is well documented that research findings and clinical guidelines do not always readily translate into the routine clinical practice of health professionals (Lenfant, 2003). Marteau and Johnston (1991) highlighted the importance of viewing health professional behaviour as a source of variance in patient outcome, arguing that health professional behaviour can be explained, predicted and changed using psychological models previously used to explain and predict the health behaviours of patients.

The Godin et al. (2008) theoretical framework (see page 38) which extends the theory of planned behaviour (Ajzen,1991) can be applied to the findings of the present study. Beliefs about consequences appeared to be important in the pharmacists' provision of lifestyle advice, with the pharmacists reporting perceived potential negative consequences of offering lifestyle advice such as offending patients and/or patients responding aggressively and the implications this may have on their employment status and future custom to the pharmacy. The pharmacists' beliefs about their capabilities to provide lifestyle advice also appeared to be important, with many of the pharmacists indicating that they found providing lifestyle advice difficult and felt that they lacked appropriate training to do so. Role and identity emerged as a key theme in the pharmacists' accounts, and appeared to underlie many of the frequently cited barriers to providing lifestyle advice. Some pharmacists questioned whether pharmacists should offer lifestyle advice at all, some pharmacists saw lifestyle advice as important but secondary to their other roles whilst other pharmacists viewed giving patients lifestyle advice as of paramount importance. The way pharmacists are remunerated for their different roles was also cited as an important factor, with some pharmacists suggesting that the current pharmacy contract does lend itself to providing lifestyle advice and therefore pharmacists are not motivated to provide the advice. Many of the pharmacists also cited pressure

from their employer to meet targets and a high workload as preventing them from giving patients lifestyle advice. The pharmacists' perceptions of patients' willingness to receive advice emerged as a factor appearing to influence the pharmacists' provision of lifestyle advice also appears to fit under 'social influences' in the Godin et al (2008) model. Moral norm however did not appear to play a role.

3.4.1 Strengths and Limitations

There is a paucity of high quality in-depth qualitative research in this field of research. This was an in-depth qualitative study conducted with community pharmacists in a UK setting and it is the first study to explore English community pharmacists' experiences of providing lifestyle advice for patients with CVD. The richness of the data collected and the internal validity of the analysis is such that the findings are likely to be transferable if not statistically generalisable.

There are however limitations to this research. First, in order to increase study participation, the method of interviewing participants differed, with seven pharmacists interviewed face-to-face and eight by telephone. This could have affected the quality of the data collected from the telephone interviews as the interviewer was not able pick up on the participants' body language and any non-verbal cues which may have affected the quality of the rapport established between the interviewer and participant. However, alternatively, the increased sense of anonymity may have enhanced the quality of the data collected. Pharmacists working in a variety of community pharmacy settings were sampled, resulting in contrasting as well as complementary accounts. Despite this, in the present study fewer participants from supermarket-owned pharmacies agreed to participate compared to participants from independent and multiple owned pharmacies. This may have affected the results and limited the comparisons that could be made between the experiences of supermarket-employed pharmacists compared to participants employed by independent and multiple pharmacies.

3.5 Conclusion

Many pharmacists saw the potential benefits of facilitating patient self-management of CVD through providing lifestyle advice. However, in practice they perceived multiple barriers to doing so and

giving patients with CVD lifestyle advice did not appear to be routine practice. Issues relating to professional identity appeared key barriers to the implementation of lifestyle advice, particularly concerning the way pharmacists are currently remunerated which seemed to result in lifestyle advice being a lower priority than other pharmacy activities. The extent to which pharmacists perceived barriers to providing lifestyle advice to patients with CVD differed, with pharmacists employed by multiple owned pharmacies in particular reporting pressure to provide a quick service and meet targets as preventing them from providing lifestyle advice. The retail environment of the community pharmacy was associated with potential role conflict and pharmacists perceived that this resulted in patients and other health professionals not appreciating the competencies of the community pharmacist.

4 Chapter Four: A comparison of the predictors of pharmacists' intentions to give medication adherence advice and weight loss advice to patients with CVD

4.1 Introduction

The qualitative study reported in chapter three found that generally the participants were more comfortable giving patients with CVD advice relating to medicines and medication adherence than advising patients about lifestyle behaviours. Some pharmacists perceived giving patients weight loss advice to be particularly challenging. Based on these findings, the study presented in this chapter was conducted to identify and compare the predictors of pharmacists' intentions to give medication adherence advice (an activity more in line with the traditional role of the pharmacist) and pharmacists' intentions to give weight loss advice to overweight patients with CVD (a role which pharmacists adopted more recently through the introduction of the pharmacy contract (DoH, 2005). Both adhering to prescribed medication and engaging in lifestyle behaviours such as eating a healthy diet and regular exercise to lose weight if overweight are critical to patient self-management of CVD. However both pharmacists' attitudes towards and engagement in public health activities vary (Eades et al., 2011), despite a contractual obligation for UK pharmacists to provide chronic disease self-management support and promote behaviour change to result in patients leading healthy lifestyles (DoH, 2005).The identification of the predictors of pharmacists' intentions to give weight loss advice (a behaviour pharmacists reported finding difficult) may facilitate the development of future interventions to change pharmacists' advice-giving behaviour. Furthermore, the comparison of the predictors of advice-giving behaviour pharmacists report feeling comfortable performing (medication adherence advice) and that they report finding difficult (weight loss advice) will allow the identification of any predictors unique to the behaviour they find more difficult. Again, this could

inform the development of future behaviour change interventions to increase pharmacists' engagement in the behaviour.

As outlined in chapter one, health professional behaviour can be explained and predicted by psychological models traditionally used to understand patient health behaviours (Eccles et al., 2012; Godin et al., 2008; Marteau & Johnston, 1991). Based on the findings of their systematic review, Godin et al. (2008) developed a framework of health professional behaviour which includes variables from the Theory of Planned Behaviour (TPB) (Ajzen, 1991) and the Theory of Interpersonal Behaviour (TIP) (Triandis, 1979). The framework posits that beliefs about consequences, social influences, moral norms, role and identity and characteristics of the health professional are determinants of intention to engage in behaviour. Beliefs about capabilities and habit/past behaviour are determinants of intention and direct predictors of health professional behaviour. As with the TPB (Azjen, 1991), intention is a predictor of behaviour. A deductive analysis was performed, applying components of the Godin et al. (2008) model and other social cognitive theories to the findings of the qualitative study (chapter three) in a deductive analysis to inform the development of a questionnaire to assess the predictors of pharmacists' intentions to give two different types of self-management advice.

Both the Godin et al. (2008) theoretical framework of health professional behaviour (see page 38 for a full explanation) and the TPB (Ajzen, 1991) posit that beliefs about consequences (termed 'attitude' in the TPB) are a determinant of intention to engage in behaviour. This was evident in some of the pharmacists' accounts of their experiences of giving lifestyle advice, with some pharmacists perceiving that by giving lifestyle advice they may offend patients and or patients may respond aggressively which could have implications for their status as an employee and future custom to the pharmacy. The Godin et al. (2008) framework and the TPB (Ajzen, 1991) also account for the role of an individual's perceptions of others' perceptions of them engaging in the target behaviour, termed 'social influences' and 'subjective norm' respectively. Both Godin et al. (2008) and Azjen (1991) posit that an individual's perception of an important other's perception of them engaging in the behaviour is a determinant of the behaviour. The role of these constructs was evident in the qualitative

research. Some of the pharmacists perceived pressure from their employer to meet targets and provide a quick service, believing that this prevented them from giving lifestyle advice. This supports previous research which found pharmacy ownership influences pharmacists' public health activity (Bush et al., 2009; Maunder & Landes, 2005). Furthermore, some of the pharmacists believed that patients with CVD did not want or expect to receive lifestyle advice from pharmacists. A related construct that was identified in the qualitative study was pharmacists' perceptions of patients' willingness to receive advice and change their behaviour which emerged as a factor appearing to influence the pharmacists' provision of lifestyle advice. This is in keeping with the 'social influences' construct in the Godin et al (2008) framework, which suggests that social influences are a determinant of health professionals' intention to engage in behaviour.

The Godin et al. (2008) framework and Social Cognitive Theory (Bandura, 1977) both suggest that an individual's perception of their ability to perform behaviour is a behavioural determinant. Godin et al.'s (2008) framework of professional behaviour proposes that the construct 'beliefs about capabilities' is a predictor of intention and a direct predictor of behaviour. Similarly, Bandura's Social Cognitive Theory (1977) proposed that the construct 'self-efficacy', defined as an individual's perception of their ability to execute a task successfully, is a key determinant of behaviour. The pharmacists' beliefs about their capabilities to provide lifestyle advice appeared to be important, with many of the pharmacists indicating that they found giving lifestyle advice difficult and felt that they lacked appropriate training to equip them with the skills to do so. Previous research has also posited that self-efficacy is a key factor in pharmacists' provision of public health services (Anderson et al., 2003; Eades et al., 2011).

Role congruence emerged as an important factor in pharmacists' experiences of giving lifestyle advice to patients with CVD, appearing to underpin many of the perceived barriers to giving patients lifestyle advice. Some pharmacists felt it was a key part of their role whilst other pharmacists questioned whether they should give patients lifestyle advice at all. Previous research has identified the role that role congruence plays in health professionals' provision of lifestyle advice. Based on

qualitative research which investigated health professionals' provision of lifestyle advice in primary care settings in Australia, Laws et al. (2009) developed a model of how clinicians' beliefs and attitudes shape their implementation of lifestyle advice. Laws et al. (2009) concluded that implementation of advice is the result of health professionals' beliefs about whether they should and can give lifestyle advice. Godin et al. (2008) also accounted for the role of role congruence in their framework of health professional behaviour, positing that a variable named 'role and identity' was a determinant of intention.

Presseau, Francis, Campbell, and Sniehotta (2011) suggest that by focussing on a single goal directed behaviour, the TPB and other social cognitive models fail to capture whether other goal directed behaviours performed at the same time help or hinder the pursuit of the goal directed behaviour in question. This is important in the context of health professional behaviour and clinical consultations which require multiple clinical behaviours to be performed, some of which may be conflicting. Limited resources (such as lack of time or remuneration) may cause goal conflict: if a pharmacist has to offer lifestyle advice and check and dispense a prescription medication in a time pressured environment this may cause goal conflict and result in only one of the behaviours occurring. Alternatively, performing other clinical behaviours may increase the chance that a goal directed behaviour is performed. If a pharmacist has to offer medication adherence advice and check and dispense a prescription medication, the act of dispensing the prescription medication may facilitate the provision of medication adherence advice. A study exploring UK health professionals' (GPs and nurses) provision of physical activity advice found that goal facilitation and goal conflict improved the prediction of physical activity advice provision, accounting for an additional 5.8% and 8.4% of the variance in behaviour over and above intention and perceived behavioural control (Presseau et al., 2011). In the qualitative study the way that pharmacists are remunerated for their different roles was cited as a barrier to giving lifestyle advice, and some pharmacists suggested that they prioritised certain activities in the pharmacy (primarily dispensing) over other activities such as giving lifestyle advice because dispensing sustains the pharmacy as a business. A dichotomy between dispensing

and giving lifestyle advice was observed (goal conflict), despite government policy suggesting that dispensing activities should facilitate the provision of lifestyle advice (goal facilitation) (DoH, 2005). Again, the Godin et al. (2008) framework can be applied to these findings. Godin et al. (2008) proposed that characteristics of the health profession influence health professional behaviour. Arguably the way pharmacists are remunerated and the problems providing sensitive lifestyle advice whilst operating in a retail environment are arguably unique to the pharmacy profession.

Finally, it has been suggested that the best predictor of future behaviour is past behaviour. Godin et al (2008) cited the importance of measuring past behaviour when studying health professional behaviour stating that much of health professional behaviour could be characterised as habitual. This was demonstrated by Walker, Grimshaw and Armstrong (2001) who conducted a study which investigated the utility of the TPB in predicting GPs intentions to prescribe antibiotics to adults with uncomplicated sore throats. The TPB explained 48% of the variance in GPs intention to prescribe antibiotics, with attitude and perceived behavioural control the most important independent variables. When past behaviour was added to the model the proportion of variance explained significantly increased to 63%.

This chapter presents a study which builds upon the findings of the qualitative study (chapter three) using a cross-sectional questionnaire design to identify and compare the predictors of pharmacists' intentions to provide medication adherence and weight loss advice. The present study aimed to identify and compare the predictors of both pharmacists' intentions to advise overweight patients with CVD about losing weight and adhering to their prescribed medication respectively. The study sought to answer the following research questions.

(a) What are the predictors of pharmacists' intention to advise overweight patients with CVD about losing weight and pharmacists' intention to advise patients with CVD how to adhere to their prescribed medication?

(b) What are the commonalities and differences between the predictors of pharmacists' intention to advise overweight patients with CVD about losing weight and pharmacists' intention to advise

patients with CVD how to adhere to their prescribed medication?

4.2 Methods

4.2.1 Study design

The study used a cross-sectional questionnaire design to identify the predictors of pharmacists' intentions to give medication adherence advice to patients with CVD and intention to give weight loss advice to overweight patients with CVD (dependent variables). The independent variables included: TPB variables (Azjen, 1991); self-efficacy (Bandura, 1977); constructs from the Godin et al. (2008) theoretical framework of health professional behaviour: past behaviour and role congruence; goal conflict and facilitation and demographic variables. Questionnaires were administered to English community pharmacists by post with the option to complete the questionnaires online if participants preferred. Ethical approval was obtained from Aston University Life and Health Sciences Research Ethics Committee (reference number 562).

4.2.2 Participants

An a priori power calculation was performed in accordance with guidelines from Tabachnick and Fidell (2013) to determine the necessary sample size: N ≥50+8m (m=number of Independent Variables) needed to test the multiple correlation and N≥104+m for individual predictors. These guidelines state 'these rules of thumb assume a medium-size relationship between the IVs and the DV, alpha = .05, beta = .20' (p.123). Accordingly, a minimum sample size of 194 participants was required to run the planned regression analyses which included eighteen independent variables (see page 100 to 104 for details).

Potential participants were identified from the online NHS service directory which lists the postal address of every community pharmacy in England, grouped by Local Area Team (http://www.nhs.uk/servicedirectories/Pages/AreaTeamListing.aspx). Due to previous experiences of recruiting pharmacists to participate in research being problematic, a low response rate was

anticipated. Initially it was planned for enough questionnaire packs to be compiled for a response rate of 20% (1010 questionnaires) with the plan to send out a second wave of questionnaire packs if the required sample size was not obtained. One thousand two hundred packs were made up due to receiving extra copies when the questionnaire packs were printed. In order to obtain as representative a sample as possible, each community pharmacy listed in each of the 25 Local Area Teams in England was allocated a number, and 48 pharmacies from each area were randomly selected using a random number generator (48 x 25 = 1200). The questionnaire packs each contained one questionnaire and were addressed to 'the community pharmacist'.

In order to maximise recruitment, the questionnaire was also available online and a link to the webpage was included in the questionnaire pack sent to the randomly selected pharmacies should more than one pharmacist wish to participate in the study or prefer to complete the questionnaire online. In addition to this, in order to raise the profile of the study to ensure participant recruitment, social media (the Twitter account of the author, KK and her supervisor, CL) was used to tweet the link to the online questionnaire. Furthermore, Chemist and Druggist, a pharmacy trade magazine, included an article about the study along with a link to the questionnaire.

4.2.3 Questionnaire development

The items in the questionnaire were developed based on the findings of the qualitative research, and where available, guidance and examples in the literature of how theoretical constructs should be measured. The items in the questionnaire measuring TPB variables were developed in accordance with established methods of how to develop a TPB questionnaire (Francis et al., 2004). The self-efficacy items were developed in accordance with guidance from (Bandura, 2006) based on barriers identified in the qualitative study (chapter three) whilst the goal conflict and goal facilitation items were adapted from items developed by Presseau et al. (2011). The remaining items measuring role congruence, perceptions of patients, perceptions of training and past behaviour were drawn from the Godin et al. (2008) framework of health professional behaviour and developed based on the

qualitative findings and were subject to ongoing refinement. The final questionnaire is presented in Appendix 9.6.

Think-aloud interviews were conducted with a convenience sample of six community pharmacists. The think aloud method requires participants to verbalise thoughts that would normally be silent (Ericcsson & Simon, 1993); participants do not have to provide an explanation of their thought processes, rather they just report what they are thinking when completing a task (in this case filling out a questionnaire). In the present study, this was used to assess participants' understanding of an initial draft of the questionnaire, allowing identification of any aspects of the questionnaire that participants found confusing or difficult to complete. Based on the feedback from participants, items were removed to shorten the length of the questionnaire due to concerns raised about the time taken to complete it. The wording of the goal conflict and goal facilitation items was changed as participants felt that these items were confusing. An item measuring perceived behavioural control (PBC) was removed as the word 'control' appeared to elicit a defensive response from some participants which appeared to evoke feelings around professional autonomy. The formatting of the questionnaire was also amended to avoid duplication of the same question stems which assessed each behaviour, as in the think-aloud interviews the participants reported that they found this to be very repetitive and felt it made the questionnaire longer than necessary.

4.2.4 Measures

4.2.4.1 Background information

Participants were asked to indicate: their gender (male/female/prefer not to say); how long they had worked as a community pharmacist; working hours (full time/part time); if they were working as a locum; employee status (pharmacy owner or employee/locum) and the ownership of the pharmacy they worked in according to the Bush et al. (2009) classification (independent/small chain/large chain/multiple/supermarket).

4.2.4.2 Theoretical predictors

The questionnaire items shared a common wording across the two behaviours (giving medication adherence advice and giving weight loss advice). All scale items were tested for acceptable internal consistency, which was set at Cronbach's $\alpha \geq 0.70$, and summed where appropriate (Tabachnick & Fidell, 2013). Where internal consistency was not reached items were dropped from the variable measures until the maximum possible Cronbach's alpha was reached or kept as separate items rather than summed.

4.2.4.3 Attitude

Four attitude items were included for each behaviour. Participants were asked to indicate the extent to which advising patients with hypertension/hyperlipidaemia how to adhere to their prescribed medication and lose weight was: good/bad; pleasant/unpleasant; useful/worthless and satisfying/unsatisfying. Internal consistency between the items was high (Cronbach's $\alpha = 0.84$ for adherence advice and 0.83 for weight loss advice) therefore the items were summed and the mean average taken. Responses were scored on a scale of one to five, with one indicating a strong positive attitude and five indicating a strong negative attitude towards the behaviour.

4.2.4.4 Subjective norm

Three subjective norm items were measured for each behaviour: 'my current employer thinks', 'patients collecting a prescription for hypertension/hyperlipidaemia think' and 'other pharmacists think' respectively (1=strongly agree, 5=strongly disagree). Only participants who were pharmacy employees were asked to complete the first subjective norm item, as 'my current employer thinks' does not apply to pharmacy owners. Reliability between 'patients think' and 'other pharmacists think' was relatively low (Spearman Brown coefficient= 0.66 for medication adherence advice and 0.52 for weight loss advice) therefore the items were analysed separately.

4.2.4.5 Perceived behavioural control

Initially three items for each behaviour were used to measure perceived behavioural control: 'I am confident that I could advise a patient with hypertension/hyperlipidaemia how to [adhere to their

prescribed medication/lose weight]'; 'For me, advising a patient with hypertension/hyperlipidaemia how to [adhere to their prescribed medication/lose weight] is easy' and 'Whether or not I advise a patient with hypertension/hyperlipidaemia how to adhere to their prescribed medication is entirely up to me' or 'Whether or not I advise an overweight patient with hypertension/hyperlipidaemia how to lose weight is entirely up to me'. Internal consistency between the three items was low (Cronbach's $\alpha = 0.41$ for medication adherence advice and 0.48 for weight loss advice). When the 'entirely up to me' item was removed, the internal consistency increased (Cronbach's $\alpha = 0.72$ for medication adherence advice and 0.62 for weight loss advice). The remaining two items for each behaviour were also found to have high internal consistency with the items derived to measure self-efficacy. Therefore these items were summed with the items measuring self-efficacy (described below) and summed whilst the remaining item 'entirely up to me' was used to measure PBC for both behaviours.

4.2.4.6 Self-efficacy

In accordance with guidelines for constructing self-efficacy scales Bandura (2006), self-efficacy was measured using five items for each behaviour which assessed how confident pharmacists were in their ability to perform the behaviour despite potential barriers which were identified in the qualitative study (see chapter one). These were: 'I am confident I can advise a patient with hypertension/hyperlipidaemia how to [adhere to their prescribed medication/lose weight if overweight] if they do not ask for the advice; appear uninterested; there are other patients in the pharmacy waiting to be seen; I know the patient well; the conversation is part of a Medicines Use Review. As described above, two items additionally used to measure PBC were added. There was high internal consistency between the items (Cronbach's $\alpha = 0.81$ for medication adherence advice and 0.85 for weight loss advice). The items were measured on five point response scale, with one indicating strong agreement and five indicating strong disagreement. The scores were summed and averaged.

4.2.4.7 Goal conflict and goal facilitation

Drawing from the items used by Presseau et al. (2011), a single item for each behaviour assessed goal facilitation: 'my involvement in the dispensing activity in the pharmacy facilitates me in advising patients with hypertension/hyperlipidaemia how to adhere to their medication as prescribed' and 'lose weight if overweight' respectively. Goal conflict was operationalised as 'my involvement in the dispensing activity in the pharmacy prevents me from advising patients with hypertension/ hyperlipidaemia how to adhere to their medication as prescribed' and 'lose weight if overweight' respectively. The response scale was a five point scale with one indicating strong agreement and five indicating strong disagreement.

4.2.4.8 Past behaviour

Participants were asked to indicate the proportion of patients with hypertension and/or hyperlipidaemia that they advise about adhering to prescribed medication, think are overweight and, if overweight, give weight loss advice to on a five point scale (1= 0-20% to 5 = 81-100%).

4.2.4.9 Perception of patients

Three items assessed participants' perceptions of patients on a five point scale for each of the behaviours. For medication adherence, the items: 'I can tell which patients are going to react badly to me giving them advice', 'I can predict which patients with hypertension/hyperlipidaemia will benefit from my advice', and I can easily distinguish patients who are motivated to adhere to their prescribed medication from patients who are not motivated to adhere to their prescribed medication' had high internal consistency (Cronbach's α =0.73) therefore the items were summed and the mean average taken. For weight loss, the items: 'I can tell which patients are going to react badly to me giving them advice', 'I can predict which patients with hypertension/hyperlipidaemia will benefit from my advice', and 'I can easily distinguish patients who are motivated to lose weight from patients who are not motivated to lose weight' also had high internal consistency (Cronbach's α =0.73) therefore the items were summed and averaged.

4.2.4.10 Role congruence

A single item for each behaviour assessed role congruence: 'I feel that advising patients with hypertension/hyperlipidaemia how to adhere to their medication as prescribed is an important part of my role as a pharmacist' and 'I feel that advising overweight patients with hypertension/hyperlipidaemia is an important part of my role as a pharmacist. Responses were scored on a five point scale, with the anchors 'strongly agree' and 'strongly disagree'; high scores indicated strong agreement with the statement.

4.2.4.11 Training

A single item for each behaviour assessed participants' perceptions of the training they had received: 'I feel that I have been given the appropriate training to advise patients with hypertension/hyperlipidaemia how to adhere to their medication as prescribed' and 'lose weight (if overweight)' respectively.

4.2.4.12 Intention

Intention was operationalised as a single item for each of the behaviours: 'I intend to advise all patients collecting a prescription for hypertension/hyperlipidaemia about adhering to their prescribed medication and 'I intend to give weight loss advice to all overweight patients with hypertension/hyperlipidaemia'. Reponses were scored on a five point Likert scale, with 'strongly agree' anchored at one indicating a strong intention to engage in the behaviour and 'strongly disagree' anchored at five indicating a strong intention not to engage in the behaviour.

4.2.5 Procedure

The addresses of the 1,200 randomly selected pharmacies were obtained and a questionnaire pack was posted to each pharmacy. This consisted of: an invitation letter (appendix 9.7), participant information sheet (appendix 9.8), a copy of the questionnaire (appendix 9.6) and a postage paid envelope. The brief invitation letter introduced the study. The participation information sheet gave more detailed information, and outlined the rationale for the research, informed potential

participants of their rights and reiterated that the questionnaire was anonymous and that participants would not be identifiable from the returned questionnaires. Participants were requested to return the paper version of the questionnaire in the postage paid envelope if they wished to take part in the study.

The online questionnaire was designed using SNAP 11; survey software which can be used to design questionnaires that can distributed in multiple formats (including paper and online). Participants who opted for the online version of the questionnaire were provided with the information from the participant information sheet online (appendix 7) and required to indicate that they consented to take part in the study. The online questionnaire contained the same questions as the paper version (see appendix 5).

4.2.6 Analysis

Data were analysed using Statistical Package for Social Sciences IBM version 21. The data were screened for data entry errors and the frequency of missing values in the data set was calculated, with less than 10% of the total values missing and less than 10% of data missing for each item measured. George and Mallery (2012) state that it is acceptable to replace up to 15% of data by the mean of values for that variable and cause little damage to the resulting outcomes. George and Mallery (2012) also recommend that a case or variable missing more than 15% data is removed from the analysis. It was therefore decided to enter the series mean for the missing data whereby missing values were replaced by the mean value of all other values for that variable (George & Mallery, 2012).

Descriptive statistics were used to describe the sample in terms of gender, years worked and the ownership of the pharmacy participants were employed by. The distributions of the variables were checked for normality. Intention to give weight loss advice was normally distributed. Despite an acceptable skew value (0.84), on visual inspection the scores for intention to give medication adherence advice were not normally distributed and this variable was therefore transformed using a

square root transformation. Differences in gender, locum pharmacists (versus pharmacists who were not locums), pharmacy owners/employees and hours (full time/part time) by intention to give patients medication adherence advice and weight loss advice were analysed using t-tests. Two one-way ANOVAs were performed to analyse differences between pharmacy ownership (independent, multiple and supermarket) by intention to give medication adherence advice and weight loss advice. Pearson's bivariate correlations were performed to explore the relationships between the remaining continuous variables and intention to give medication adherence and weight loss advice respectively.

Two paired samples t-tests were conducted to analyse the difference between pharmacists' intention to provide medication adherence advice and intention to provide weight loss advice, and the difference between self-reported past advice-giving behaviour for advising patients on medication adherence and weight loss.

4.2.6.1 Regression Analysis

The eighteen independent variables were entered into two multiple hierarchical regressions models to determine the predictors of intention to provide medication adherence advice and intention to provide weight loss advice. In accordance with the Tabackhnic and Fidell (2013) guidance the following assumptions were checked: sample size; multicollinearity; singularity; outliers; normality; linearity; homoscedasticity and independence of residuals. The items derived from commonly used theories of social cognition identified as predictors of health professional intention and behaviour in previous literature (Eccles et al., 2012; Godin et al., 2008) were entered in the first step: attitude; subjective norm items (patients think and pharmacists think); perceived behavioural control and self-efficacy. In the second step, additional variables that have been identified as predictors of health professional behaviour in previous studies (Godin et al., 2008 Laws et al., 2008, 2009; Presseau et al., 2011) and were evident in the qualitative research were entered: perception of patients; goal facilitation and goal conflict; role congruence; past behaviour and training. Finally variables that cannot be altered through a behaviour change intervention were entered in the final step: independent ownership, multiple ownership, years worked, gender, locum status, working hours (full

time/part time). The questionnaire measured pharmacy ownership according to the Bush et al. (2009) definition. In order to perform regression analyses, the five categories were collapsed into three variables: independent + small chain = 'independent', large chain + multiple = 'multiple' and 'supermarket'.

4.3 Results

4.3.1 Response rate

Two hundred and twenty-one of the 1200 postal questionnaires sent to 1200 individual community pharmacies were returned by the cut-off date resulting in an 18.4% response rate. An additional eighteen questionnaires were completed online giving 233 completed questionnaires in total (one blank questionnaire was returned). It was not possible to calculate a response rate for the online questionnaire. Two of the participants had more than 15% data missing and were therefore removed from the analysis (George and Mallery, 2012) leaving a sample of 231 participants.

4.3.2 Characteristics of the sample

The sample consisted of 116 men (50.2%) and 112 women (48.5%) with three participants (1.3%) preferring not to say. Most of the participants (190, 82.3%) were pharmacy employees, forty one participants (17.7%) were pharmacy owners (i.e. practising pharmacists who owned their own pharmacy). Most participants worked full-time (n=201, 87.0%) with the remainder (30, 13.0%) working part time. A small number of participants indicated that they were employed as locum pharmacists (22, 9.5%). The majority of participants were employed by independent (96, 41.0%) and multiple-owned (102, 44%) pharmacies, with a minority of participants (27, 11.7%) employed by supermarket pharmacies. The mean number of years working as a community pharmacist was 13.79 years (SD= 0.32) with a range from six months to 45 years.

4.3.3 Comparison of variables between behaviours

Paired-samples t-tests were conducted to compare the difference between each of the variables measured in relation to both types of advice (medication adherence and weight loss) (see table 4.1).

Given the risk of familywise errors associated with conducting this analysis, a more conservative probability value ($p<0.01$) was applied. There was a significant difference between all of the variables with the exception of perceived behavioural control. There was a significant difference between all of the variables with the exception of perceived behavioural control. Pharmacists were significantly more likely to intend to give patients with CVD medication adherence advice than give overweight patients with CVD weight loss advice, and were significantly more likely to report having given medication adherence advice in the past compared to weight loss advice. Pharmacists were more likely to have positive attitudes towards giving medication adherence advice than weight loss advice, had higher self-efficacy to give medication adherence advice than weight loss advice, and giving medication adherence advice was perceived as significantly more role congruent than giving weight loss advice. Pharmacists were more likely to believe that they had appropriate training to give medication adherence advice than weight loss advice. There was a significant difference between all of the subjective norm items: pharmacists were more likely to perceive that other pharmacists, patients and their employer respectively wanted them to give medication adherence advice than weight loss advice. Pharmacists were also more likely to believe that dispensing medicines facilitated them giving medication adherence advice than it did them giving weight loss advice. Conversely, pharmacists were more likely to believe that dispensing medicines conflicted with giving weight loss advice than giving medication adherence advice. Finally, pharmacists were more likely to perceive that they could tell which patients would benefit from being giving medication adherence advice compared to weight loss advice.

Table 4.1 presents a summary of the mean scores and standard deviations of the variables for the two behaviours.

Table 4.1: Table of means, standard deviations and the difference between means of variables relating to pharmacists' medication adherence and weight loss advice

	Medication adherence advice	**Weight loss advice**	**Difference between means**	
	Mean (standard deviation)	Mean (standard deviation)	t	P
Variable (Possible scores:1-5; 1 = high, 5= low)				
Intention	2.04 (0.90)* [2.0]	2.81(0.98)	-43.02	<0.001
Attitude	1.52 (0.57)	2.09 (0.81)	-13.01	<0.001
Perceived Behavioural Control ("up to me")	2.51 (1.10)	2.52 (1.03)	0.34	0.74
Subjective Norm: employer thinks	2.04 (1.05)	2.55 (0.99)		
Subjective Norm: patient thinks	2.28 (0.93)	2.97 (0.97)	-11.79	<0.001
Subjective Norm: pharmacists think	2.17 (0.93)	2.51(0.90)	-6.44	<0.001
Self-efficacy	1.90 (0.58)	2.75 (0.72)	-18.96	<0.001
Dispensing facilitates (goal facilitation)	2.45 (1.03)	2.76 (1.02)	-6.60	<0.001
Dispensing prevents (goal conflict)	3.21 (1.24)	3.07 (1.25)	3.69	<0.001
Role congruence	1.50 (0.62)	1.89 (0.89)	-6.60	<0.001
Training	1.72 (0.86)	2.48 (1.18)	10.16	<0.001
Perception of patients	2.48 (0.75)	2.54 (0.76)	-3.81	<0.001
Past behaviour	2.94 (1.20)	1.72 (0.97)	15.58	<0.001

*Variable not normally distributed therefore median is presented in brackets.

4.3.4 The relationships between IVs and intention outcome variables for both behaviours

The results of the bivariate analyses between the independent variables and intention to provide medication adherence advice and intention to provide weight loss advice respectively are presented in Table 4.2 below.

Table 4.2: Relationships between independent variables and intention outcome variables

Variable	Intention (medication adherence advice)		Intention (weight loss advice)	
	R	P	R	P
Patients think (subjective norm)	0.502	<0.001	0.359	<0.001
Pharmacists think (subjective norm)	0.464	<0.001	0.483	<0.001
Employer thinks (subjective norm)	0.115	0.014	0.165	0.029
Attitude	0.373	<0.001	0.448	<0.001
Perception of patients	0.198	0.002	0.160	0.015
Perceived behavioural control "Up to me"	-0.166	0.12	-0.090	0.173
Self-efficacy	0.392	<0.001	0.369	<0.001
Goal facilitation	0.318	<0.001	0.334	<0.001
Goal conflict	-0.309	<0.001	-0.166	0.012
Role congruence	0.479	<0.001	0.503	<0.001
Past behaviour	-0.463	<0.001	-0.389	<0.001
Training	0.326	<0.001	0.284	<0.001
Years worked	0.090	0.172	0.155	0.018
	F (one-way ANOVA)	P	F (one-way ANOVA)	P
Pharmacy ownership	1.23	0.294	0.006	0.994
	t	P	t	P
Gender	1.76	0.079	-0.215	0.830
Employee status (pharmacy owner/employee)	0.368	0.713	2.47	0.829
Locum	-0.067	0.946	-0.962	0.337
Hours (part time/ full time)	-0.121	0.904	-0.718	0.474

Values shaded in the table above are statistically significant at $p<0.05$.

Self-efficacy, goal facilitation, role congruence and training were positively associated with intention to give medication advice: pharmacists who had lower scores on these measures (which indicated higher self-efficacy, agreement that dispensing facilitated giving patients with CVD medication adherence advice, that pharmacists perceived giving medication adherence advice as congruent with their role as a pharmacist and believed that they had received appropriate training to give medication adherence advice respectively) had higher intentions to give medication adherence advice (indicated by lower intention scores). This was also the case for weight loss advice: pharmacists who had lower scores on these measures (indicating higher self-efficacy, agreement that dispensing facilitated giving patients with CVD weight loss advice, that pharmacists perceived giving weight loss advice as congruent with their role as a pharmacist and believed that they had received appropriate training to give weight loss advice respectively) had higher intentions to give weight loss advice (indicated by lower intention scores).

There was a positive relationship between past behaviour and intention to give medication adherence advice and intention to give weight loss advice: pharmacists who reported giving more weight loss advice in the past(indicated by higher scores) had higher intentions to give weight loss advice in the future (indicated by lower intention scores) whilst pharmacists who reported giving more medication adherence advice in the past (indicated by higher scores) had higher intentions to give medication adherence advice (indicated by lower intention scores). There was a negative association between intention to engage in either behaviour and goal conflict: pharmacists who perceived dispensing to cause high goal conflict with giving medication adherence advice (indicated by high conflict scores) had lower intentions to give medication adherence advice whilst pharmacists who perceived dispensing to cause less goal conflict with giving weight loss advice (indicated by low scores) had higher intentions to give weight loss advice. There was no relationship between years worked and intention to give medication adherence advice, however there was a positive association between years worked and intention to give weight loss advice: pharmacists who had worked as a pharmacist for longer had higher intentions to give weight loss advice. Finally, there was no

relationship between pharmacy ownership, gender, employee status, locum status, hours worked and intention to engage in either of the behaviours.

4.3.5 Predicting intention to give medication adherence advice and intention to give weight loss advice

Multiple regression analysis was conducted to identify the predictors of pharmacists' intention to give weight loss advice to overweight patients with CVD and intention to give medication adherence advice to patients with CVD. In order for inclusion in the multiple regression, pharmacy ownership was entered as two dummy variables: independent ownership and multiple ownership verses supermarket ownership. All assumptions for multiple regression according to Tabachnick and Fidell (2013) were met. As previously described, the sample size was large enough for the results to be generalisable according to the sample size calculation recommended by Tabachnick and Fidell (2013) (see page 85). Multicollinearity was assessed by checking the correlations between the independent variables; none of the independent variables were highly correlated. The data were assessed for outliers (defined by Tabachnick and Fidell (2013) as those with standardised residual values above about 3.3 or less than -3.3: no outliers were removed. Finally, normality, linearity, homoscedasticity and independence of residuals was assessed: the residuals were normally distributed about the predicted dependent variable scores, the residuals had a linear relationship with the predicted dependent variable scores and the variance of the residuals about predicted dependent variable scores was the same for all predicted scores. The results of the analysis are presented in Tables 4.3 and 4.4.

Table 4.3: Hierarchical multiple regression of variables predicting intention to provide medication adherence advice

	Model 1		**Model 2**		**Model 3**	
	β	P	β	p	β	P
Subjective norm (patients think)	0.296	<0.001	0.243	<0.001	0.258	<0.001
Subjective norm (pharmacists think)*	0.201	0.001	0.177	0.004	0.197	0.002
Attitude	0.140	0.019	0.072	0.219	0.062	0.298
Split PBC ("up to me")	-0.084	0.124	-0.060	0.259	-0.045	0.415
Self-efficacy	0.196	0.001	0.109	0.094	0.112	0.093
Perception of patients			0.119	0.030	0.116	0.041
Goal facilitation			-0.021	0.723	-0.027	0.656
Goal Conflict			-0.160	0.006	-0.164	0.005
Role congruence			0.256	<0.001	0.252	<0.001
Training			-0.044	0.484	-0.059	0.356
Past behaviour			0.109	0.030	0.116	0.029
Pharmacy ownership – multiple (dummy 1)					0.011	0.896
Pharmacy ownership – independent (dummy 2)					-0.42	0.633
Gender					-0.122	0.026
Locum					-0.009	0.870
Years worked					-0.046	0.429
Hours (full time/part time)					-0.004	0.936
Employee status (pharmacy owner/pharmacy employee)					-0.046	0.429
ΔR^2	0.383		0.086		0.016	
ΔF	27.14 (p<0.001)		5.73 (p<0.001)		0.90 (p=0.51)	

*NB. The third subjective norm 'employers think' was only relevant to the participants who were pharmacy employees rather than pharmacy owners therefore it was not included in the analysis.

Step one explained 36.9% of the variance (adjusted R^2) in intention to provide medication adherence advice, $F(5, 219) = 27.14$, $p<0.001$. All of the variables entered in this step were statistically significant apart from perceived behavioural control. Pharmacists with more positive attitudes, higher self-efficacy and believed that other pharmacists and patients wanted them to give medication adherence advice (indicated by lower scores on the respective measures) had higher intentions to give medication adherence advice (indicated by lower intention scores).The two subjective norm items were the strongest predictors of intention to give medication adherence advice, with the beta weightings suggesting that pharmacists' perceptions of what patients thought were a stronger predictor of intention than their perception of what other pharmacists thought.

At the second step the model explained 44.1% of the variance (adjusted R^2) in intention to provide medication advice, $F(11, 224)=17.06$, $p<0.001$. Six variables were significant predictors of intention to give medication adherence advice: pharmacists had higher intentions to give medication adherence advice (indicated by lower intention scores) if they believed other pharmacists and patients wanted them to give medication adherence (the subjective norm items), perceived that they could tell which patients would adhere to medication, did not experience goal conflict, believed that giving medication adherence advice was congruent with their role as a pharmacist and had given medication adherence advice to patients in the past. This step explained an additional 8.9% of variance in intention to provide medication adherence advice (R^2 change =0.101, F change (6, 213) =5,73, $p<0.001$. At this step, attitude and self-efficacy, two of the variables that were significant in step one, were no longer significant. Role congruence, entered in the second step became the strongest predictor of intention, and this variable may be responsible for self-efficacy and attitude no longer being significant predictors of intention.

The model in the final step explained an additional 1.6% of the variance in intention (adjusted R^2 change= 0.016, F change (7, 206) =0.90) and at this step one additional variable, gender, was a significant predictor of intention, with female pharmacists scoring higher on intention to give medication adherence advice than males. However the overall addition of this step was not significant, therefore the final model explained 43.9% of the variance intention to give patients with CVD medication adherence advice (adjusted R^2 =0.439) and the model was statistically significant ($F(18, 224)= 10.74$, $p<0.001$). Role congruence was the strongest predictor of intention: this suggests that pharmacists seeing behaviour (in this case giving medication adherence advice) as being part of their role was associated with higher intentions to engage in the behaviour. Subjective norms were also strong predictors: believing that patients and other pharmacists think that pharmacists should give medication adherence advice was associated with stronger intentions to engage in the behaviour. Goal conflict was a significant predictor of intention and there was a negative correlation between intention and goal conflict meaning that pharmacists who did not perceive dispensing activities to conflict with giving medication adherence advice had higher intentions to give medication adherence advice. Previous experience of giving patients with CVD medication adherence advice and pharmacists perceiving that they could predict how patients would behave were also associated with higher intentions to give medication adherence advice.

Table 4.4: Hierarchical multiple regression of variables predicting intention to provide weight loss advice to overweight patients with CVD

	Model 1		**Model 2**		**Model 3**	
	β	P	β	P	B	P
Subjective norm (patients think)	0.182	0.02	0.165	0.005	0.170	0.005
Subjective norm (pharmacists think)	0.257	<0.001	0.201	0.001	0.195	0.002
Attitude	0.289	<0.001	0.204	0.003	0.204	0.004
Split PBC ("up to me")	-0.062	0.124	-0.063	0.256	-0.050	0.383
Self-efficacy	0.132	.045	0.080	0.257	0.076	0.305
Perception of patients			0.90	0.114	0.089	0.138
Goal facilitation			-0.009	0.886	-0.016	0.814
Goal Conflict			-0.089	0.114	-0.089	0.138
Role congruence			0.230	0.001	0.220	0.002
Training			-0.015	0.817	-0.006	0.926
Past behaviour			0.004	0.944	0.003	0.964
Pharmacy ownership – multiple (dummy 1)					0.044	0.602
Pharmacy ownership – independent (dummy 2)					0.040	0.668
Gender					0.018	0.763
Locum					0.065	0.273
Years worked					0.076	0.218
Hours (full time/part time)					-0.007	0.908
Employee status (pharmacy owner/pharmacy employee)					0.032	0.651
ΔR^2	0.363		0.049		0.011	
ΔF	24.95 (p<0.001)		2.99 (p=0.08)		0.56 (p=0.80)	

For intention to provide weight loss advice, the model in step one explained 34.8% of the variance (adjusted R^2), F(5,224)=15.46, p<0.001. Four of the five variables entered at this step were significant predictors of intention: Pharmacists with more positive attitudes, higher self-efficacy and who believed that other pharmacists and patients wanted them to give weight loss advice had higher intentions to give weight loss advice. Perceived behavioural control was not a significant predictor of intention.

At the second step, the model explained 38.2% of the variance (adjusted R^2) in intention to provide weight loss advice and was statistically significant F(11,224)= 13.59, p<0.001. One additional variable, role congruence was a significant predictor of intention: pharmacists who strongly believed that giving weight loss advice was congruent with their role as a pharmacist had higher intentions to give weight loss advice. Therefore pharmacists with more positive attitudes towards giving weight loss advice, believed that other pharmacists and patients wanted them to give weight loss advice and believed that giving weight loss advice was role congruent had higher intentions to give overweight patients with CVD weight loss advice. As with the medication adherence advice regression model, self-efficacy was no longer a significant predictor of intention when role congruence was added to the model.

The model in the final step explained less of the variance in intention to provide weight loss advice than the model at step two (adjusted R^2= 0.373) and R square change was not significant (R^2 change =0.011, F change (7, 206) =0.55, p=0.80). None of the variables entered in this step was a significant predictor of intention.

4.3.6 Further exploration of the role of role congruence

As demonstrated above, pharmacists' having a positive attitude was a significant predictor of intention to give weight loss advice but not medication adherence advice. Despite there being no collinearity between the variables, it was thought that there may be some overlap between the

attitude and role congruence variables. In order to assess this, sensitivity analysis was performed by removing role congruence from the regression models.

Table 4.5: Sensitivity analysis: hierarchical multiple regression of variables predicting intention to provide medication adherence advice to patients with CVD

	Model 1		Model 2		Model 3	
	B	P	B	p	B	P
Subjective norm (patients think)	0.296	<0.001	0.243	<0.001	0.257	<0.001
Subjective norm (pharmacists think)	0.201	<0.001	0.216	0.001	0.235	<0.001
Attitude	0.140	0.019	0.133	0.025	0.126	0.034
Split PBC ("up to me")	-0.084	0.124	-0.076	0.167	-0.055	0.338
Self-efficacy	0.196	0.001	0.150	0.025	0.157	0.022
Perception of patients			0.130	0.022	0.124	0.034
Goal facilitation			-0.018	0.772	-0.026	0.684
Goal Conflict			-0.173	0.004	-0.180	0.003
Training			0.010	0.870	-0.011	0.866
Past behaviour			0.097	0.073	0.102	0.064
Pharmacy ownership – multiple (dummy 1)					0.023	0.779
Pharmacy ownership – independent (dummy 2)					-0.018	0.0841
Gender					-0.131	0.021
Locum					-0.019	0.737
Years worked					-0.013	0.823
Hours (full time/part time)					-0.027	0.635
Employee status (pharmacy owner/pharmacy employee)					-0.013	0.858
ΔR^2	0.383		0.043		0.019	
ΔF	27.14 (p<0.001)		3.18 (p=0.009)		1.002 (p=0.431)	

Step one explained 36.9% of the variance (adjusted R^2) in intention to provide medication adherence advice ($F(5, 219) = 27.14$, $p<0.001$. All of the variables entered in this step were statistically significant apart from perceived control, with attitude towards giving medication adherence advice the strongest predictor of pharmacists' intentions to give medication adherence advice. Pharmacists with more positive attitudes, higher self-efficacy and who believed that other pharmacists and patients thought that they should give medication adherence advice had higher intentions to give medication adherence advice.

At the second step the model explained 39.8% of the variance in intention (adjusted R^2) to provide medication advice $F(10, 214)=15.84$, $p<0.001$. Six variables were significant predictors of intention to give medication adherence advice: pharmacists had higher intentions to give medication adherence advice if they had more positive attitudes towards giving medication adherence advice, had higher self-efficacy, perceived that they could tell which patients would adhere to medication, did not experience goal conflict and had given medication adherence advice to patients in the past (all indicated by lower scores) had higher intentions to give medication adherence advice. The model explained an additional 4.3% of variance in intention to provide medication adherence advice, F change $(5, 214) =3.18$, $p<0.009$.

The model in the final step explained an additional 1.9% of the variance in intention, F change (7, 207) =0.431) and at this step one additional variable, gender, was a significant predictor of intention however the overall addition of this step was not significant. Therefore the final model explained 39.9% of the variance (adjusted R^2) in intention to give patients with CVD medication adherence advice and the model was statistically significant ($F(17, 207)= 9.73$, $p<0.001$).

The above analysis demonstrated that having a positive attitude towards giving medication adherence advice was a predictor of pharmacists' intentions to give medication adherence advice when role congruence was not entered into the regression model, suggesting that there is some overlap between the two constructs. However the model that included role congruence predicted

more of the variance in pharmacists' intention to give medication adherence advice than the model that did not (44.1% verses 39.9%) which suggests that role congruence was a valuable addition.

4.4 Discussion

This study aimed to identify and compare the predictors of pharmacists' intentions to provide two different types of advice: medication adherence advice and weight loss advice. The study identified determinants of pharmacists' intention to give both types of advice which predicted 44.1% of the variance in pharmacists' intention to give patients with CVD medication adherence advice and 38.2% of the variance in pharmacists' intention to give overweight patients with CVD weight loss advice. Superficially, both behaviours are the same (i.e. giving advice) however, whilst sharing some common determinants, the determinants of pharmacists' intentions to give medication adherence advice and weight loss advice to overweight patients differed. Pharmacists intended to give medication adherence advice if:

- they thought patients believed that they should give medication adherence advice
- they thought other pharmacists believed that they should give medication adherence advice
- they did not believe dispensing activities in the pharmacy prevented them from giving medication adherence advice
- they believed giving medication adherence advice was an important part of their role as a pharmacist
- they had given medication adherence advice in the past
- they perceived that they could predict which patients would benefit from their advice and adhere to their medication.

Pharmacists intended to give overweight patients with CVD weight loss advice if:

- they believed patients thought that they should give weight loss advice
- they believed other pharmacists thought they should give weight loss advice
- they thought giving weight loss advice would have a positive outcome

- they thought giving weight loss was an important part of their role as a pharmacist.

The study found that community pharmacists were significantly more likely to intend to give patients with CVD medication advice than they were to intend to give weight loss advice to overweight patients with CVD. Pharmacists reported having given significantly more medication adherence advice to patients with CVD than weight loss advice to overweight patients with CVD in the past.

The TPB (Ajzen, 1991) posits that its four theoretical constructs alone successfully account for all effects on behaviour, with attitudes, subjective norm and perceived behavioural control determining an individual's intention to engage in behaviour. Whilst the present study found some of the TPB constructs to be significant predictors of pharmacists' intention to give medication adherence and to give weight loss advice, constructs outside the TPB accounted for additional variance in both behaviours. The model in the present study accounts for more of the variance in intention than other studies which have used the TPB to predict pharmacists' intentions to engage in clinical behaviours. This supports the findings of various studies which identified constructs in addition to those included in the TPB as successful in accounting for additional variance in health professional intention and behaviour (Eccles et al., 2012; Godin et al.,. 2013; Presseau et al., 2011, 2013).

Pharmacists' attitude was a significant predictor of intention to give weight loss advice but not medication adherence advice. The pharmacists also had significantly more positive attitudes towards giving medication adherence advice than they had towards giving weight loss advice to overweight patients with CVD. When additional exploratory analysis was performed, attitude emerged as a strong significant predictor of pharmacists' intention to give medication adherence advice when the role congruence item was removed from the regression model. This suggests that pharmacists' attitudes towards giving medication adherence advice are related to their beliefs about whether giving medication adherence advice is an important part of the pharmacist's role, and despite there not being multicollinearity between the items, these constructs have some shared variance. It may be that because advising about medications is considered a core component of the pharmacists' identity and role, having a positive or negative attitude towards this type of advice is not as

important as in relation to a different kind of advice, weight loss advice, which is not directly linked to medicines and therefore may not be associated with the traditional role of the pharmacist. This may also explain the difference between the models in relation to subjective norm; pharmacists perceptions of what patients thought was a stronger prediction of intention to give medication adherence advice whereas what the participants' perceptions of what pharmacists thought was a stronger predictor of their intentions to give weight loss advice.

Subjective norms were found to be a strong predictor of pharmacists' intentions to engage in both behaviours. Previous research has also found subjective norms to be important in predicting intention to engage in clinical behaviour; Gavaza et al. (2011) found subjective norms to be the strongest predictor of pharmacists' intention to engage in clinical behaviours. They found that the TPB variables explained 34% of the variance in pharmacists' intention to report serious adverse drug events, with subjective norms the strongest TPB predictor after controlling for attitude and perceived behavioural control (PBC). Furthermore Pradel, Obeidat and Tsoukleris (2007) found subjective norm to be the most important predictor of pharmacists' intention to counsel children with asthma whilst a recent study found that subjective norms were the most important predictor of pharmacists' intentions to use a prescription drug monitoring database (Fleming et al., 2014). Gavaza et al. (2011) suggested that the importance of subjective norms in predicting pharmacists' intentions to report serious drug events may be because the behaviour has implications for other people. Furthermore, Fleming et al. (2014) suggested that the reason subjective norms are the strongest predictors of pharmacists' intentions to engage in behaviour may be that pharmacists feel pressure to benefit patients or to meet regulatory requirements more than other healthcare professionals. In the current study, whilst both significant predictors, what patients think was more important than what pharmacists think in relation to pharmacists intentions to provide medication advice. However, conversely, what other pharmacists thought was a stronger predictor of pharmacists' intentions to provide weight loss advice than pharmacists' perceptions of what patients thought. This finding demonstrates the value of analysing subjective norms separately rather than combining the

measures, given that in this case the perception of different groups of important others' opinions differed according to the behaviour in question.

The TPB posits that perceived behavioural control (PBC) is a predictor of intention to engage in behaviour as well as a direct predictor of behaviour (Ajzen, 1991). Furthermore, a systematic review of constructs from social cognitive theories which predicted health professional intention and behaviour found that PBC and intention were the two most important categories of variables in predicting health professional behaviour (Godin et al., 2008). However in this study PBC was not a significant predictor of intention to engage in either of the behaviours at any stage in the analysis. There are a number of possible explanations for this.

Firstly the findings may reflect a problem with how PBC was operationalised. In accordance with established guidelines (Francis et al., 2004) for constructing TPB questionnaires, an item measuring PBC which used the phrase 'The decision to advise a patient with CVD how to [lose weight/adhere to their prescribed medication] is beyond my control' was included in an earlier version of the questionnaire. This was subsequently removed after conducting think aloud interviews; the word 'control' appeared to evoke a defensive response from some of the participants. This appeared to be connected to their perceptions of their professional autonomy, and appeared to result in some participants perceiving that their professional autonomy was being questioned. This is in keeping with the debates concerning whether pharmacy is in fact a profession with control over the social object of its practice (medicines) (Denzin & Metlin, 1966; Knapp & Knapp, 1968; Trausen & Bisell, 2004). It follows, given this context, that a question which assesses the participants' perceived level control over an area of their practice may be a sensitive area and may tap into wider concerns about their autonomy as a practitioner. This is a plausible explanation for the defensive response.

It may be that by removing the word control from the item measuring PBC and instead using the wording "The decision to advise a patient with CVD how to [lose weight/adhere to their prescribed medication] is entirely up to me", this statement did not in fact measure participants' PBC as intended. Alternatively, the wording used in the item included in the final version of the

questionnaire may still have evoked a defensive response and affected the way participants answered the question, making it less likely for them to indicate that they had low PBC to give both types of advice.

However, this is not the only study examining pharmacists' behaviour which did not find PBC to be a significant predictor of intention. Gavaza et al. (2011) found that PBC was not a significant predictor of pharmacists' intention to report adverse drug events whilst another study using the TPB found that PBC was not a significant predictor of pharmacists' intentions to supply non-prescription antifungals to treat vulvovaginal candidiasis (Walker, Watson, Grimshaw & Bond, 2004). The present study measured pharmacists' intentions to give medication adherence and weight loss advice rather than the behaviour itself. As previously mentioned, the TPB (Ajzen, 1991) posits that PBC is a direct predictor of behaviour in addition to being a predictor of intention. Despite intention being identified as a predictor of health professional behaviour (Eccles et al., 2006), it may be that PBC would emerge as a predictor of behaviour had behaviour been measured in addition to intention.

Role congruence was operationalised in the present study as whether pharmacists believed that both types of advice were an important part of their role as a pharmacist. Previous research has identified role congruence as a factor influencing health professional behaviour. In a qualitative study of Scottish GPs, Fuller, Backett-Milburn, and Hopton (2003) found that younger GPs perceived giving preventative dietary advice to be an important part of their role, felt that GPs' advice was a more credible source of dietary advice than other sources and perceived that patients welcomed their input even if they were not receptive to it at first. Conversely, Fuller et al. (2003) found that older GPs viewed their role as one of treating illness and disease and did not perceive giving dietary advice as part of their role, reporting seeing giving dietary advice as ineffective, perceiving that patients were not interested and that giving dietary advice could potentially damage their relationship with patients. Furthermore, in a qualitative study conducted with 48 Australian health professionals to establish a theoretical model to understand how clinicians' perceptions affect the implementation of lifestyle advice in routine practice, Laws et al. (2009) identified role congruence as an important

factor which when combined with perceptions of scope to make a difference and client receptiveness to the advice, informed the first stage of the model: 'commitment'. In the present study, role congruence was the strongest predictor of intention to give both types of advice, with pharmacists who perceived giving weight loss advice and medication adherence advice as an important part of their role as a pharmacist more likely to intend to give the advice. Pharmacists' perceptions of their role in public health has been investigated in two systematic reviews, with both reviews finding that whilst pharmacists were positive about providing public health services and saw this as an important role, they viewed their role in public health as secondary to medicines related roles (Anderson et al., 2003; Eades et al., 2011). In the present study, pharmacists perceived giving medication advice as significantly more role congruent than giving weight loss advice to overweight patients. This is in keeping with the findings of Anderson et al. (2003) and Eades et al. (2011), with medicines related advice being viewed as more role congruent than weight loss advice. It also supports the findings of Elvey, Hassell and Hall (2013) who used a qualitative methodology to explore pharmacists perceptions of their professional identity, concluding that 'the scientist' emerged as the clearest identity for participants. The pharmacists perceived their scientific knowledge as being applied practically through their role in supplying medicines and also through their identity as advisors on medicines. Unsurprisingly, pharmacists' professional identity appears to be grounded in a knowledge of and the supply of medicines. Giving weight loss advice is not directly linked to having knowledge of or in the supply of medicines, and therefore appears to be more role incongruent than giving medication adherence advice.

Previous studies have identified self-efficacy as an important factor influencing pharmacists' behaviour in relation to health-promotion roles (Anderson et al., 2003; Eades et al., 2011). In their systematic review Eades et al. (2011) concluded that pharmacists had moderate to low self-efficacy in their ability to perform public health related roles. The pharmacists mean score for self-efficacy for giving medication adherence advice was high, indicating that pharmacists were confident in their abilities to give this kind of advice whereas pharmacists' mean score for self-efficacy for giving weight

loss advice was mid-range. There was a significant difference in pharmacists' self-efficacy between the behaviours, with pharmacists having significantly higher self-efficacy to give medication adherence advice than to give weight loss advice. This supports the findings of previous systematic reviews which concluded that pharmacists were more confident in their roles related to medicines than public health roles (Anderson et al., 2003; Eades et al., 2011). However whilst the present study found that self-efficacy was a significant predictor of pharmacists' intentions to give both medication adherence and weight loss advice in the first regression models, self-efficacy was no longer a significant predictor of intention to engage in either behaviour after the addition of role congruence to the model.

There are a number of possible explanations why self-efficacy was not a significant predictor of pharmacists' intentions to give medication adherence or weight loss advice in the current study. Firstly, it may be that other factors are more important determinants of pharmacists' advice giving behaviour than self-efficacy. In addition to subjective norm, the present study found role congruence to be an important determinant of pharmacists' intentions to give patients both medication adherence and weight loss advice. As described above, self-efficacy was no longer significant after the addition of role congruence to the regression model. In the exploratory analysis which removed role congruence from the regression models to assess whether there was shared variance between role congruence and attitude in relation to medication adherence advice, self-efficacy became a significant predictor of intention when role congruence was removed from the models (which predicted less of the variance in pharmacists' intention to give medication adherence advice). It may be that whether pharmacists believe that giving medication adherence advice and/or weight loss advice is part of their role is more important than their self-efficacy; pharmacists may have high self-efficacy to engage in the behaviour but if they do not believe it is part of their role then they may not be motivated to or not intend to give the advice.

Another possible explanation for this finding may concern the way self-efficacy is operationalised. Of the eleven studies discussed in relation to competence/confidence in the Eades et al. (2011)

systematic review which concluded that pharmacists lacked self-efficacy to perform tasks associated with their newer public health role, one of the studies described measuring the construct as 'self-efficacy' and none of the studies reported developing the measures in accordance with guidelines to measure self-efficacy defined by Bandura (2006). Contrastingly the present study assessed self-efficacy in accordance with these guidelines and found self-efficacy not to be predictive of pharmacists' intentions to engage in either of the behaviours. Without assessing self-efficacy as it is intended to be measured, reliable conclusions about the effect of self-efficacy on pharmacists' behaviour cannot be reached.

Alternatively, it could be that self-efficacy is not critical in the formation of pharmacists' intention to engage in either of the behaviours under investigation however this may differ in relation to actual enactment of the behaviours. The Godin et al. (2008) framework of health professional behaviour (see page 22) proposed that 'beliefs about capabilities' is a direct predictor of health professional behaviour as well as being predictive of intention formation. The present study measured intention to engage in the behaviours rather than directly measuring pharmacists' behaviour. It could be that self-efficacy is predictive of pharmacists' behaviour and therefore not evident in the current findings as behaviour was not measured. In the present study, although pharmacists are contractually obliged to give lifestyle advice, their provision of lifestyle advice was not actively monitored. In previous studies, the behaviour may have been compulsory and performance checked, therefore in this situation, regardless of whether pharmacists believed that the activity was role congruent, they would have to engage in the behaviour as their performance was being assessed. In this situation, self-efficacy may then become more important.

The present study found goal conflict, operationalised as 'dispensing prevents' to be a predictor of intention to provide medication adherence advice but not weight loss advice. Pharmacists who did not perceive dispensing activities in the pharmacy as a barrier to giving medication adherence advice were more likely to report intending to give medication adherence advice. Goal conflict was not a significant predictor of weight loss advice however pharmacists perceived dispensing to result in

significantly more goal conflict with giving weight loss advice than giving medication adherence advice. An explanation for this may be that despite pharmacists perceiving that dispensing causes significantly more goal conflict with weight loss advice than medication adherence advice, if pharmacists do not view giving weight loss advice as part of the routine dispensing process it will not cause goal conflict. In the qualitative study (chapter three), pharmacists did not integrate lifestyle advice and dispensing prescriptions, rather seeing Medicines Use Reviews as the setting in which to give lifestyle advice. This could explain why goal conflict with dispensing was not a predictor of pharmacists' intentions to giving weight loss advice as weight loss advice was not seen as relevant to the dispensing process. Furthermore, dispensing was not seen as facilitator to giving medication adherence advice. Therefore it appears that pharmacists who intend to give medication adherence advice do not see dispensing as a barrier to giving the advice rather than viewing dispensing as aiding them to give medication adherence advice. This is noteworthy as best practice guidelines for pharmacists (DoH, 2005) and more recent government reports (NHS Future Forum, 2012) envisage pharmacists using the act of dispensing medicines as a platform to offer lifestyle advice.

Pharmacy ownership was not predictive of pharmacists' intentions to engage in either of the behaviours. This conflicts with previous research which found pharmacy ownership to influence pharmacists' behaviour (Bush et al., 2009; Maunder & Landes, 2005). There are possible explanations for this. Firstly, more participants from independent and multiple pharmacies responded to the questionnaire than participants from supermarket pharmacies meaning that an effect of ownership on intention to give both types of advice may have not been identified. Furthermore for inclusion in the multiple regression, pharmacy ownership was collapsed from five categories as measured by Bush et al. (2009) into three categories (independent, multiple and supermarket ownership) which also may have led to an effect of ownership not being detected. Alternatively, it could be that psychological variables assessed in the current study (which were not assessed in the study by Bush et al., 2009) moderate the impact of working conditions in different pharmacy ownerships or that the

pharmacists working in pharmacies under different pharmacy ownership differ in the psychological variables assessed in the current study.

Finally, past behaviour was also found to be a significant predictor of pharmacists' intentions to give both medication adherence advice and weight loss advice. Past behaviour being a predictor of intention is in line with previous research which found that past behaviour was predictive of GPs prescribing antibiotics (Walker et al, 2004) and also lends support to the Godin et al. (2008) model of health professional behaviour (described in more detail in chapter one).

4.4.1 Strengths and Limitations

This is the first study to assess the predictors of pharmacists' intentions to give weight loss advice, and secondly, to compare the predictors of pharmacists' intentions to give two different kinds of advice: medication adherence and weight loss advice to patients with CVD. The study was based on a qualitative study and is informed by psychological theory. The use of psychological theory increases the likelihood that the study can be effectively replicated. Furthermore, it allows the identification of determinants of pharmacists' intentions to engage in behaviour which can potentially be used to develop interventions to promote behaviour change and increase engagement in the target behaviours. Due to the same participants completing questions on both behaviours, a direct comparison between the determinants of intentions to engage in the two different behaviours was possible. A substantial portion of variance in pharmacists' intentions to give medication adherence and weight loss advice was accounted for.

Despite this, there are some limitations to the study. The major limitation was that no direct, objective measure of the participants' behaviour was obtainable. Whilst a substantial portion of variance in intention accounted for, this is likely to be less in objectively measured behaviour. A systematic review conducted by Eccles et al. (2006) concluded that intentions account for a similar proportion of variance in behaviour found in the non-health professional literature, with R^2 ranging from 0.15 to 0.4 (Eccles et al., 2006; Eccles et al. 2012). The present study measured pharmacists'

past behaviour, however the validity of clinicians' self-reported behaviour has been questioned (Godin et al., 2008; Hrisos et al., 2009). Godin et al. (2008) found that when an objective measure of behaviour was used rather than a self-report measure, efficacy of prediction decreased, whilst a systematic review conducted by (Hrisos et al., 2009) found that the evidence for the validity of self-report measures as a proxy for health professional behaviour is inconclusive.

Although the sample size in the current study meant that all of the statistical analyses were sufficiently powered in accordance with the Tabachnick and Fidell (2013) guidelines, the response rate of 18.4% is still relatively low. Small sample sizes are not uncommon in theory based studies of health professional behaviour. As Presseau et al. (2011) have noted, seven of the fourteen prospective studies testing the TPB in relation to health professional behaviour included in the Godin et al. (2008) systematic review had sample sizes of 50 participants or fewer. Furthermore, many of the included studies which used postal questionnaires reported response rates of less than 25%. This was also found by Eccles et al. (2012) who conducted five studies with different health professionals examining different health behaviours, reporting response rates ranging from 21-48%. Eccles et al. (2012) failed to achieve the necessary sample size in two of their five studies. They state the need for higher response rates to give greater confidence in the representativeness of the findings, but contextualise the difficult of this in practice by citing slowly declining response rates to postal questionnaires by health professionals; 61% in the ten years up to 1995 and 57% in the decade after (Cane, O'Connor, & Michie, 2012).

The recruitment strategy was designed to recruit a representative sample of pharmacists from across England however this cannot be guaranteed. It is noteworthy that there were considerably fewer responses from pharmacists employed by supermarket pharmacies which may have affected the results and mean that an effect of pharmacy ownership on intention was not detected. It is unclear whether this is a result of the recruitment strategy or whether pharmacists employed by supermarket chains are less likely to take part in research studies. Based on their experiences conducting research in this field, it has been suggested by the author that some pharmacy companies

appear not to actively promote pharmacist involvement in research.. It could be that this influenced participants employed by supermarkets more than other participants.

Finally, emotion was not included as a predictor of pharmacists' intention to engage in both advice giving behaviours. Given that participants in the qualitative study (chapter three) indicated that they were uncomfortable initiating conversations about weight loss in-case this caused offence to patients, this may be a determinant of pharmacists' intention to give weight loss advice.

4.5 Conclusion

This study applied psychological theory to aid the identification of the predictors of pharmacists' intentions to give patients with CVD two different types of advice to aid patient self-management of the condition. The models predicted 46.8% of the variance in pharmacists' intentions to give medication adherence advice and 40.8% of the variance in pharmacists' intentions to give weight loss advice. Pharmacists were significantly more likely to intend to give medication adherence advice than they were to give weight loss advice to overweight patients with CVD, whilst pharmacists reported giving significantly more medication adherence advice than weight loss advice (to overweight patients) in the past. Despite being superficially similar, the variables predicting intention to engage medication adherence advice and weight loss advice shared some common predictors but were not the same. The results suggest that role congruence and subjective norms (primarily perceptions of what patients think in relation to medication adherence advice and what other pharmacists think in relation to weight loss advice) could be potential targets for changing pharmacists' advice giving behaviour.

5 Chapter Five: Interventions to prepare pharmacists, pharmacy staff and pharmacy students to facilitate patient lifestyle behaviour change: A systematic review

5.1 Introduction

There have been considerable changes to the role of pharmacists in the past forty years, as highlighted in chapter one, with pharmacists adopting new roles which involve facilitating patient self-management of chronic conditions through behavioural approaches. The qualitative exploration of community pharmacists' experiences of giving patients with CVD lifestyle advice presented in chapter three found that some pharmacists felt that they had not received appropriate training in providing lifestyle advice to facilitate patient self-management. As discussed, this finding supports those of a number of previous studies (Anderson et al, 2003; Eades et al., 2011). To date, the effectiveness of training for pharmacists relating to the public health roles outlined in the pharmacy contract (DoH, 2005) has not been determined. Consequently a systematic review of the efficacy of interventions to prepare pharmacists to facilitate patient lifestyle behaviour change was undertaken.

Facilitating both prevention and self-management of chronic conditions through promoting changes in patient lifestyle behaviour differ considerably from pharmacists' traditional role which involves the preparation and distribution of medicines. It follows that facilitating a behavioural approach to patient self-management requires a different skill set from that traditionally required by pharmacists. Previous research has suggested that pharmacists do not always feel well equipped to successfully fulfil the more recently adopted public health roles (Anderson et al., 2003; Eades et al., 2011). As discussed in chapter one, both reviews concluded that pharmacists required further training to enable them to successfully fulfil public health roles, with Eades et al. (2011) suggesting that future interventions should seek to improve pharmacists' self-efficacy to provide public health services. A survey of US pharmacy schools in 2005 found that few institutions gave pharmacy students the

opportunity to gain knowledge and skills about lifestyle change that can improve health and wellbeing and prevent disease, with only four out of the fifty schools which responded to the survey offering a mandatory course on lifestyle change (Lenz, Monaghan & Hetterman, 2007). A comparable survey of UK pharmacy schools has not been conducted.

It is important to consider the training pharmacists receive and the effect this has on their behaviour, as health professional behaviour can determine patient outcome. Marteau and Johnston (1991) stressed the importance of viewing health professional behaviour as a source of variance in patient outcome, arguing that health professionals differ in their approaches to similar situations and that this difference is not fully attributable to medical knowledge; rather other cognitive processes such as beliefs, attitudes and intentions, in addition to knowledge, influence health professional behaviour. The effect of health professional behaviour on patient outcome was demonstrated in a systematic review of the research examining communication between patients and health professionals about medicines and the consequences for concordance (Stevenson, Cox, Britten, & Dundar, 2004). The review found that health professionals' behaviour can limit or facilitate patient involvement in discussions about their treatment. Increased patient involvement in the interaction was associated with greater understanding of medical treatment, medication adherence and more satisfaction with the encounter. Given that health professional behaviour can have an effect on patient outcome, and that the ultimate aim of interventions to change provider behaviour is to have an impact on patient outcome, the present review included studies where patient outcome was the primary outcome measure of interventions to change pharmacists', pharmacy students' or pharmacy staff behaviour as well studies where participants' behaviour was the primary outcome.

As discussed in chapter one, there is some evidence demonstrating that interventions based on psychological theory are more effective than interventions that do not report using theory to develop the intervention although this is not conclusive (Gardner et al., 2011; Michie et al., 2009; Prestwich et al., 2013; Webb et al., 2010). The use of theory in designing interventions has additional benefits such as aiding identification of the components of the intervention that work (or not) and

making it easier for the intervention to be replicated. Therefore, this systematic review coded studies that met the specified inclusion criteria for use of theory using a theory coding scheme designed by Michie and Prestwich (2010).

As outlined in chapter one, there is a difference between theories of health behaviour and theories of health behaviour change; the theories that can be applied to explain health professional behaviour do not always state how to change behaviour, and a separate set of techniques is required to do this. The behaviour change taxonomy (Michie et al, 2013) lists 93 individual behaviour change techniques (BCTs) that can be used to change behaviour. This review coded for BCTs In order to identify the techniques that were used in any interventions which successfully enabled pharmacists and or pharmacy students and staff to facilitate patient lifestyle behaviour change.

In summary, pharmacists in the UK are contractually obliged to offer patients lifestyle advice to both prevent the development of chronic conditions and to facilitate patient self-management of chronic conditions. Despite the study presented in chapter four not finding self-efficacy or receipt of appropriate training to be a predictor of pharmacists' intentions to give weight loss or medication adherence advice, a body of previous research has concluded that pharmacists lack the confidence/self-efficacy to provide lifestyle advice and require enhanced training to equip them with the necessary skills to facilitate patient behaviour change through lifestyle behaviours. The present review aims to address the following research questions:

Review Questions

1. What interventions are effective at enabling pharmacists to facilitate patient lifestyle behaviour change?
2. What theories, if any, were used in interventions that successfully enabled pharmacists to facilitate patient lifestyle behaviour change?
3. What behaviour change techniques were used in interventions that successfully enabled pharmacists to facilitate patient lifestyle behaviour change?

5.2 Methods

5.2.1 Developing the search strategy

The Cochrane Database of Systematic Reviews library and the Centre for Reviews and Dissemination (CRD) database were initially searched to identify any ongoing or previously published systematic reviews of interventions developed to enable pharmacists to facilitate lifestyle behaviour change; no such reviews were identified. KK conducted preliminary scoping searches for relevant studies within medical and social science databases using the terms 'pharma*' AND 'consultation skills' OR 'pharmacy education'; AND 'lifestyle advice'; OR diet OR smoking cessation OR alcohol OR exercise. The scoping searches identified that the literature evaluating interventions for pharmacists appeared to be small; therefore the search was expanded to include pharmacists, pharmacy students and pharmacy support staff. In accordance with guidance from the CRD (2009) and the Cochrane Handbook for Systematic Reviews of Interventions (Higgins & Green, 2011), a study protocol was developed prior to conducting the review using the PICOS format (Population, Intervention, Comparators, Outcome, Study design) which informed the development of inclusion and exclusion criteria and search terms.

It was decided that the current review would include qualitative, quantitative and mixed methods study designs. The value of qualitative evidence when assessing interventions has only been recognised relatively recently, however it has become more common for the evaluation of health interventions to include qualitative components and for the evaluation of complex interventions to use a 'mixed methods' approach (CRD, 2009; Pope , 2006). Qualitative evidence in particular can contribute to reviews of intervention effectiveness in relation to understanding "what, how and why" (Sheldon, 2005). Evidence from qualitative research can also aid the interpretation of systematic review results by enhancing the understanding of the way an intervention is experienced by those receiving it, and what components are viewed favourably/unfavourably and the reasons for this (Higgins & Green, 2011).

5.2.2 Inclusion and Exclusion Criteria

The inclusion and exclusion criteria for the review are outlined in table 5.1 below.

Table 5.1: PICOS Criteria

Category	Inclusion Criteria	Exclusion Criteria
Participants	• Pharmacists • Pharmacy Students • Pharmacy staff (technicians, dispensers, counter staff)	• Participants who are not pharmacists/pharmacy students/ pharmacy staff. • Studies that include mixed groups of pharmacists/pharmacy students/pharmacy staff *and* other health professionals receiving the intervention.
Intervention	• Programme to provide pharmacists with the consultation skills to facilitate lifestyle behaviour changes with patients. • Can include training in relation to specific patient group or specific to a particular lifestyle behaviour. • The intervention may involve incentives or rewards for engaging in the target behaviour. • A component of the intervention may also target workplace factors (e.g. provide space to deliver lifestyle advice).	• Interventions that do not include lifestyle advice consultation skills training. • Interventions that have not evaluated change in participants' behaviour.
Comparators	Studies with and without a comparison group will be included.	
Outcome	Primary outcomes: • Change in participants' consultation skills to facilitate lifestyle behaviour change with patients (self-report/objective measures) • Change in patient outcome	• Studies that did not measure the primary outcomes: change in participants' consultation skills and/or change in patient outcome.
Study Design	• Any study design • Any country • Papers written in English language.	• No study design will be excluded • Papers not written in English language.

5.2.3 Population

Studies sampling pharmacists, pharmacy students and pharmacy staff (e.g. dispensers, technicians and counter assistants) were included in the review. Studies were excluded if they did not sample the aforementioned participants or if the study sampled other participants in addition to

pharmacists/pharmacy students/pharmacy staff. There were no limits on study participants in terms of age, gender or study setting (i.e. hospital, community or academic institution). Studies conducted within the UK and international settings were included.

5.2.4 Interventions

To be included interventions evaluated had to provide participants with training to equip them with the consultation skills to facilitate patient lifestyle behaviour change; studies were excluded if they did not include this training. The training could be as part of formal pharmacy education, with training provided in the form of lectures, seminars and/or practical sessions incorporating role play with peers or simulated patients. The intervention could relate to specific patient groups or specific lifestyle behaviours. The intervention could also incorporate structural or workplace factors such as creating more time or a space to offer lifestyle advice. The intervention could also provide an incentive to, or reward for, offering lifestyle advice.

Within the pharmacy practice literature, the term "communication skills" commonly refers to the process in which a message is transferred between individuals (typically between the pharmacist and the patient) whilst the term "counselling", sometimes used synonymously with "advice", typically refers to information relating to a medicine, a medical condition or a patient's health behaviour. This may include informing patients how often to take a medicine, the symptoms commonly associated with a medical condition or how to manage a long-term condition through lifestyle behaviours.

For inclusion in the review, the intervention had to be evaluated; studies needed to assess whether the intervention resulted in a change in participants' behaviour or patient outcomes. Studies that did not evaluate the intervention (i.e. just described the intervention) were excluded.

5.2.5 Comparators

Preliminary searches identified that study designs incorporating a comparison group appeared to be uncommon in this research area, therefore studies with and without a comparison group were included in the review.

5.2.6 Outcomes

The primary outcome measures were change in participants' behaviour (consultation skills to provide lifestyle advice) and change in patient outcome (changes in patients' health status or health behaviours).

5.2.7 Study Design

Based on the scoping reviews which identified a small research area with a variety of research designs, studies of any design which informed the research question were considered. Qualitative, quantitative and mixed methods studies were included in the review. Studies of all quality were included in the review, and a quality assessment was carried out.

5.2.8 Language

There were no resources to translate non English-language papers, therefore if the search identified non-English papers then the papers would be documented with language listed as the reason for excluding the study from the review.

5.2.9 Year of publication

The review included papers published from 1996, due to this being the start of the 'Pharmacy In A New Age' initiative by the Royal Pharmaceutical Society of Great Britain (RPSGB) which aimed to determine how pharmaceutical services could be developed to meet the needs of the public in the twentieth century. This initiative included managing chronic conditions and promoting and facilitating people to lead healthy lifestyles (Stone & Curtis, 2002). Despite the review including international studies, 1996 was deemed a good starting point to include UK based studies and it followed to use the same timeframe for international studies as well.

5.2.10 Search methods for identification of studies

The following electronic databases were systematically searched on the 10th and 11th of December 2013 for English language articles published between 1996 and 2014: Medline; Cochrane Database of Systematic Reviews and Web of Science.

5.2.11 Grey Literature

The Cochrane Handbook of Systematic reviews cites the importance of searching the grey literature due to effect of publication bias (Higgins & Green, 2011). Over representation of significant 'positive' and under representation of non-significant 'negative' results may affect the results of the systematic reviews therefore it is important to identify studies reported in conference proceedings and other grey literature (Higgins & Green, 2011). PhD theses were identified as a source of relevant grey literature, using the EthoS database.

5.2.12 Other search strategies

In addition to searching electronic databases, key journals in the research area were hand searched. These were: American Journal of Pharmaceutical Education; Patient Education and Counselling; Journal of Pharmacy Education; Journal of Pharmacy Practice; Research in Social and Administrative Pharmacy; Pharmaceutical Journal; International Journal of Pharmacy Practice; Pharmaceutical Health Services Research; Pharmacy Education. The reference lists of papers that met the inclusion criteria were also searched for relevant articles.

5.2.13 Search terms

Scoping reviews and consultation with an academic supervisory group and an information specialist were used to generate preliminary search terms and evaluate whether these search terms resulted in comprehensive searches which generated relevant articles. This iterative process allowed the search terms to be developed and refined. The final search terms were:

1. (Train* OR skills OR "role-play" AND (pharmaci* OR (pharmacy NEAR/2 staff)) OR (pharmacy NEAR/2 student*) OR (pharmacy AND undergraduate*) OR (pharmacy NEAR/3 education) OR (pharmacy NEAR/3 school)) OR (pharmacy NEAR/3 assistant)

2. ((life-style NEAR/3 advi*) OR (life-style AND modification) OR (life-style NEAR/3 coaching) OR (life-style NEAR/3 change) OR life-style NEAR/3 intervention) OR “public health” OR “health promo*”)
3. ((lifestyle NEAR/3 advi*) OR (lifestyle AND modification) OR (lifestyle NEAR/3 coaching) OR (lifestyle NEAR 3 change) OR lifestyle NEAR/3 intervention) OR “public health” OR “health promo*”)
4. Obesity OR overweight OR “weight management” OR nutrition OR diet OR “weight loss” OR eating OR diet OR diet*
5. Exercise OR “physical activity” OR walk* OR jog* OR run*
6. Smoking OR “smoking cessation” OR Nicotine Replacement Therapy” OR “quit* smoking”
7. Alcohol OR drink* OR “problem drinking”
8. 1 AND 2 OR 3
9. 1 AND 2 OR 3 AND 4
10. 1 AND 2 OR 3 AND 5
11. 1 AND 2 OR 3 AND 6
12. 1 AND 2 OR 3 AND 7

5.3 Data collection and analysis

5.3.1 Study selection

KK screened the titles and abstracts of all papers retrieved through each of the search strategies for potentially eligible studies and excluded irrelevant studies based upon the inclusion and exclusion criteria outlined in the a-priori review protocol. In order to avoid missing potentially eligible articles, KK was overly inclusive at this stage of assessment. Any articles that raised questions concerning eligibility for inclusion in the review were initially included and highlighted to be discussed within supervision to reach a consensus decision about the eligibility of the study. The full texts of potentially eligible studies were then obtained and assessed against the inclusion/exclusion criteria by KK. A list of excluded articles and the reason for their exclusion is provided in appendix 8. At this

stage the Cochrane Handbook for Systematic Reviews (Higgins & Green, 2011) suggests that a second reviewer independently assesses studies against the review inclusion/exclusion criteria. Due to time and resource constraints, it was not possible for a second author to double screen the texts for eligibility. To limit omitting potential eligible articles, if there was any uncertainty over the eligibility of papers for inclusion in the review KK discussed the paper with at least one of the supervisory team (HP, CL and RP) through which a decision was reached.

5.3.2 Data extraction

A data extraction form was used to collect the required information from the selected studies (see Appendix 9). All of the data were extracted by KK. The data extracted were: study authors; date published; study setting; study design; study population; description of the intervention (content and delivery, use of BCTs and theory); outcome measures (description and how they have been assessed) and authors' conclusion.

The authors of any relevant studies that did not include the details required for the present review were contacted directly by email by KK.

5.3.3 Coding for Behaviour Change Techniques (BCTs)

The interventions were coded for BCTs using the definitions listed in the Behaviour Change Taxonomy (v1) which has 93 hierarchically structured behaviour change techniques (Michie et al., 2013). The coder (KK) had received training on using the behaviour change taxonomy at a workshop run by the researchers who developed it. KK familiarised herself with the behaviour change taxonomy and highlighted BCTs to change *provider* behaviour within the studies that matched the descriptions of BCTs listed in the behaviour change taxonomy. Given that the focus of the current review is on changing provider behaviour to facilitate behaviour change in patients, interventions to change patient behaviour alone were not coded in the current review.

5.3.4 Coding for theory

The studies were coded for theory using the Michie and Prestwich (2010) 'Theory Coding Scheme'. The scheme is comprised of 19 items and assesses whether theory was mentioned, how theory was used to develop the intervention, how the theory was used to explain the effect of the intervention on outcome measures and the implications for future development of theory (Michie et al., 2014). The coder (KK) familiarised themselves with the Theory Coding Scheme and applied the scheme to the studies which provided the information required to use the coding scheme.

5.3.5 Quality Assessment

In order to assess methodological quality, studies were assessed using the Mixed Methods Appraisal Tool (MMAT) (Pluye et al., 2011, Appendix 10). The MMAT is a critical appraisal tool designed for use in complex systematic reviews of quantitative, qualitative and mixed methods studies, and is currently the only validated tool for appraising mixed methods studies (Pluye & Hong, 2014). The MMAT further divides the three methodological domains (quantitative, qualitative and mixed methods studies) into three sub-domains: randomised-controlled, non-randomised and descriptive, resulting in the following five categories: qualitative; quantitative randomised controlled (trials); quantitative non-randomised; quantitative descriptive and mixed methods. Each of the five categories has associated methodological quality criteria to assess studies against, resulting in a quality score between 0 *s (no criteria met), * (25%), ** (50%), *** (75%) and **** (100%; 4 criteria met). The MMAT suggests that the overall quality of mixed methods studies cannot exceed the quality of its weakest component, therefore mixed methods studies are scored in accordance with the quality score of the study's weakest component. In addition to the MMAT, risk of bias in the studies that used a randomised controlled trial design was assessed using the Cochrane risk of bias tool (Higgins & Green, 2011.

5.3.6 Data Synthesis

This review included all study designs producing heterogeneous results therefore the data are presented in summary tables and a narrative synthesis was carried out. A narrative synthesis is an approach to evidence synthesis which uses words and text to interpret and summarise the findings of

multiple studies (Pope, Mays & Popay, 2006). Popay et al. (2006) suggest that narrative synthesis is appropriate for use in systematic reviews which use diverse sources of evidence. The opportunity to conduct a meta-analysis on the quantitative findings was explored. The results of the qualitative findings were synthesised thematically; the first and second order constructs were extracted from the studies (see table 5.3) and thematic analysis was conducted.

5.4 Results

5.4.1 Literature Search

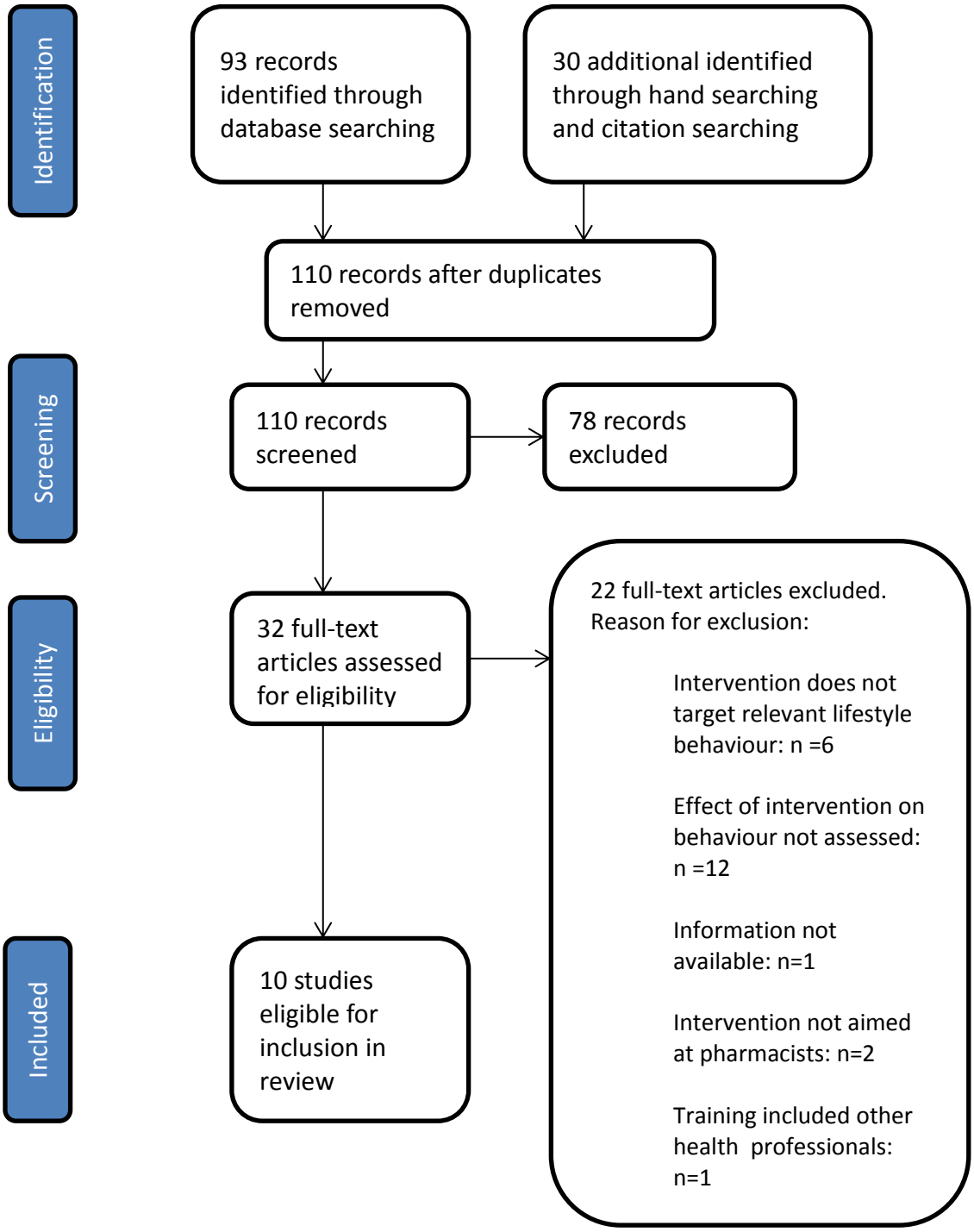
The search of electronic bibliographic databases on 10 – 11 December 2013 identified 93 records whilst 30 additional records were identified through hand searching and citation searching (see Figure 5.1). An information specialist, Dr Georgina Hardy (GH), was consulted given the very small number of records initially identified from the search terms. GH repeated the searches and confirmed the result.

After the removal of duplicates (n = 13), the titles of 110 records were screened. Seventy-eight records were excluded based on title and abstract resulting in 32 full text papers to be reviewed.

5.4.2 Excluded studies

One paper was only available as an abstract. When the study author was contacted, they informed KK that they had submitted the abstract to an academic conference and presented a poster, and had not fully written up the study. This study was therefore excluded as it did not contain sufficient information required for the current review. Six of the studies were excluded because they did not target a relevant lifestyle behaviour. Twelve of the studies were excluded because they did not assess the effect of the intervention on behaviour, two of the studies designed an intervention targeting participants who were not pharmacists, pharmacy staff or pharmacy students and one of the studies evaluated training pharmacists and other health professionals (separate results could not be obtained).Ten studies met the criteria for inclusion in the review.

Figure 5.1: Summary of Records Identified



5.4.4 Description of studies

The characteristics of the studies included in the review are detailed in Table 5.2. The studies were published in between 1997 and 2013 and conducted in three countries. The majority of the studies were carried out in the USA (n=7) and three studies were conducted in the UK .The majority of studies evaluated interventions delivered to community pharmacists (n=5), two studies evaluated interventions delivered to both community pharmacists and pharmacy support staff and two studies evaluated interventions delivered to pharmacy students. Most of the interventions targeted participants' smoking cessation consultation skills (n= 8), one study targeted the provision of general lifestyle advice and one study targeted lifestyle behaviours associated with diabetes self-management. Three of the studies (Corelli et al., 2005; Hudmon et al., 2003; Hudmon et al., 2004) evaluated a tobacco cessation consultation skills intervention called 'Rx for Change' (prescription for change) developed by Hudmon et al. (2003), whilst two further studies (Martin, Bruskiewitz & Chewning, 2003; Martin & Chewning, 2011) evaluated an intervention using adapted materials from the 'Rx for Change' intervention. The papers by Martin et al. (2003) and Martin and Chewning (2011) presented evaluations of different components of the same intervention and therefore both studies will be considered together.

The majority of studies adopted a quantitative methodology (n= 6), one study used qualitative methodology and two studies used a mixed methods approach. A variety of research designs were utilised; most studies used a before-after design (n= 5), three studies were randomised controlled trials and one study was an evaluation-only study.

Table 5.2: Summary of included studies

Source, Setting & Participant Occupation	Study design & No. of participants	Health behaviour addressed	Intervention Explicitly based on theory	BCTs	Intervention Content & delivery	Outcome measures	Main Findings	Study Quality Score
Anderson et al. (1997) UK; community pharmacists	Qualitative before-after study; 40 ppts	General health promotion.	NR	**Behavioural practice** (role-play)	• Role-play with peers • Duration: 7 days • Provider: NR	Meaning of health, role of pharmacy in health promotion, change in knowledge, change in practice *(semi-structured telephone interviews)*	See qualitative results	**
Corelli et al. (2005) USA; pharmacy students	Before-after-study; 493 ppts	Smoking	NR	**Instruction on how to perform behaviour.** **Behavioural practice** (role-play) **Feedback on behaviour** (performance in role-play) **Adding objects to the environment** (tobacco cessation counselling guide to help	• Rx for change programme see (Hudmon et al. 2003). • Duration: NR • Provider :NR	Perceived counselling ability Self-efficacy for counselling	• Perceived counselling ability increased significantly post intervention ($p<0.001$). • Post-training assessments of pre-training abilities were significantly lower than pre-training assessments of the same ability ($p<0.001$).	**

Source, Setting & Participant Occupation	Study design & No. of participants	Health behaviour addressed	Intervention Explicitly based on theory	BCTs	Intervention Content & delivery	Outcome measures	Main Findings	Study Quality Score
				pharmacists apply '5As').				
Hudmon et al. (2003) USA; pharmacy students	Evaluation-only study; 544 ppts	Smoking	NR	**Instruction on how to perform behaviour.** **Behavioural practice** (role-play) **Feedback on behaviour** (performance in role-play) **Adding objects to the environment** (tobacco cessation	• 7 core modules, 5 optional: Videoed interviews with smokers*; Epidemiology of tobacco use (20mins); Forms of tobacco (20 mins); Pharmacology of nicotine & principles of addiction*(40 mins); Drug interactions with smoking* (5 mins); assisting patients with quitting*(90	Self-reported pre and post-training smoking cessation counselling abilities *(likert scale, both rated post training)*	• Pre and post training abilities to help patients quit increased significantly (p= 0.001).	0 *s

Source, Setting & Participant Occupation	Study design & No. of participants	Health behaviour addressed	Intervention Explicitly based on theory	BCTs	Intervention Content & delivery	Outcome measures	Main Findings	Study Quality Score
				counselling guide to help pharmacists apply '5As').	mins); pathophysiology of tobacco related disease; genes and tobacco; history of tobacco control efforts; hands on experience with smoking cessation aids* (60 mins); role-play with case scenarios* (minimum 120 mins). *Core module. • Duration: Varied between the four institutions intervention delivered at; 7-9 hours delivered over 2-5 days. • Provider NR			
Hudmon et al. (2004) USA; pharmacy students	Before-after-study; 142	Smoking	NR	**Instruction on how to perform behaviour. Behavioural practice** (role-play) **Feedback on behaviour**	• Rx for change programme see (Hudmon et al. 2003). • 8 hour duration • Provider NR	Self-reported overall counselling ability *(likert scale).* Self-reported ability to	• Overall counselling ability significantly increased pre and post training ($p<0.001$) • Confidence for counselling significantly	**

Source, Setting & Participant Occupation	Study design & No. of participants	Health behaviour addressed	Intervention Explicitly based on theory	BCTs	Intervention Content & delivery	Outcome measures	Main Findings	Study Quality Score
				(performance in role-play) **Adding objects to the environment** (tobacco cessation counselling guide to help pharmacists apply '5As').		implement 5As *(likert scale).* Confidence for counselling *(likert scale).*	improved post-training (p<0.001).	
Maguire et al. (2001) England & Northern Ireland; community pharmacists	RCT; 124 (not randomised)	Smoking	NR	**Material Reward** (pharmacists paid for every smoker followed up after 12 months).	• Content: epidemiology of smoking, use of NRT, cycle of change and PAS model Maguire (1995, 1996, 1997). Also included detailed description of study methodology (training part of larger study where pharmacists delivered both intervention and standard care to patients they recruited who were randomised to either condition). • Duration:3 hours	Experiences during study *(interview and focus groups).* Patient smoking status *(self-reported abstinence and urinary cotinine test).*	• 14.3% of patients had abstained for 12 months compared with 2.7% of standard pharmacist care controls (p<0.001). At 3 months 11% of standard care group reported not smoking compared with 27.5% of intervention group. • Cotinine levels (indication of nicotine consumption) were higher in intervention group than control group.	*

Source, Setting & Participant Occupation	Study design & No. of participants	Health behaviour addressed	Intervention Explicitly based on theory	BCTs	Intervention Content & delivery	Outcome measures	Main Findings	Study Quality Score
					• Study author and another researcher provided training.			
Martin et al. (2003) USA; community pharmacists	Before-after-study; 25	Smoking	Based on self-efficacy theory.	**Goal setting** (set clear learning goals and objectives). **Problem solving** (participants had to verbalise strategies to overcome problems presented in case studies). **Demonstration of behaviour** (by 'proficient peer'). **Behavioural practice** (with standardised patients). **Feedback on behaviour** (by peers and faculty staff). **Material incentive** (remunerated for each patient they offered smoking cessation service to).	• Content: Adapted Rx for change materials (Hudmon et al., 2003). Didactic and education based home study component delivered by CD-ROM. Training workshop incorporating case studies, modelling of skills, standardised patients and performance feedback. • Duration: 8 hour workshop + home study (duration not specified). • Provider NR	Self-efficacy for counselling *(12 item likert scale).* Evaluation of training programme *(5 item likert scale).* Perceived overall ability to help patient stop smoking *(likert scale).* Knowledge *(14 MCQs).* Indictors of service provision *(phone interviews & invoices for smoking cessation therapies dispensed).*	• Self-efficacy scores sig. higher (p<0.001) after the live training intervention than before home study intervention. No significant difference found in self-efficacy after home study alone (p=0.163). • Self-rated 5As counselling skills significantly higher after live training (p<0.001) than before home study intervention and before live training intervention. No significant difference for 5A measures pre and post home study intervention (p=0.201). • Self-rated overall counselling ability significantly higher	**

Source, Setting & Participant Occupation	Study design & No. of participants	Health behaviour addressed	Intervention Explicitly based on theory	BCTs	Intervention Content & delivery	Outcome measures	Main Findings	Study Quality Score
							than before programme (p<0.001). • 18 of 24 participants completing programme offered tobacco cessation service post training. 13 participants assisted patients with tobacco cessation 1 year after training.	
Martin & Chewning (2011) USA; community pharmacists	Before-after-study; 25	Smoking	Based on self-efficacy theory	**Goal setting** (set clear learning goals and objectives). **Problem solving** (participants had to verbalise strategies to overcome problems presented in case studies). **Demonstration of behaviour** (by 'proficient peer'). **Behavioural practice** (with standardised patients). **Feedback on**	Same as Martin et al. (2003)	Role-play performance *(videotaped and assessed by 2 independent observers).* Service provision *(self – report through phone interviews and invoices for services)*	• Counselling performance improved significantly post training in both standardised patient scenarios (p<0.02 for Action Scenario & p<0.04 for Preparation Scenario). • 75% of pharmacists implemented a tobacco cessation service post training. 13 (> 15%) assisted patients with tobacco cessation up to one year after	**

Source, Setting & Participant Occupation	Study design & No. of participants	Health behaviour addressed	Intervention Explicitly based on theory	BCTs	Intervention Content & delivery	Outcome measures	Main Findings	Study Quality Score
				behaviour (by peers and faculty staff). **Material incentive** (remunerated for each patient they offered smoking cessation service to).			1 year.* • No relationship between previous tobacco cessation counselling experience and post –training service delivery.	

Source, Setting & Participant Occupation	Study design & No. of participants	Health behaviour addressed	Intervention Explicitly based on theory	BCTs	Intervention Content & delivery	Outcome measures	Main Findings	Study Quality Score
Padwardhan & Chewning (2012) USA; Community pharmacists & pharmacy assistants	RCT; Intervention:15 Control: 15	Smoking	Based on constructs from Social Cognitive Theory (Bandura, 1977).	**Instruction on how to perform behaviour. Demonstration on how to perform behaviour** (model videos). **Social support (unspecified)** (support visit from researcher to identify and resolve any problems implementing behaviour). **Adding objects to the environment** (quit line cards given to pharmacists to use in consultation).	<u>Content</u> • Control and intervention group given informational presentation about 'quit line' and enrolled in free service which allowed pharmacists to refer tobacco users to quit line. • Intervention group: additional on-site training (in groups of 2-3) on how to conduct 'AAR' brief smoking cessation discussions. Incorporated didactic presentation on steps in AAR and technician and pharmacist specific model videos demonstrating how to initiate and conduct AAR. <u>Duration</u> • Presentation (duration not	Number of patrons asked about tobacco use *(self-report)* Number of tobacco users advised to quit *(self-report)* Number of tobacco users enrolled in quitline via active referral *(objective measure)* Number of tobacco users given quit line card *(self-report)*	• Significantly more patients asked about tobacco use at experimental pharmacies than control pharmacies ($p<0.001$). • Number of tobacco users who were not ready to quit in the next 30 days advised to quit was higher in experimental group pharmacies compared to control ($p<0.001$). • Significantly more tobacco users actively enrolled in quit line in experimental group compared to control ($p<0.001$). • More quit line cards given out by experimental group than control group ($p<0.05$).	**

Source, Setting & Participant Occupation	Study design & No. of participants	Health behaviour addressed	Intervention Explicitly based on theory	BCTs	Intervention Content & delivery	Outcome measures	Main Findings	Study Quality Score
					stated). • 30 minute training for intervention group • Follow up visit for intervention group (duration not stated). <u>Provider</u> • Delivered by primary author.			
Plake (2003) USA; Community pharmacists	Before-after-study; 30	Diabetes self-management lifestyle behaviours	NR	**Behavioural practice** (monitor patients in own pharmacy).	<u>Content</u> • Educational sessions covering: pathophysiology and psychosocial	Patient care provided *(self-report)* Documentation of services and reported billing	• Significant difference between hours spent on diabetes care activities per week (1.9 hours 'pre intervention' vs 5.7	0 *s

Source, Setting & Participant Occupation	Study design & No. of participants	Health behaviour addressed	Intervention Explicitly based on theory	BCTs	Intervention Content & delivery	Outcome measures	Main Findings	Study Quality Score
					aspects of diabetes; 'therapeutic principles'; patient monitoring, complications of diabetes; nutrition, exercise; footcare, pregnancy and diabetes. • Required to monitor patients in their pharmacy using SOAP notes, complete reading assignments, complete 'living the life' of someone with diabetes exercise, hands on blood glucose monitor training and explain to peer group how to use insulin and blood glucose meter. <u>Duration</u> • Day session once a month for 4 months. <u>Provider</u>	*(self-report)*	hours post intervention). • 67% of pharmacists gave some kind of diabetes care after completing certificate. Most frequently reported were: training patients to use blood glucose monitors (66.1%), managing patient glucose levels (41.9%) providing nutritional education (35.5%) and helping patients set disease management goals (35.7%) • Impact of programme on services to patients: pre-test compared with posttest (NB not actually pre-post test). Stat. sig. differences between groups for blood glucose mangment (x2=6.21, p=0.013),	

Source, Setting & Participant Occupation	Study design & No. of participants	Health behaviour addressed	Intervention Explicitly based on theory	BCTs	Intervention Content & delivery	Outcome measures	Main Findings	Study Quality Score
					• NR		nutrition education (x2=6.21, p=0.014) and patient goal setting (x2=10.48, p=0.001). Pharmacists who completed prog also spent more time on diabetes care activities (t=2.70, p=0.009).	
Sinclair et al. (1998) Scotland; Community pharmacists & pharmacy assistants	RCT; Intervention:32 Control:30	Smoking	NR (based around stages of change model (Prochaska & Diclemente, 1983)to change patient behaviour but no theory explicitly stated to change provider behaviour).	Not enough information provided.	• Training used case studies of pharmacy customers and focussed on communication skills for negotiating change and providing continued support and encouragement. • Duration: 2 hour training session,12 month follow up • Provider NR	Patient self-reported smoking cessation at one month & self-reported continuous abstinence from 0-4 months and 0-9 *(questionnaire).* Patient perceptions of support offered in pharmacy *(semi-structured interview)* Intervention personnel's perception of	• No significant difference in smoking cessation outcomes between patients in intervention and control pharmacist condition at each time point (p=0.12, p=0.094 and p=0.089). • Intervention customers significantly more likely to have discussed stopping smoking with pharmacy personnel (p<0.01) and rated discussion with pharmacy personnel more highly (p=0.048)	*

Source, Setting & Participant Occupation	Study design & No. of participants	Health behaviour addressed	Intervention Explicitly based on theory	BCTs	Intervention Content & delivery	Outcome measures	Main Findings	Study Quality Score
						training *(semi-structured interview)*	• Intervention customers also significantly more likely to have been asked about their health at the time of their initial purchase (p=0.0025) and advised on the strength of NRT (P=0.0037). Also signficantly more likely to report that "helpful support from pharmacy staff" had contributed to their smoking cessation. • Half of the customers who responded to 4 month follow up had made previous quit attempt. When asked to compare current support to previous attempts, intervention group significantly more likely to rate support as "better" whereas controls more likely to rate as the	

Source, Setting & Participant Occupation	Study design & No. of participants	Health behaviour addressed	Intervention Explicitly based on theory	BCTs	Intervention Content & delivery	Outcome measures	Main Findings	Study Quality Score
							“same” (p =0.001).	

5.4.5 Intervention Structure, Delivery and Content

There was considerable heterogeneity in the structure, delivery and content of the interventions included in the present review therefore the structure, delivery and content of the interventions is described below grouped by the health behaviour the interventions trained participants to facilitate behaviour change.

5.4.5.1 Tobacco Cessation Advice Interventions

The most common intervention targeted the smoking cessation advice-giving behaviour of pharmacists, pharmacy support staff and pharmacy students. Three of the interventions evaluated the 'Rx for Change' model (Hudmon et al., 2003) offered as mandatory training for pharmacy students in the USA and ranged between seven and nine hours in duration, delivered over two to five days depending on the institution participants attended (Corelli et al., 2005; Hudmon et al., 2003; Hudmon et al., 2004). The lecture component of the intervention was reported to last a minimum of three hours fifteen minutes whilst the hands-on workshop component of the intervention was reported to last a minimum of two hours. No information was provided about the individuals delivering the intervention in any of the studies.

The Rx for change programme (Hudmon et al., 2003) was described as consisting of a lecture component with core and optional models which include information about tobacco use, addiction and how to assist patients to stop smoking (a full list of lecture components is provided in table 5.2). The lectures were supplemented with a workshop that gave participants the opportunity to rehearse behaviour with standardised patients and hands-on experience with tobacco cessation aids. Hudmon et al. (2003) assert that the intervention teaches pharmacy students to change patients' behaviour based upon the 5 "A"s, a programme based on the Transtheoretical Model (Prochaska & DiClemente, 1983) and posits that health professionals should complete the following five tasks: Ask about tobacco use; Advise tobacco users to quit; Assess readiness to quit (assess patient's stage of change); Assist patients with quitting and Arrange follow up counselling. Students were provided with a counselling guide sheet to facilitate the discussion based upon the 5 "A"s and a tobacco use log to

use with patients to help patients understand their tobacco use behaviour prior to a quit attempt. When coded for use of behaviour change techniques, the studies assessing the Hudmon et al. (2003) Rx for change intervention (Corelli et al., 2005; Hudmon et al., 2003; Hudmon et al., 2004) were found to have used four BCTs. These were 'instruction on how to perform behaviour' (in this case how to advise patients to stop smoking); 'behavioural practice' in the form of role-playing advising patients to stop smoking; 'feedback on behaviour' by providing participants with feedback on their performance in the role-play consultations and 'adding objects to the environment' by providing participants with a smoking cessation counselling guide to help them apply the 5As in the consultation.

An intervention evaluated by Martin et al. (2003) and Martin and Chewning (2011) adapted the Rx for change intervention developed by Hudmon et al. (2003). The intervention consisted of a home study component delivered by CD-ROM for which the duration was not specified and an eight hour workshop. Neither of the studies provided information about the individuals delivering the intervention. The intervention was described as offering a didactic and education based home study component for practising community pharmacists followed by a training workshop that incorporated case studies, modelling of skills, behavioural rehearsal with standardised patients and feedback on the participant's performance in these tasks. The intervention was assessed to have used six BCTs: 'goal setting' through setting clear learning goals and objectives for participants; 'problem solving' whereby participants were asked to verbalise strategies to overcome problems presented to them in case studies; 'demonstration of behaviour' by a peer deemed 'proficient' in giving smoking cessation advice; 'behavioural practice' with standardised patients; 'feedback on behaviour' by peers and university staff on performance in the role-play with standardised patients and 'material incentive', with participants given financial remuneration for each patient they offered a smoking cessation service to.

Another intervention based on the Hudmon et al. (2003) model was evaluated by Patwardhan and Chewning (2012). The intervention was short in duration (30 minutes) and the paper stated that it

was delivered by the primary author, however no other information about the individual delivering the intervention was given. The intervention was reported to consist of guidance on how to perform the 'Ask Advise Refer' (AAR) smoking cessation intervention with patients in the form of a lecture and a video demonstrating how to perform the behaviour. Participants were also given a presentation about a 'quit line' for patients to use and enrolled in a free service which allowed pharmacists to refer tobacco users to quit line. The duration of this presentation was not specified. As with the previous study, the AAR approach is also derived from the "5As" model used in the Rx for Change intervention (Hudmon, 2003), however it is less time intensive (30 minutes as opposed to the Rx for change intervention (Hudmon et al, 2003)) which was between seven and nine hours in duration) and recommended for use in settings where the 5As may not be appropriate such as busy settings (Patwardhan & Chewning, 2012). In accordance with the AAR approach, Patwardhan and Chewning (2012) stated that pharmacists were directed to ask tobacco users whether they smoke, advise tobacco users to quit and refer tobacco users to an intensive smoking cessation programme. The intervention was deemed to incorporate four BCTs: 'instruction on how to perform the behaviour'; 'demonstration on how to perform the behaviour' through a video which provided a demonstration; 'social support (unspecified)' provided by a researcher on a support visit to identify and resolve any problems participants had in implementing the behaviour and 'adding objects to the environment' whereby participants were given quit line cards to use in smoking cessation consultations with patients.

Maguire, McElnay, and Drummond (2001) evaluated a three hour intervention to train pharmacists to offer smoking cessation advice delivered as part of a study examining the effect of pharmacist-led smoking cessation. The intervention was delivered in the form of a workshop, by the study author and another researcher followed by a visit by the researcher. No other information about the individuals delivering the intervention or the duration of components of the workshop or the follow up visit was provided. The authors reported that the workshop consisted of information about: the study methodology, the epidemiology of smoking, the use of Nicotine Replacement Therapy and the

"cycle of change" and "Pharmacists Action on Smoking" model developed by the author, followed up by a visit by the researcher. The intervention was deemed to have used one BCT, 'material incentive', with participants financially remunerated for every patient who smoked that they followed up after twelve months.

Finally Sinclair et al. (1998) evaluated a two hour training programme delivered to participants in the intervention group of their study and followed up participants after twelve months. Again, the duration of individual components of the intervention or the follow up visit was not detailed. No information was given about the individual(s) delivering the intervention. Sinclair et al. (1998) described the intervention as consisting of case studies of patients, small group discussion and role play, focussing on communicating with patients and negotiating behaviour change. Participants were also asked to record the number of patients that declined to receive tobacco cessation advice. There was not enough information provided in the paper to assess for BCTs used in the intervention.

5.4.5.2 General health promotion

One study evaluated an intervention to give pharmacists skills to offer general lifestyle advice. Anderson and Alexander (1997) described the duration of their intervention as delivered over seven days and two evenings however the amount of time this amounted to was not stated. The intervention was delivered in the form of lectures, role-play and group discussion sessions however the duration of each component was not specified. No information was given about the intervention providers. The authors described the intervention as covering the following topics: coronary heart disease; asthma; diabetes; exercise, nutrition; dental health; AIDS/HIV; drug use; mental health and travel health and involving role-play and discussion group sessions (the duration of which was not specified). The intervention was found to have used one BCT: 'behavioural practice' whereby participants engaged in role-play sessions with peers.

5.4.5.3 Diabetes self-management

One paper reported an intervention to enable participants to facilitate lifestyle behaviour change as part of diabetes self-management skills interventions. The intervention evaluated by Plake, Chesnut,

and Biebighauser (2003) was delivered over the course of one day a month for four months (the duration of each 'day' was not specified. No information was provided about the intervention providers. Plake et al. (2003) described the intervention as consisting of information about diabetes management including: pathophysiology patient monitoring; complications; nutrition; exercise and foot care. Participants also had to complete a 'living the life' of someone with diabetes exercise and apply the information taught on the course to monitoring of patients in their workplace. The intervention was found to include one BCT: 'behavioural practice'; participants were required to monitor patients in their workplace.

5.4.6 Findings from Quantitative and Mixed Methods Studies

5.4.6.1 Primary outcome measures

5.4.6.1.1 Counselling Ability

The most common way to assess behaviour was self-reported or observed counselling ability assessed by eight of the studies. All of these interventions resulted in an increase in counselling ability. Four of the studies found a significant increase in participants' self-reported counselling abilities (rated on a five point rating scale; 1= poor, 5=excellent) in relation to smoking cessation post intervention ($p<0.001$) (Corelli et al., 2005; Hudmon et al., 2003; Hudmon et al., 2004; Martin et al., 2003). However it should be noted that Hudmon et al. (2003) asked participants to report both pre and post intervention counselling ability at the same time (post intervention) eight weeks after receiving the intervention so this finding is likely to be subject to bias. Furthermore, two studies found an increase in participants' observed counselling abilities. Martin and Chewning (2011) found counselling performance with pseudo patients in two different scenarios (assessed by two independent observers using an evaluation tool based on the performance of the "5As": ask, advise, assess, assist and arrange) improved significantly post intervention in both scenarios ($p<0.02$ and $p<0.04$).

5.4.6.1.2 Service Delivery Indicators

The two studies which included service delivery (defined as the number of times pharmacists offered the intervention) as a measure of intervention efficacy found increased service delivery in the form of patient counselling post-intervention. The only study with a comparison group, Patwardhan and Chewning (2012), found that the number of patients asked about tobacco use and the number of tobacco users advised to quit (both measured by self-report) was significantly higher at experimental pharmacies compared to controls ($p<0.001$). Furthermore, the number of tobacco users enrolled in a tobacco cessation 'quitline' programme (an objective measure) was significantly higher in the experimental pharmacies (81 patients) compared to control pharmacies (8 patients) ($p<0.001$) as was the self-reported number of tobacco users given 'quit line' information cards (240 patients at experimental pharmacies and 85 patients at control pharmacies)($p<0.05$). The effect size was not reported. Plake (2003) found a statistically significant difference between pre and post intervention groups of pharmacists reporting that they engaged in blood glucose management ($p=0.013$), nutrition education ($p=0.014$) and patient goal setting ($p=0.001$), with pharmacists in the post intervention condition reporting spending more time overall on diabetes care activities than those yet to receive the intervention (mean hours in pre-intervention condition = 1.9 (SD:2.23) and mean hours in post-intervention condition = 5.7 (SD:9.31), $p=0.009$). No information about effect sizes was provided. However it should be noted that participants in the study described as in the "pre intervention condition" were not the same participants compared in the condition the study described as the "post intervention condition". The poor methodological quality of this study is discussed in the quality section below.

5.4.6.1.3 Patient Outcome

The effect of the interventions on patient outcome was inconclusive, with the two studies which assessed the efficacy of training pharmacists and pharmacy staff to offer smoking cessation advice by patient outcome measures reporting conflicting findings (Maguire et al. 2001; Sinclair et al., 1998). Sinclair et al. (1998) found no significant difference in patient reported smoking cessation outcomes

between patients in intervention and control pharmacist condition at three time points across 12 months (p=0.012, p=0.094 and p= 0.089). However patients given advice by pharmacists receiving the intervention were significantly more likely to have discussed smoking cessation with pharmacy personnel (p<0.01) and rated the discussion more highly than customers in the control group (p=0.048). Conversely, Maguire et al. (2001) found that 14.3% of patients in the intervention condition reported that they had abstained from smoking compared with 2.7% of patients in the standard pharmacist care condition (p<0.001). However, cotinine levels, used as a biological indicator of nicotine consumption, were found to be higher in patients in the intervention group compared to the control group. It is noteworthy that pharmacists were not randomised to condition in this study, with the same pharmacists delivering intervention and standard care treatment to patients.

5.4.7 Additional Outcome Measures

5.4.7.1 Confidence/Self-efficacy in consultation skills

All three of the studies which assessed participants' self-efficacy found the interventions increased participants' self-efficacy in their consultation skills. The studies (Corelli et al. 2005; Hudmon et al. 2004; Martin et al., 2003) which used or were based upon the Rx for Change smoking cessation intervention developed by Hudmon et al. (2003) used a 12 item confidence for counselling scale. Both Corelli et al. (2005) and Hudmon et al. (2004) found a significant increase in self-efficacy post intervention (p<0.001). Martin et al. (2003) assessed self-efficacy at three time points (pre home study intervention, post home study intervention, pre live training intervention and post live training) finding that self-efficacy scores were significantly higher after the 'live training' intervention incorporating role play than before the home study component of the intervention (p<0.001). No significant difference in self-efficacy was observed between the pre and post home study component of the intervention (p=0.163), and no statistical difference in self-efficacy was observed between providers and non-providers of smoking cessation advice.

5.4.8 Quality of Included Quantitative and Mixed Methods Studies

The overall quality of the reported studies, assessed using the Mixed Methods Appraisal Tool (MMAT) (ref), was generally poor, with only one study scoring *** (75%) and the remaining studies scoring ** (50%) or less (quality scores are displayed in table 5.2). Three studies (Corelli et al., 2005; Hudmon et al., 2003; Plake, 2003) did not explicitly state a research question or objective, therefore quality assessment was conducted based upon whether the collected data answered the research questions of the present review. Three studies did not meet any of the criteria for quality assessment, scoring 0 *s (Hudmon et al., 2003; Lenz, 2007; Plake, 2003). Hudmon et al. (2003) did not provide any information about participant recruitment therefore it was unclear if the study sampling strategy was relevant to address the research question (which was not stated) or if the sample was representative of the population under study. Furthermore, the measures used were inappropriate, with participants asked to rate both their pre and post intervention counselling abilities after the intervention had been delivered, meaning that some participants provided this information eight weeks after receiving the intervention. Despite this, the paper states that the intervention had already been rolled out to other pharmacy schools in the USA. Furthermore, Plake (2003) compared different participants in “pre” and “post” intervention conditions as a means to assess the efficacy of the intervention however this is not an appropriate test of intervention efficacy as the scores of different participants will vary subject to the characteristics of individuals therefore any difference in score cannot be reliably attributed to the intervention.

Overall, reporting of the interventions tended to be poor, meaning that quality assessment was difficult and that future replication of the studies is likely to be problematic. The duration of each intervention components was not specified in six of the studies (Anderson & Alexander, 1998; Maguire et al. 2001; Martin et al., 2003; Martin & Chewning, 2011; Patwardhan & Chewning, 2012; Sinclair et al. 1998). Two studies did not report the gender of participants (Anderson & Alexander, 1997; Maguire et al., 2001), whilst one study (Sinclair et al., 1998) reported the gender of participants as a whole, but did not report the gender composition of participants allocated to the

intervention and control group respectively. Only three of the ten studies (Corelli et al., 2005; Hudmon et al., 2003; Hudmon et al., 2004) reported the ethnicity of participants.

Reporting of participant recruitment was also poor; none of the studies using quantitative descriptive/mixed methods designs that detailed the information necessary for quality appraisal provided enough information to determine if the sampling strategy produced a representative sample of the target population. Furthermore, five of the studies did not state the proportion of the sample providing complete outcome data (Corelli et al., 2005; Hudmon et al., 2005; Maguire et al., 2001; Martin & Chewning 2011; Patwardhan & Chewning, 2012). Only one of the studies (Sinclair et al., 1998) provided a complete explanation of reasons for participant withdrawal or exclusion. There was also inadequate reporting of the intervention delivery. As previously highlighted, only two of the studies (Maguire, 2001; Patwardhan & Chewning, 2012) provided any information about the characteristics of the individual(s) delivering the intervention. Two of these studies (Patwardhan & Chewning, 2012; Maguire, 2001) involved the study author both delivering and evaluating the intervention. This is problematic as it compromises the objectivity of the evaluation by potentially introducing bias.

The risk of selection bias is high in the quantitative descriptive studies given the lack of randomisation and lack of control groups, therefore it cannot reliably be determined if the observed changes were a result of the intervention. None of the studies reported conducting power analysis to determine the minimum number of participants they required. This means the validity of the findings are questionable. Furthermore, some of the quantitative studies had small sample sizes (Martin et al., 2003; Chewning et al., 2011) which raises questions about the generalisability of the findings. Three studies used a randomised controlled trial design. None of the studies reported if complete outcome data (which the MMAT defines as >80%) were collected. Dropout or withdrawal rates were not reported in one study (Maguire et al., 2001), were low (<20%) in one study (Patwardhan & Chewning, 2012) and high in the remaining study (Sinclair et al., 1998). Two studies (Patwardhan & Chewning, 2012; Sinclair et al., 1998) provided a clear description of the randomisation process they

utilised. Patwardhan and Chewning (2012) provided no description of allocation concealment whilst both Maguire et al. (2001) and Sinclair et al. (1998) provided a description of allocation concealment; however allocation concealment only applied to customers, with pharmacy staff in both studies aware of their condition arm, increasingly the likelihood of performance bias occurring. Furthermore, pharmacists in the Maguire et al. (2001) study all received the same training intervention and were then required to offer standard pharmaceutical care as normal, or an enhanced smoking cessation consultation based on their training, depending on the condition patients were assigned to (which they were aware of). Again, this design introduces the risk of performance bias. Lastly, two of the studies (Maguire et al., 2001; Padwardhan & Chewning, 2012) were part of larger studies which required the participants to recruit patients for other, related studies. This may have changed the participants' behaviour as they may have been more motivated to recruit patients if a researcher was monitoring their recruitment activities and/or they were paid for the patients they recruited; however this was not considered as a source of bias in any of the studies.

All of the studies collected baseline data and followed up at a later time point, however one of the studies (Plake, 2003) collected baseline data from one group of participants and follow up data from different participants as a means of assessing intervention efficacy. Furthermore, Hudmon et al. (2003) asked participants to rate their consultation skills *prior* to the intervention at the same time as rating their perceived consultation skills after they had received the intervention, which for some participants occurred two months after receiving the event.

5.4.9 Qualitative Findings

Qualitative findings were reported in three of the included studies (Alexander & Anderson, 1997; Maguire et al., 2001; Sinclair et al., 1998), the findings of which are summarised in table 5.3 and presented below.

Table 5.3: Matrix of 1st & 2rd order constructs (extraction of study findings)

	Anderson & Alexander (1997)	**Maguire et al. (2001)**	**Sinclair et al. (1998)**
Theme 1	***Theme title:*** Meaning of health ***Indicative extracts:*** Change in meaning before and after: "Health is having nothing medically wrong with you" then "Health is an overall feeling of wellbeing in mind and body"	Themes and supporting quotes not reported. Results reported: • Pharmacists believed model of smoking cessation used in intervention was practical and useful.	Themes and supporting quotes not reported. Results reported: • Almost all pharmacists/pharmacy assistants positive about counselling.
Theme 2	**Theme title:** Role in pharmacy health promotion ***Indicative extracts:*** After training saw role as facilitators: "to help people think about their lifestyle" "My role is an instigator and facilitator, to encourage and promote health at the three levels"	• Lack of time and insufficient remuneration main barriers whilst some participants felt project lost them custom.	• Perceived barriers were: smoker's perceived need for support; pharmacy and customer time constraints and counselling in a commercial setting.
Theme 3	***Theme title:*** Contact with other health professionals and customers	Participants felt they needed more training to improve communication skills to	• Pharmacy staff not keen on record keeping and identified barriers to doing

	Anderson & Alexander (1997)	Maguire et al. (2001)	Sinclair et al. (1998)
	Indicative extracts: "I am trying but GPs see pharmacists as in-fringing on their territory" "Contact has always been good. I use the knowledge gained [from training] at our monthly meetings". "I joined in a study group with some other girls on the course". "Definitely, I'm coming forward more and they [customers] are returning more".	facilitate patients becoming more receptive to health promotion advice.	so (time, privacy, part-time staff and customer aversion to it).
Theme 4	***Theme title:*** Leaflets and displays ***Indicative extracts:*** "I'm more aware of the leaflets and who they are targeted at" "I have less out on display, but have others available to hand out"		
Theme 5	***Theme title:*** Changes in practice ***Indicative extracts:*** "I'm more confident that I can do it [health promotion] as a result of the training" "I'm more proactive rather than waiting for people to ask"		

	Anderson & Alexander (1997)	**Maguire et al. (2001)**	**Sinclair et al. (1998)**
	"I now ask about smoking when medicines are requested for a cough"		
Theme 6	***Theme title*:** Constraints ***Indicative extracts:*** "People are not wanting to have to listen but I have been trying" "Need to see the task as related to profitability" "We overcome the time constraints with having double [pharmacist] cover at the busy times"		
Theme 7	***Theme title:*** Further training ***Indicative extracts:*** "Need ongoing training indicating changes and what should be done, perhaps biannual meetings of a couple of evenings" "We need training with other health professionals to maximise effect".		

5.4.9.1 Barriers to implementing training

All of the studies identified barriers to implementing the lifestyle advice consultation skills the interventions aimed to promote. All of the studies identified perceived lack of time and insufficient remuneration whilst two of the studies identified counselling in a commercial setting as a barrier to implementing the skills (Maguire et al., 2001; Sinclair et al., 1998). Furthermore, two of the studies identified participants' beliefs about patients' perception of their need for counselling as a barrier to implementing the skills the intervention aimed to provide.

5.4.9.2 Perception of Counselling Role

Two of the studies reported that participants were positive about their role in patient counselling. Sinclair et al. (1998) found that the majority of participating pharmacists and pharmacy staff were positive about offering counselling, whilst Anderson and Alexander (1997) reported that pharmacists perceived that they had a role in health promotion as that of a facilitator after receiving the intervention.

5.4.9.3 Perception of intervention

All of the studies reported that participants viewed the intervention they received positively, perceiving the intervention as helpful. Two studies reported that participants were not keen on the record keeping and paperwork aspects of the intervention, and felt that less paperwork would improve future interventions (Maguire et al., 2001; Sinclair et al., 1998)

5.4.9.4 Practice Change

Anderson and Alexander (1997) reported a change in pharmacists' knowledge of disease areas requiring health promotion, with fewer pharmacists unable to name any target health promotion areas post intervention. The authors also found that pharmacists reported feeling more confident and being more proactive in their practice post intervention, particularly in relation to smoking cessation. Anderson and Alexander (1997) also found that some pharmacists reported increased

contact with health professionals (such as GPs) and patients post intervention, however discussing dietary intake with patients was reported to be more difficult than other forms of advice.

5.4.9.5 Need for further training

In two of the studies participants identified a need for further training (Anderson & Alexander, 1997; Maguire et al., 2001). Maguire et al. (2001) reported that pharmacists and pharmacy staff felt that they needed training to improve their communication skills to enable patients to become more receptive to health promotion advice whilst Anderson and Alexander (1997) found that pharmacists wanted ongoing training to consolidate the skills they had already learnt in addition to training with other health professionals.

5.4.10 Quality of reported qualitative studies

The quality of the reporting and analysis in studies that had used qualitative methods was poor. According to the MMAT criteria, two of the studies only scored one star (Maguire et al.,2001; Sinclair et al., 1998) whilst Alexander and Anderson (1997) scored two stars out of a possible four. The study conducted by Anderson and Alexander (1997) did not consider how the findings related to the context in which the data were collected whilst Maguire et al. (2001) and Sinclair et al.(1998) did not provide any data to justify their interpretations or list any themes. None of the studies using qualitative methods gave appropriate consideration to how the findings related to the researchers' influence and description of how the data was analysed was poor (Anderson & Alexander, 1997; Maguire et al., 2001; Sinclair et al., 1998). Only one of the studies using a mixed methods approach integrated the qualitative and quantitative findings (Sinclair et al., 1998). In accordance with the MMAT criteria, there was no consideration of the limitations associated with integrating qualitative and quantitative data in any of the mixed methods studies.

5.4.11 Use of theory

The review coded use of theory in the development of interventions to change the behaviour of pharmacists, pharmacy students and pharmacy support staff using the theory coding scheme

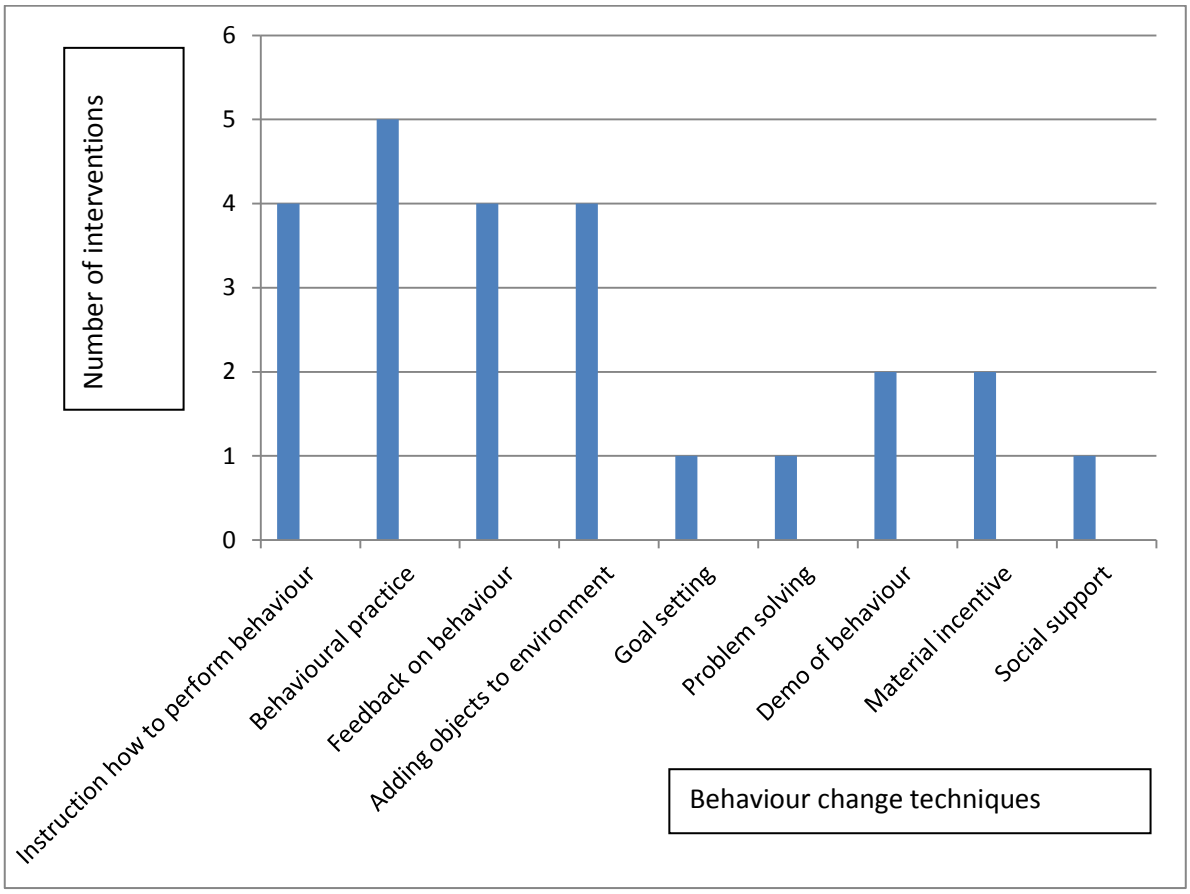
developed by Michie and Prestwich (2010). Only one of the studies contained enough information to identify a theoretical framework. Seven of the ten studies (70%) did not explicitly describe use of theory in the development of the interventions to change provider behaviour. Three of the papers which assessed two interventions (Martin et al., 2003; Martin & Chewning, 2011; Padwardhan & Chewning, 2009) stated that the invention was based on Social Cognitive Theory (SCT), however this was the only information Patwardhan and Chewning (2009) provided. The intervention evaluated in two papers by Martin et al. (2003) and Martin and Chewning (2011) was the only study to provide sufficient detail to identify a theoretical framework according to the Prestwich (2010) theory coding scheme. The intervention was based on SCT and targeted self-efficacy as a predictor of pharmacists' tobacco cessation advice giving behaviour. One of the intervention techniques (modelling) was explicitly linked to a theory-relevant construct, self-efficacy, which was measured pre and post intervention. However each of the intervention techniques were not explicitly linked to at least one theory-relevant construct and not all of the measures of theory relevant constructs had been validated or had evidence of reliability.

All of the interventions which targeted participants' smoking cessation advice-giving behaviour cited the use of theory, primarily the Transtheoretical Stages of Change Model (Prochaska & DiClemente, 1983), in changing patients' behaviour, with most of the interventions basing the intervention material on this model. However, as previously stated, the focus of the current review is on changing provider behaviour to facilitate behaviour change in patients, therefore interventions based on the transtheroretical model to change patient behaviour alone were not coded.

5.4.12 Use of Behaviour Change Techniques

Eight of the studies provided enough detail to identify BCTs. Of the studies that provided enough information to identify BCTs, all of the interventions used at least one BCT. The mean number of BCT used in the interventions was 3.3 (range 1-5). Figure 5.2 below illustrates the frequency of BCTs used in the interventions.

Figure 5.2: Frequency of BCTs used in the interventions



The most frequently used BCTs were 'behavioural practice' (Corelli et al., 2005; Hudmon et al., 2004; Hudmon et al., 2005; Martin et al., 2003; Martin and Chewning, 2011; Plake, 2003), 'instruction how to perform behaviour' (Corelli et al, 2005; Hudmon et al., 2004; Hudmon et al., 2005; Patwardhan & Chewning, 2012), 'feedback on behaviour' (Corelli et al., 2005; Hudmon et al., 2004; Hudmon et al., 2005; Martin et al., 2003; Martin and Chewning, 2011; Plake, 2003) and adding objects to the environment (Corelli et al., 2005; Hudmon et al., 2004; Hudmon et al., 2005; Patwardhan & Chewning, 2012). Other less frequently used BCTs were 'goal setting', 'problem solving', providing a 'demonstration of the target behaviour', providing a 'material incentive' (remunerating pharmacists for providing services) and 'social support' in the form of a follow up visit from a researcher post-intervention to assist pharmacists with any problems they had providing smoking cessation advice (Patwardhan & Chewning, 2012).

5.5 Discussion

This systematic review of the literature identified ten studies published between 1996 and 2014 which evaluated the effect of interventions to prepare pharmacy students, pharmacists and pharmacy staff to facilitate lifestyle patient behaviour change. Despite extensive searches, as with other similar reviews of interventions aimed at nurses and doctors (Chisholm, Hart, Mann, Harkness and Peters 2012; Fillingham, Peters, Chisholm and Hart 2013) the number of studies relevant to this review was low.

A range of interventions to enable pharmacists to facilitate patient lifestyle change had been developed and evaluated; most studies used quantitative methods however qualitative and mixed methods were also utilised. There was considerable variation in the intervention content, delivery and duration. A variety of different methods were used to deliver the interventions, comprising of one or a combination of: didactic oral presentations; discussion of case studies; setting behavioural self-monitoring tasks; video presentations; and role-play with peers, standardised patients and patients. The primary outcome measures of the review were participants' behaviour and patient outcome (as an indirect measure of participants' behaviour). All eight of the interventions that measured pharmacist/pharmacy staff/pharmacy student behaviour found increased counselling ability (objectively or subjectively measured) or increased service delivery to patients post intervention. The effect on patient outcome was inconclusive; one study found increased smoking cessation in patients whilst the other found no difference in patient smoking status between patients receiving smoking cessation services from pharmacists receiving the behaviour change intervention and pharmacists in the control group. In addition to behavioural outcome measures, three of the studies measured pharmacists' confidence/self-efficacy in their counselling ability, all of which found a significant increase in confidence/self-efficacy as a result of the intervention. However, these findings should be interpreted with caution, as the evidence was not strong enough to be sure that the change was due to the intervention.

The findings from the qualitative evidence identified lack of time and insufficient remuneration as barriers to implementing the skills targeted in the interventions. These are commonly reported barriers to pharmacists engaging in public health activities (Anderson et al., 2003; Eades et al., 2011). Most of the studies reported that participants' perceived a need for further training whilst two of the studies identified counselling in a commercial setting (with problems associated with lack of time and sufficient remuneration), and patients' perceptions of their (lack of) need for counselling as barriers. Again this is congruent with previous findings within the literature (Anderson et al., 2003; Eades et al., 2011). Most of the studies reported that participants perceived the intervention they received positively.

The poor reporting of intervention content and lack of a reported theoretical basis for the development of the majority of the interventions makes it very challenging to draw conclusions about the effective components, or 'active ingredients' (Michie et al., 2013) of the interventions. As previously noted, all of the interventions bar one (Sinclair et al., 1998) resulted in increased counselling ability, service provision or improved patient outcome. Unfortunately there was not sufficient information reported in the Sinclair et al. (1998) paper to identify BCTs, therefore a comparison between the content of this intervention and the interventions that were effective is not possible. All of the interventions providing sufficient information about the intervention to identify BCTs (n=8) incorporated at least one behaviour change technique listed in the behaviour change taxonomy (Michie et al., 2013) however the number and combination of BCTs utilised in each study varied (mean number of BCTs used = 3.3, range: 1-5). The most commonly used BCTs were 'behavioural rehearsal' (n=5), 'feedback on behaviour' (n=4), 'adding objects to the environment' and 'instruction how to perform behaviour' (n=4).

Two of the studies used BCTs associated with reward (remunerating participants for providing services) according to the behaviour change taxonomy (Michie et al., 2013), but did not report them as a way of changing behaviour. This is important, particularly given that the results from the qualitative studies identified lack of remuneration for providing lifestyle behaviour change services as

a barrier to engaging in the behaviour, therefore rewarding participants for performing a target behaviour may change their behaviour and may make them more motivated to perform the behaviour. If 'reward' is not described as a BCT and therefore a component of the intervention, it may affect replication in future studies or how the intervention is implemented in practice that does not reward pharmacists for delivering the intervention. This is an important factor that was not considered in any of the studies.

The majority of the studies did not describe the use of theory to change the pharmacists, pharmacy students or pharmacy staffs' behaviour in the development of the intervention. Many of the studies described using the '5 As' approach which is based on the Transtheoretical Model (Prochaska & Diclemente, 1983) however they did not apply a theoretical approach to changing the provider behaviour. The types of intervention included in this review are changing provider behaviour in order to change patients' health behaviours. This needs to be reflected in the development of the intervention through the application of psychological theory and BCTs to change provider behaviour and a separate level of psychological theory and BCTs to inform the intervention delivered by the provider behaviour.

The quality of the studies included in the current review was generally poor, with the study designs introducing a high risk of bias. Reporting of the studies and description of the intervention content also tended to be poor. This may mean that there were other BCTs used in the interventions but they could not be identified due to insufficient information. The aforementioned factors meant that reliable conclusions about the effectiveness of the interventions could not be drawn. These findings fit with recent, related systematic reviews of health professional behaviour. Fillingham, Peters, Chisholm and Hart (2013) assessed the efficacy of educational interventions in undergraduate nurse training regarding obesity whilst Chisholm, Hart, Mann, Harkness and Peters (2012) assessed the efficacy of interventions to prepare medical students to facilitate lifestyle changes with obese patients. As with the current review, both Fillingham et al. (2012) and Chisholm et al. (2013) found only a small number of studies that met the inclusion criteria (n=8 and n= 12 respectively). Both

reviews also found that due to a failure to adopt procedures to control for bias, the studies were highly susceptible to bias and therefore the efficacy of the interventions could not be determined. Furthermore, both studies also found that the reporting of the interventions was poor, that many of the study conclusions did not support the results presented and that the majority of the interventions were deemed atheoretical by the authors.

A lack of intervention transparency due to poor reporting is not uncommon, with a large evidence base showing that reporting of interventions in health research is inadequate (Hoffman et al., 2014). Consequently the factors that underpin behaviour change, termed the "active ingredients" of interventions cannot be reliably identified (Michie & Johnston, 2012). A recent analysis of all non-pharmacological interventions in RCTs reported in six leading medical journals in 2009 found that only 39% were deemed adequately described, increasing to 59% when study authors were contacted for further information (Hoffman, Erueti & Glasziou, 2013). Hoffman et al. (2014) recently published the 'TIDieR' guidelines, an extension of the commonly cited CONSORT guidelines which state that interventions should report enough detail for each group to allow replication, to improve the reporting and consequently the replicability of interventions. The guidelines state that studies should report: a precise intervention title; the rationale, theory and goals underpinning the intervention; a detailed description of all materials used; description of all details, processes or activities the intervention provider(s) carried out; the expertise, background and any specific training given to provider(s); how the intervention was delivered; the location where the intervention was delivered; when and how much of the intervention was delivered; if the intervention was tailored then what, why, when and how; if the intervention was modified (what, why, when and how); how intervention fidelity was assessed and the extent to which the intervention was delivered as planned (if assessed). Following such guidelines would allow the effectiveness of future interventions designed to enable pharmacists to facilitate patient lifestyle behaviour change to be assessed.

Many of the problems associated with the studies originate from the use of study designs that do not incorporate a control group. Whilst the majority of the studies established baseline and post

intervention measures for participants, the absence of a control group means that the results of the study cannot reliably determine the effectiveness of the interventions. Some of the studies utilised a randomised control design, however poor reporting of complete outcome data, randomisation procedures and lack of blinding of participants and assessors to group allocation introduced a risk of bias. Future research is required to conduct rigorous studies of high methodological quality to reliably assess the effectiveness of interventions to enable pharmacists and pharmacy staff to facilitate patient lifestyle behaviour change and identify the components of effective interventions.

5.5.1 Strengths and limitations of the review

This review, to present knowledge, is the first study to assess the effectiveness of interventions to enable pharmacists to facilitate patient lifestyle change. The review synthesised the evidence from a wide range of studies with differing designs and methodologies, and provides recommendations for the design of future studies to reliably assess the efficacy of interventions to enable pharmacists, pharmacy staff and pharmacy students to facilitate patient lifestyle behaviour change. There are however limitations to this review. The main limitation is due to resource constraints. Only one researcher conducted the searches, extracted data and evaluated the eligibility of articles for inclusion in the review in consultation with a supervisory group. This may have resulted in potentially eligible studies being missed. Again, due to resource limitations, only studies in English language were included which also may have resulted in potentially relevant papers being missed. The heterogeneity in the included studies also meant that a meta-analysis could not be performed.

5.6 Conclusion

In conclusion, this systematic review identified a relatively small number of studies that assessed the effectiveness of interventions to enable pharmacists, pharmacy students and pharmacy staff to facilitate patient lifestyle behaviour change. There was considerable variation in the intervention delivery, content and duration whilst the majority of the interventions were not based on theory. The interventions increased service delivery, counselling ability and participants' self-efficacy in their

counselling skills. The effect of the interventions on patient outcome was mixed. Participants perceived that the interventions were helpful however they identified barriers including lack of time and remuneration to implementing the skills promoted in the interventions. A need for further training was identified. Due to poor methodological quality and high risk of bias, the findings of the studies cannot be relied upon and consequently effectiveness of the interventions could not be reliably determined. Rigorous, well designed studies need to be conducted in the future to determine the effectiveness of interventions to enable pharmacists, pharmacy students and pharmacy staff to facilitate patient lifestyle behaviour change.

6 Chapter Six: The experiences of patients with hypertension and/or hyperlipidaemia who use community pharmacy services

6.1 Introduction

Hypertension and hyperlipidaemia are major risk factors for the development of coronary heart disease and cerebrovascular disease, two of the major forms of cardiovascular disease (CVD) (WHO, 2012) . Unlike other risk factors for CVD, hypertension and hyperlipidaemia are asymptomatic conditions. Patients may therefore manage the condition(s) differently to patients diagnosed with symptomatic conditions that are also risk factors for CVD such as diabetes. According to the Common Sense Self-Regulation Model, Leventhal (2003), individuals form illness representations about the identity, cause, consequences, timeline and whether the illness can be controlled. These representations guide their coping behaviours in response to health threats. These behavioural responses (such as self-management behaviours and help-seeking) are continually evaluated and amended, if deemed necessary, in an iterative process. The model also proposes that individuals simultaneously form emotional representations (such as fear) which also guide coping behaviours. Therefore, according to the CS-SRM, the absence of symptoms experienced by patients with hypertension and hyperlipidaemia may affect how they perceive and manage the condition (Meyer, Leventhal & Guttman, 1985). This subsequently may affect how these patients utilise community pharmacy services. This assertion is based on a recent systematic review which found that patients with hypertension attributed symptoms to the condition despite it being asymptomatic (Marshall et al., 2012), and research which found patients who believed that their hyperlipidaemia was stable and asymptomatic had better cholesterol control and were more adherent to medication (Brewer et al., 2002).

The literature suggests that whilst the general public largely appreciate pharmacist-led public health services when they are provided, patients do not expect such services from their pharmacist, and lack

awareness of the pharmacists' role (Anderson et al., 2003; Eades et al., 2011). However very few studies have focussed specifically on the perceptions of patients prescribed cardiovascular medication who use community pharmacies. Of the studies that have, none has specifically explored the experience of patients with hypertension and/or hyperlipidaemia (asymptomatic conditions) and compared it with the experiences of patients with hypertension and/or hyperlipidaemia and symptomatic conditions. This is necessary, as, due to an absence of symptoms, these patients may perceive self-management of the conditions through taking antihypertensive medication(s) and/or statins and engaging in lifestyle behaviours of less importance than patients with chronic conditions that have associated symptoms that may occur/worsen if self-management behaviours are not performed. Subsequently, such patients may require different or enhanced support from pharmacists to enable them to successfully self-manage the condition(s) from patients with symptomatic chronic conditions.

Aim

The primary aim of this study was to understand patients diagnosed with hypertension and/or hyperlipidaemias' experience of using community pharmacy services. The study also aimed to understand the patients' experiences of having hypertension and/or hyperlipidaemia in order to contextualise their experiences of using pharmacy services.

6.2 Methods

6.2.1 Study Design and Setting

This was a qualitative study which used an inductive approach to data analysis. Semi-structured interviews were conducted with participants in their own home (n=1) or a private room (n=7) at Aston University depending on their preference. Ethical approval for the study was obtained from the Research Ethics Committee Northern Ireland (reference number: 13/NI/0048).

6.2.2 Participants

For inclusion in the study, participants had to be diagnosed with and prescribed medication for the treatment of hypertension and/or hyperlipidaemia, to be able to understand written information and/or verbal explanations given in English and be able to give informed consent to participate in an interview.

Participants were recruited from Aston University via the staff magazine and its associated website. A summary of the study was published in the staff magazine along with the researcher's contact details, stating that potential participants should contact the researcher for further information if they were interested in taking part in the study. Originally it was intended that patients would be recruited through an external organisation that facilitates self-management groups for patients with chronic illnesses in Birmingham (hence the need for NHS ethical approval to conduct the study). However when data collection commenced the organisation was no longer able to fulfil its role in recruiting participants. Therefore the population to recruit potential participants was smaller than intended, with all participants recruited through Aston University which had originally been intended as a means of recruiting participants to pilot the interview schedule.

Eight people participated in the study (see table 6.1). These were seven men and one woman with a mean age of 63.3 years (range: 43-67 years). Originally the researcher aimed to recruit up to ten participants with hypertension and/or hyperlipidaemia and up to ten participants with diabetes in addition to hypertension and/or hyperlipidaemia in order to obtain a range of experiences and perspectives however this was not possible within the timeframe because of the considerable difficulties recruiting participants described above. The mean time participants had been diagnosed with hypertension and/or hyperlipidaemia was 11.3 years (range: 2-43 years). In addition to hypertension and or hyperlipidaemia, five participants were diagnosed with chronic conditions which require self-management. These were type 1 diabetes (=1), type 2 diabetes (n=1) depression (n=2), gout (n=1), asthma (n=1) benign prostatic hyperplasia (n=1); and psoriasis (n=1). One participant had received an organ transplant and consequently engaged in self-management behaviours to prevent rejection of the organ.

All of the participants indicated that they were regular visitors to a particular pharmacy. Three of the participants regularly visited a multiple pharmacy, four participants cited an independent ownership pharmacy as their regular pharmacy and one participant cited a supermarket owned pharmacy as his regular pharmacy.

6.2.3 Procedure

The interviews were conducted at a convenient time and place for the participant and on average lasted 30 minutes (range: 15-35 minutes). Prior to the interview, all the participants were sent an electronic copy of the participant information sheet (appendix 9.12). The researcher asked the participant if they would like to have another chance to read the participant information sheet and if they had any questions about what participation in the study involved. If the participant was happy to continue, they were asked to sign a consent form (appendix 9.13) indicating that they understood what study participation involved and that they were happy to proceed. The researcher reiterated that the interview was completely confidential and that participants were free to withdraw from the study at any point without providing an explanation for doing so. None of the participants decided to withdraw from the study.

An interview schedule was used to guide the interviews (appendix 9.14). The use of open-ended questions allowed the participant to contribute to the direction of the interview, placing the interviewer in a facilitative role using the interview schedule and follow up questions to probe areas of interest and provide the participant with cues to enable them to describe their experience. The interview schedule contained the following topics: how participants were diagnosed with the hypertension/hyperlipidaemia/diabetes; perceived cause of the conditions, how participants monitored and managed the condition(s); perceived role of the pharmacist in general and in facilitating their condition self-management; experiences of visiting the pharmacy; experience of receiving advice from a pharmacist and thoughts on the suitability of the pharmacy as a place to receive advice. In order to put the participant at ease, the interview began with the researcher asking a general question: “tell me about your high blood pressure” and/or “tell me about your high

cholesterol". Once a rapport had been established, the researcher moved onto more sensitive questions such as 'how does having high blood pressure/high cholesterol affect you?". The interviews were audio recorded and transcribed verbatim. As previously discussed, due to difficulties recruiting participants a sample size smaller than the researcher had intended to obtain a breadth of experiences was achieved. However despite the sample being smaller than planned and lacking the range of participants intended, no new themes emerged from the accounts of the participants recruited in the time available.

6.2.4 Analysis

The transcripts were analysed thematically with the focus on the participant's experience (Braun & Clarke, 2006). The analysis was primarily inductive and was interpretative, recognising the interaction between the researcher and the data. A Framework approach was used to structure the analysis (Ritchie & Spencer, 1994) using QSR NVivo 10 software. A detailed description of Framework analysis is provided in chapter three. In brief, the process involves: familiarisation with the data; forming a thematic framework from analysing a small number of transcripts; applying the thematic framework to the remaining transcripts through numerical indexing, charting and mapping the data in accordance with themes and sub-themes (using QSR NVivo 10) and interpretation of the findings. This was an iterative process performed by the researcher (KK) who discussed the findings with her supervisory team to ensure the validity of the interpretations.

6.3 Results

The patients were assigned codes which reflect: participant number; whether the participant had hypertension (HTN) and/or hyperlipidaemia (HLD) and if they have any other chronic conditions (C/M, indicating co-morbidities). Therefore P1-HLD-C/M denotes participant number one who had hyperlipidaemia and other co-morbidities. The codes are displayed along with a description of participant characteristics in table 6.1 below.

Table 6.1: Participant Characteristics

Participant	Gender	Age	Diagnosed medical condition(s)	Time diagnosed with HTN/HLD	Regular pharmacy ownership
P1-HLD-C/M	Female	54	• Type 1 Diabetes • Hyperlipidaemia • Depression	2 years	Multiple.
P2-HTN-C/M	Male	67	• High Blood pressure • Gout • Sciatica • Benign Prostatic Hyperplasia (enlarged prostate)	4 years	Independent
P3-HTN- C/M	Male	48	• High blood pressure • Borderline high cholesterol • Asthma	16 years	Supermarket
P4-HTN-C/M	Male	57	• High blood pressure • Depression • Psoriasis	4 years	Multiple
P5-HTN	Male	43	• High blood pressure • Hay fever	6.5 years	Independent
P6-HTN-C/M	Male	63	• High blood pressure • Recipient of organ transplant	43 years	Independent
P7-HTN, HLD-C/M	Male	55	• High blood pressure • High cholesterol • Type 2 diabetes	5 years	Independent
P8-HTN	Male	56	• High Blood Pressure	10 years	Multiple

Three themes emerged from the results. The themes and associated sub-themes are presented in the following table.

Table 6.2: Table of Themes

Theme	Sub-theme
Perceptions of hypertension and hyperlipidaemia	Cause of hypertension and hyperlipidaemia
	Perceived severity
	Condition management
	Concerns about taking medication
Perceptions of pharmacists	Pharmacists as professionals
	Patients unsure of pharmacist's role
	Suitability of pharmacists giving lifestyle advice
	Role of the pharmacy setting
Experiences of using community pharmacy services	Seeking advice from pharmacists
	Receiving advice from pharmacists
	Concerns about confidentiality
	Role of pharmacy location

6.3.1 Perceptions of hypertension and hyperlipidaemia

6.3.1.1 Cause of the condition(s)

When asked what they thought caused their hypertension and/or hyperlipidaemia, the participants expressed a range of beliefs. The majority of participants cited lifestyle behaviours as the primary factor or a contributor to them developing the condition(s):

"Um I think it's really um weight and imported European lager related… um the overall unfitness…you know I was up to twenty and a half stone…" ***P3-HTN-C/M***

Interviewer: *"What do you think caused your high cholesterol?"*

Participant: *"Poor diet, not looking after myself yeah and the diabetes as well…"* ***P7-HTN, HLD-C/M***

Some of the participants who had hypertension also cited stress as a causal factor in the development of the condition:

"I would say it was probably a combination of a long period, fifteen twenty years of high pressured work that's my view and obviously the type of person I am… I tend to worry and be conscious of things, things like that so you know what I mean…" ***P8-HTN***

In addition to a stressful working environment, this participant appeared to attribute his perceived personality type as a causal factor in developing hypertension. Another participant believed that significant life events, combined with inherent factors caused him to develop hypertension:

> *"Um I've been told by the doctor that it's a factor of my, the fact that I'm male, my age…my uh background sort of Scottish whatever, uh and it was pretty well inevitable that some time I would have high blood pressure…the overall picture's not been helped by the fact that I had um well the death of my father and my wife decided to initiate divorce proceedings at the same time…"* ***P4-HTN-C/M***

This participant gave a sense that it was inevitable that he would develop hypertension and that there was little he could do about it. Having little sense of control may affect his perception of how much control he has over the management of the condition and consequently may affect his self-management behaviours.

On the other hand, a minority of the participants were unsure what had caused the condition:

> *"We don't know what caused the cholesterol to rise and it was quite rapid as well…it would be interesting to identify why all of a sudden it's risen and whether that's just an add on to what I've experienced sort of medically recently"* ***P1-HLD-C/M***

> *"It was just before the birth of my first child um and I was working I was quite busy but two children now are quite stressful the whole time and you know I'm quite busy still…that's one of the reasons I wanted to take part in this [research study] really I wanted to find out if there should be more [medical care or investigation]…"* ***P5-HTN***

For both the participants, it appeared important to have an understanding of what caused them to develop hyperlipidaemia and hypertension respectively. Whilst P1-HLD-C/M later reported that she would continue to investigate the cause of her hyperlipidaemia with her medical team, P5-HTN

appeared to feel particularly aggrieved that he had not been given an explanation of why he developed hypertension.

6.3.1.2 Perceived severity of hypertension and hyperlipidaemia

There appeared to be differences in the way participants with hypertension and/or hyperlipidaemia and the participants who had diabetes in addition to hypertension and hyperlipidaemia perceived the conditions. Participants with diabetes appeared to view this as a more serious condition that hypertension and/or hyperlipidaemia:

> *"I should be actually just as worried about the high blood pressure and cholesterol but I see the package all together…if I didn't have that [diabetes] those [hypertension and hyperlipidaemia] would still be a concern, possibly because of you know historical views I might not be doing as much about it…so I think the diabetes, the focus on the diabetes…"* ***P7-HTN, HLD-C/M***

> *"I think at the moment to actually detach it from the diabetes because the problems that I've had with the diabetes it probably had been put on the backburner a little bit…so I wouldn't say it's my number one priority…"* ***P1 HLD-C/M***

These participants appeared to view hypertension and/or hyperlipidaemia as components of their diabetes, which appeared to take precedence, rather than viewing them as separate conditions of equal severity. This appeared to relate to the participants' perceptions of the potential consequences of having unmanaged diabetes:

> *"Um I'm terrified about um losing my sight! Um I'm very worried about losing the use of my uh legs, and I realise uh just how susceptible I could be to uh coronary heart disease so yeah so uh there's plenty of cricket still to be watched so (laughs)…"* ***P7-HTN,HLD-C/M***

> *"…particularly in the last two years I've been very aware of the associated problems [with diabetes] with my eyes and my feet and so I've probably concentrated on those…I think that's quite fair to say that cholesterol management has been lower down the priority list…"*

These participants perceived diabetes to have particularly serious consequences, with P7-HTN,HLD-C/M alluding to diabetes potentially being life threatening. Another participant with hypertension appeared more concerned about developing diabetes than having hypertension:

> *"…develop Type 2 Diabetes and lose toes and things like that…be really bad and also vision through a glaucoma so I'm trying to sort of be realistic…and be healthier…"* ***P3-HTN- C/M***

The risk of developing diabetes appears to be a driver of his motivation to change his behaviour rather than the hypertension. In comparison, the majority of participants with hypertension and/or hyperlipidaemia did not make reference to potential consequences of having the conditions. Interestingly, the exception was one participant who perceived hypertension as a serious medical condition but felt this perspective was not shared by the health professionals he encountered:

> *"…to me it was quite a serious diagnosis but to them [health professionals] it was just like oh yeah just stick you on some tablets and you'll be alright…"* ***P5-HTN***

It may be that some health professionals also share some of the participants' belief that diabetes is a more serious condition with more severe consequences than hypertension.

The absence of symptoms associated with hypertension and hyperlipidaemia may explain why the participants with diabetes in addition to these conditions perceived diabetes as a more serious condition than hypertension and hyperlipidaemia. One of the participants did not experience any symptoms and did not believe he had hypertension but decided to have his blood pressure measured when he saw an advertisement at his community pharmacy:

> ***"****So I thought ok I might as well um have have it [blood pressure measured], I don't think I've got high blood pressure…but…it's, it's sensible…"* ***P2-HTN-C/M***

This led to P2-HTN-C/M being diagnosed with hypertension, to his surprise. On the other hand, despite hypertension being an asymptomatic condition, some participants described symptoms they perceived to be related to the condition:

"…crashing headaches uh a feeling of incapacity…regular headaches flushed cheeks really not feeling right…" ***P5-HTN***

"Just either get headaches or I can feel the back of my own skin tingling sort of thing you know, just generally you feel differently and having had it now for ten fifteen years you know when you're chilled, and you know when things are starting to get a little bit out of hand…" ***P8-HTN***

Both participants gave a sense of being able to 'feel' changes in their blood pressure through perceived somatic experiences. This may lead to the patients perceiving that if they do not have symptoms which they associate with hypertension and/or hyperlipidaemia then they have the condition under control:

"Um as I say it's controlled so most of the time I don't have any problems with it but um you know I think that… I don't have tend to have like headaches or things like that but you know um I think you would feel a bit stressed or that sort of thing if I did have high blood pressure…" ***P6-HTN-C/M***

The participant appeared to believe that he could tell if his blood pressure was raised, assuming that it was not as he was not experiencing the symptoms he perceives to be indicative of hypertension. This could potentially result in him not engaging in necessary self-management behaviours such as lifestyle behaviours or taking antihypertensive medication.

6.3.1.3 Condition management

The majority of participants believed that their hypertension and/or hyperlipidaemia could be controlled through lifestyle behaviours and/or medication:

"And I've noticed that if I can control my weight a little bit better and be sensible then the blood pressure itself seems to come down and…approach normal levels" ***P3-HTN-C/M***

"I would have high blood pressure if it wasn't controlled, my blood pressure is now normal…but if I stopped taking the beta blockers it [hypertension] would happen as it has happened in the past…" ***P6-HTN-C/M***

Many of the participants described changes they had made to their lifestyle after receiving a diagnosis of hypertension and/or hyperlipidaemia:

"…the blood pressure did come down…although I'd been living fairly healthily but I changed my lunchtime patterns from sort of toasted cheese and omelette and bacon and egg to chicken salads and salmon…which probably helped my cholesterol…" ***P2-HTN-C/M***

"I'm probably consciously doing more…exercise and probably for the first time in a long while starting to record weight…" ***P7-HTN, HLD-C/M***

"I did cut out caffeine…and am much more serious about losing a bit of weight you know…I lost two and a half stone I've put back on about twelve pounds but I lost [weight]…" ***P5-HTN***

Despite many of the participants describing medication as a way to control their hypertension and/or hyperlipidaemia, some participants appeared to experience some doubts about the need to take medication:

"I did a little experiment where I didn't take the meds a few months ago…and I shoulda and the numbers were interesting 130 over 90 uh 95 oh right start taking the pills again and it comes back down to under 120…" ***P3-HTN-C/M***

The absence of symptoms associated with hypertension may have caused P3-HTN-C/M to question whether he needed to take medication, and it was through seeing his blood pressure raise when not taking the medication that prompted him to begin taking the medication again.

As with the participants' perceptions of condition severity, there appeared to be some differences in the way that that some of the patients with symptomatic conditions in addition to hypertension and/or hyperlipidaemia behaved compared to patients who just had hypertension and/or

hyperlipidaemia. P5-HTN described making some changes to his behaviour but not at the expense of the things he enjoyed:

> *"…I did cut out caffeine and I did and am much more serious about losing a bit of weight you know…I have an increased awareness of salt and uh various sort of stuff that's good and stuff that's not so good to eat um but even so I'm not evangelical and I'm not you know I won't not have a cream cake if one's on offer do you know what I mean?" P5-HTN*

On the other hand, P1-HLD-C/M, who had Type 1 diabetes in addition to high cholesterol, described carefully managing her food intake to control her diabetes:

> *"…you're probably a bit more aware of your body and what it's sort of um doing than most because you know it isn't something that you can think oh I haven't bothered to think about what I'm eating today you know that's not an option for us…" P1-HLD-C/M*

Unlike hypertension, Type 1 diabetes is a symptomatic condition and therefore the patient will experience symptoms if it is not effectively managed. It may be that P1-HLD-C/M engages in more active self-management than P5-HTN as she will experience symptoms associated with diabetes if she does not. Furthermore, Type 1 diabetes management, as described by the participant in her interview, requires regular monitoring of blood glucose levels and food intake, providing participants regular feedback on their self-management behaviours. This may make the need to self-manage through lifestyle behaviours more salient for patients with diabetes than for patients with hypertension/hyperlipidaemia. Contrastingly, few participants without diabetes reported regularly self-monitoring their condition.

There also appeared to be variation in how confident participants felt about their ability to engage in appropriate lifestyle behaviours to self-manage their condition. Some participants appeared to be confident in their abilities, perceiving that they had their hypertension and/or hyperlipidaemia well controlled whilst others appeared to struggle:

"I think ooh I'm getting healthier one minute…over all general fitness and be able to you know play squash for a lot longer…and running longer without collapsing so it's really continuing with that and keeping up the momentum and then Christmas is going to arrive and then everything I've said will be complete nonsense…" ***P3-HTN-C/M***

"I'm not on the right levels of fruit still eating probably uh, too much meat and I've not given up the drink (laughs)...and I always say my biggest battle for me is my weight…" ***P7-HTN, HLD-C/M***

Both these participants had indicated that they needed to lose weight but found it difficult to engage in the necessary lifestyle behaviours to achieve this. This appeared to be an emotive issue for these participants:

"I'm more interested in having a good game of squash and losing than a mediocre game of squash because you can't move fast enough to get to the ball and you just pissed off the other guy cause what's the point in turning up?" ***P3-HTN-C/M***

"I say well ok if you know sort of those [hypertension, hyperlipidaemia, diabetes] are all defects and um they're all self-inflicted defects…" ***P7-HTN, HLD-C/M***

Both participants appeared to blame themselves for developing hypertension and hyperlipidaemia and for being overweight. Their accounts gave a sense of being negatively evaluated by others. Throughout his account, P3-HTN-C/M used self-depreciative humour and inferred that the researcher would laugh at his attempts to lose weight through engaging in exercise.

6.3.1.4 Concerns about taking medication

A number of the participants described concerns about the medications they were taking to manage hypertension and/or hyperlipidaemia. One of the participants described experiencing problems with side effects of a statin she was prescribed to lower her cholesterol:

"… from my previous knowledge of taking new medication sometimes you do sort of to begin with you do suffer from side effects and you know that's the sort of cost that you have to pay to you know deal with that however after three months the level of muscle pain that I was experiencing was quite intense to the point that it was impacting on my everyday wellbeing so I returned to the doctor…" ***P1-HLD-C/M***

This participant described being willing to tolerate side effects of a medication when commencing treatment, however she appears to have weighed up the impact of the side effects against the benefits of the treatment and decided that the side effects of the medication outweigh the benefits.

Other participants described not being keen to take medication:

"I have a certain reluctance to take more medicines than I really need to um but you know I take the blood pressure pill, the water tablets, the antidepressants otherwise I'd be in a lot worse state." ***P3-HTN- C/M***

This participant appeared to have balanced his reluctance to take medication against his perception of the effectiveness of the treatment and concluded that treatment is beneficial to him. Another participant shared P3-HTN- C/M's reluctance to take more medication than necessary:

"… if I knew twenty years ago what I knew now um I'd a done things differently, um but I'm absolutely determined to you know not become insulin dependent not becoming, you know more drugs than I need…chemists think it's Christmas when I come (laughs)" ***P7-HTN, HLD-C/M***

This participant appeared to regret his previous lifestyle choices, and it seemed to be very important to him not to have to take more medications than he needed. He appeared to be using this as a driver to change his lifestyle behaviours as he seemed to fear becoming reliant on another medication. Another participant cited being able to stop taking medication altogether as motivation to change his lifestyle behaviours:

"…but this healthier lifestyle not perfect but making better informed choices to um lessen the condition maybe um to eradicate the condition and therefore take that medicine out of the equation and therefore not suffer the side effects of the medication plus the condition as well…" ***P3-HTN-C/M***

Being able to stop taking the medication and consequently not experience any associated side effects appears to be desirable for this participant. Highlighting this as a potential outcome of engaging in healthy lifestyle behaviours may be a useful discussion, when appropriate, for pharmacists to have with patients taking medication for hypertension and/or hyperlipidaemia.

6.3.2 Perceptions of pharmacists

6.3.2.1 Pharmacists as professionals

There was variation in the way participants conceptualised the pharmacist's role. Some participants saw pharmacists as having specific expertise in medicines, appearing to view this as the key component of the pharmacist's role. One participant described a time when he was given advice by a pharmacist who identified that the over-the-counter medication he had attempted to buy would interact with his prescribed medication:

"…that also alerted me to the fact that as I'm taking these [tablets] and one or two other things [medications] that I would check with the pharmacist before buying any over the counter remedy…so I think that you know relying on a pharmacists who will look out for that and in that case took the initiative because it didn't occur to me to think you know can I take this?" ***P2-HTN-C/M***

The act of seeking medication advice from a pharmacist after this experience suggests that he perceives pharmacists as a credible source of knowledge or expertise in this area (which he does not possess). His use of the phrase 'relying on' suggests that he feels comfortable to place his trust in pharmacists, implying that he is confident in their knowledge about medicine. Another participant, when asked who he would seek advice from if he was having problems managing his condition,

remarked that he would seek advice from a pharmacist about problems related to the medication he was taking:

> *"…if I was having problems with the medicine as in I was reacting…it would probably be the community pharmacist I mean I've noticed that they don't always stick to the same brand and even if it's the same medication different brands can cause issues to do with absorption or things like that…"* ***P5-HTN***

This participant identified the pharmacist as the first person he would consult for advice if he experienced problems which he perceived as being caused by the medication, which again appears to indicate that he also sees the pharmacist as an expert in this area. In accordance with this, some participants described instances when they had specifically sought out a pharmacist's advice in relation to their medication. Pt1-HLD-C/M consulted a pharmacist after an optician informed her that the medication she was taking for high cholesterol may have negative consequences for her:

> *"And he [the pharmacist] said ooh let me have it [the medication] and he checked through and explained to me why that medication and actually the optician had been a bit alarmist because there weren't actually many substantive cases to suggest that this medication caused the problem that the optician thought so…that was quite a reassuring um sort of instance where the pharmacist's knowledge of the medication was actually invaluable because I came away from the optician's feeling very alarmed that I was given something that would actually cause more problems…"* ***P1-HLD-C/M***

This participant had actively sought out the pharmacist's advice on medication as the first port of call, which may indicate that she values the pharmacist's opinion highly. By sharing their expertise, and advising the participant of the reasons for taking the medication and explaining the problems associated with its use, the pharmacist gave Pt1-HLD-C/M reassurance which appeared to reduce her anxiety about taking the medication. However not all participants shared this experience. One participant reported that he did not receive the advice about medicines that he needed:

"… the one area I mentioned that was of concern was when my drugs were changed and nobody told me about potential side effects or certain things and I think if somebody, when the pharmacist knows it's a change of drug that, to me, would have been really helpful…" ***P6-HTN-C/M***

This patient was not informed that grapefruit juice could interact with the antihypertensive medication that he was prescribed. Through reporting concern at not receiving advice about medication changes from the pharmacist, Ppt-HTN(43yrs)Co-morbid appears to demonstrate that he perceives giving medication advice as part of the pharmacist's role, as he is concerned that the pharmacist did not provide him with this information which he feels he should have received.

Whilst some participants viewed pharmacists as professionals and/or possessing expert knowledge in medicines, other participants did not appear to conceptualise pharmacists in this way, and appeared to feel that the pharmacist's role did not extend beyond dispensing prescriptions:

"I'm not sure there's a greater role than giving me the tablets…" ***P2-HTN-C/M***

"…*well I suppose I would see them [pharmacists] as being somebody who provided a lower level of medical advice to the doctor…based around a pharmacy for me the pharmacist is just a place where you have to go to uh to get your uh prescriptions filled…"* ***P8-HTN***

These participants did not appear to perceive pharmacists as professionals of equal standing to other health professionals, nor did they see pharmacists having a role in facilitating patient self-management or promoting healthy lifestyles. The phrase 'lower level of medical advice' used by P8-HTN suggests that he may not value the input from pharmacists as much as he would value input from doctors. Another participant made the comparison between pharmacists and other health professionals:

"…you know obviously it's the same I suppose you go the doctors or you go to see the nurse at the doctor and all the rest of it and um you expect professional people who know what they're

talking about and whatever and obviously pharmacists are qualified professional people and all the rest of it…um but uh sometimes it's a little bit about confidence whether you've got confidence in the people…" ***P6-HTN-C/M***

Unlike the previous participants, P6-HTN-C/M conceptualised pharmacists as 'professionals', however his comment about having confidence in people may suggest that he is not fully confident in pharmacists capabilities as health professionals.

Like P6-HTN-C/M, many participants used General Practitioners (GPs) as a frame of reference when considering the role of pharmacists, comparing the pharmacist's role to that of the GP. Most of the participants indicated that they preferred to consult their GP for issues relating to their hypertension and/or hyperlipidaemia:

"…if it was something like getting your blood pressure checked or what cough medicine should I take…then I'd be quite happy going to the pharmacist…to any more level than that I think I'd want to go to a doctor…you can never take the doctor out of the equation…" ***P6-HTN-C/M***

Some patients perceived that GPs had control over their medical care and therefore pharmacists had little to offer them:

"…if you're having high blood pressure there's usually some underlying reason for it um the pharmacist might be able to advise you but I'd be surprised if they didn't say well if it's temporary maybe we'll check it in a week or so but if it's still the same then you need to go to your GP about it…" ***P6-HTN-C/M***

"…the pharmacist…has a role in dispensing medicines and yeah they are specialists in the sort of pharmaceutical side of stuff…at the end of the day…anything that is you know prescribed it's more the doctor has the final say…yeah you can get information from the pharmacist… and whilst…the community pharmacist might like to expand their role um there is a sort of logistical

problem that they're not when it comes to prescribed drugs or medicines or whatever, they're not the ones prescribing…" ***P4-HTN-C/M***

P4-HTN-C/M appears to see the doctor as having power and responsibilities that most pharmacists do not have in prescribing medications and therefore he appears to feel that the pharmacist is not in a position to add anything to his care. His comparison of the doctor's role to the pharmacist's role positions doctors as powerful in comparison to what he appears to view as the lesser role of the pharmacist, who may wish to adopt addition responsibilities but cannot as they do not possess the power doctors have. In addition to this, other participants had concerns that pharmacists may offer different advice to doctors, who, as already outlined, they appeared to hold in high esteem:

" *…and there is you know the danger with somebody who perhaps doesn't hear what they want to hear…and then they hear conflict so actually the pharmacist said this but the GP said this …"* ***P7-HTN, HLD-C/M***

This participant appeared concerned that pharmacists may offer differing advice to doctors that may lead patients not engaging in behaviours to benefit their health. This may be a reflection of perceiving that pharmacists have less knowledge or expertise than doctors therefore they may provide conflicting advice.

Conversely, some participants appeared to conceptualise pharmacists as having expertise that was equal to that of other health professionals. One participant, Ppt1-HLD(2yrs)Co-morbid appeared to view pharmacists in the same esteem as other health professionals:

"I would ask a pharmacist or ask a doctor or a medical profession because they are the experts" ***P1-HLD-C/M***

This sentiment was shared by another participant:

"It [the pharmacist] is another version of the GP really I think that needs to be emphasised more…" ***P5-HTN***

He added:

"…the community pharmacist isn't someone who just um uh…someone who sells medications they are they know they have a massive qualification behind this and you know they have the experience and the expertise I know that so I would welcome…" ***P5-HTN***

P5-HTN appeared to view pharmacists as having qualifications, experience and expertise, qualities that tend to be associated with professional status. It is noteworthy this participant identified the pharmacists as his first port of call if he was experiencing problems which he perceived to be associated with his medication.

6.3.2.2 Patients unsure of pharmacist's role

Some of the participants appeared to experience confusion surrounding the term 'community pharmacist' when the interviewer asked them what they thought the role of the community pharmacist was:

"Do you see a community pharmacist as different from any other pharmacist or are all pharmacists are high street pharmacists different from community pharmacists…?" ***P2-HTN-C/M***

"I'm assuming by you saying community pharmacist you mean the guy who actually sits in the chemist and dispenses the prescription?" ***Pt8-HTN(10yrs)***

"Right ok that's a good one (laughs) when you say, I mean the community pharmacist are we talking just the normal chemist?" ***Pt6-HTN(43yrs)Co-morbid***

The terminology appeared to cause these participants confusion; it seems that some of the patients were more familiar with the term 'chemist' than 'community pharmacist'. This is noteworthy, as health promotion campaigns tend to direct patients to their 'community pharmacist' rather than accessing other services. This may not be effective if patients are confused about the terminology.

One participant also appeared to be unsure about the enhanced services pharmacists can offer:

> ***"…*** *yeah I'm not too sure I know I'm not too sure how it works …whether there are some pharmacists who are actually providing a blood pressure service or other things…you know whether its check for diabetes or various things like that so I'm not sure about how they about how that sort of works …I don't know how that would work in terms of the National Health whether it's something it would pay for or how that would work …"* ***P6-HTN-C/M***

This participant added that he felt greater clarification of the pharmacists' roles in addition to those associated with medication was necessary in order for patients to benefit from such services:

> *"…what I understand of a pharmacist and I think that most people recognise a pharmacist whether there is more in what a pharmacist could offer and whatever that would need to be more generally publicised I think so people need to understand what pharmacists can offer…"* ***P6-HTN-C/M***

This was a sentiment shared by other participants interviewed. P6-HTN-C/M gives a sense that he would be open to pharmacists having roles in addition to dispensing and providing advice on medication, however this would need to be publicised so patients are aware of this and accept it as part of the pharmacist's role which he does not appear to perceive to happen at present.

The confusion surrounding the pharmacist's role experienced by some of the participants may relate to the changes to the pharmacist's role in more recent years:

> *"Um traditionally I would always have seen the chemist you know the pharmacist just dispensing your prescription…um but I I've seen that change probably perhaps in the last decade…when I go into a chemist these days is I see people going in and um the pharmacist coming out and giving advice…whereas before you only see your GP… I see that changing and I've found some very helpful people…"* ***P7-HTN, HLD-C/M***

"I think…quite often when you get medication you do really think that the doctor is the only one that knows what that medication is going to do and how it's going to affect you what's become increasingly apparent over the last couple of years is the pharmacist is a very untapped resource…" ***P1-HLD-C/M***

However, despite the substantial changes to the landscape of community pharmacy in recent years, most participants did not make any reference to this or describe changes in their care as described by the participants above. This may suggest that the changes to the pharmacist's role have had little impact on the care of most of the participants interviewed.

6.3.2.3 Suitability of pharmacists giving lifestyle advice

The participants' views on the suitability of the community pharmacy as a place to receive lifestyle advice varied. Some patients were positive about pharmacists giving lifestyle advice:

"I think that…if you were looking at how community pharmacists might actually get involved with individual patient care then I think it [pharmacists offering lifestyle advice] is a good thing…I welcome that as a good thing that wouldn't put me off talking to them…" ***P5-HTN***

"…maybe instead of people looking at it as purely medical look at it from a general wellbeing point of view in that if you have got any concerns about maybe a weight issue or smoking and I think they do address that already that you know the wider sort of resource there [in the pharmacy] I just think is limitless…" ***P1-HLD-C/M***

P1-HLD-C/M was very enthusiastic about pharmacists having a role in lifestyle advice provision and facilitating patient self-management which was evident throughout her interview. She appeared to believe that there needed to be a shift in the general public's attitude towards the role of community pharmacy in order for pharmacists to play a more active role in patient care. It is interesting to note that P5-HTN stated that pharmacists giving him lifestyle advice would not prevent him consulting pharmacists. This may reflect a belief that not all patients are open to pharmacists giving them lifestyle advice.

Another participant believed it was acceptable for a pharmacist to give him weight loss advice as he accepted that he was overweight:

> ***"*** *Because I've acknowledged it's a problem it [receiving weight loss advice from a pharmacist]… doesn't concern me um and I suppose it's something I will learn to accept…the first time people were discussing weight I'd actually gone to see an ear nose and throat specialist and I felt like saying well what's it got to do with you…because it was the attitude it was said um but I think there's probably more of an acceptance of that now and of course because it's related to my condition um but again I think it's about that expanding role of the, you know and allowing and accepting the pharmacist's got a part to play…"* ***P7-HTN, HLD-C/M***

This participant appeared to have had a negative experience of being given weight loss advice in the past which he attributes to the way in which the advice was delivered and the person who delivered the advice. The way he described learning to accept weight loss advice suggests that this may be difficult advice to receive. It appears that the participant needed to be able to understand the link between the condition and being given weight loss advice in order for this to be acceptable to him. The participant did not appear to understand how his weight related to problems he consulted an ear nose and throat specialist for, therefore could not see the relevance of the advice and why this was offered to him which appeared to evoke a defensive response. Pt7-HTN, HLD(5yrs)Co-morbid appeared comfortable with the idea of being given weight loss advice by a pharmacist as he acknowledges that he is overweight and recognises that this has an impact on his hypertension, hyperlipidaemia and diabetes therefore appears to see giving weight loss advice as part of the pharmacist's role**.**

On the other hand, some participants did not share this perspective and did not view giving lifestyle advice as part of the pharmacist's role at present:

"…maybe it's me but when I think of a pharmacist…I think about providing drugs and whatever giving you a little bit advice on one or two things but I think that…diet can be a little bit specific to people's you know lifestyle…" ***P6-HTN-C/M***

He went on to add:

"*…if it was recognised that the pharmacist could give you advice on diet could give you advice on exercise and various other things um and I don't think I'd have a problem doing that contacting them speak to them about it it's just sort of um at the moment it's not something I would do…I don't think it's part of their role at the moment…"* ***P6-HTN-C/M***

"… *it wouldn't be my first port of call [the pharmacy]…If felt I'd got a real problem I'm quite comfortable asking the pharmacist for information about the drug…or the medicines, or things like that – if they interact - but I wouldn't naturally go to the pharmacist to say ooh do you think I'm a bit overweight now or do you think I'm, do you know what I mean?"* ***P8-HTN***

Both these participants appeared to view the provision of lifestyle advice as incongruent with pharmacist's current role. For P6-HTN-C/M this incongruence seemed to relate to his perception that giving lifestyle advice is not widely recognised as part of the pharmacist's role. The opinions expressed by the participants above contrasts with their perceptions of the pharmacist's role in giving medicines advice, which both participants perceived as part of the pharmacist's role. Both these participants did not appear to conceptualise pharmacists as health professionals, whereas the participants who perceived lifestyle advice to be part of the pharmacist's role appeared to conceptualise pharmacists as health professionals.

6.3.2.4 Role of the pharmacy setting

The retail environment was identified by some participants as a barrier to pharmacists performing roles such as providing lifestyle advice:

"…in terms of educating people in terms of how to cope better with daily life um I think the pharmacist could have an important role there but the pharmacist is busy…counselling and managing the store…" ***P3-HTN-C/M***

The environment pharmacists practice in appeared to affect the participants' perceptions of the pharmacist's role:

"…you have to distinguish that it was different from telling your life story to someone who is a shop assistant even though they obviously have the qualification and the knowledge and the status to go with it…" ***P5-HTN***

The retail environment resulted in the majority of patients viewing themselves as customers:

*" I think as a customer, yeah**…**'cause it's a shop**…**well they do a bit of pharmacy but they would also sell me a hot water bottle if I wanted one or whatever, you know what I mean? Or sunglasses so you know…"* ***P8-HTN***

This appeared to affect how the patients perceived the role of the pharmacist:

"It's like going into Tescos and somebody saying, when you get to the till somebody saying oh can we just go and have a discussion you know about why you've bought the stuff that you've bought?" ***P4-HTN-C/M***

"…I suppose I see myself as a customer…to me a pharmacy is basically a shop…where you're going in for goods supplies drugs whatever…" ***P6-HTN-C/M***

This patient viewed pharmacists as shop employees rather than health professionals with a role to advise patients and ensure that medicines dispensed or bought will not harm patients. He appeared to view pharmacists' input as an intrusion.

The retail environment also appeared to result in the participants having a different set of expectations that they may not have of other health professionals practising in obvious clinical environments:

"…there's a kind of language that comes with the barrier of oh well this is a shop and actually…you need that kind of consultation service where you can…access people in a setting of your choosing and more of your expectations….that there's a perception that you would be going there to get a medical consultation and you don't really do that across a shop type setting so you'd have to have another area for that…" ***P5-HTN***

"… I would consider myself a customer if I was just going to pick it [prescription] up do I get a nice smile and so on but actually I know I would be talking to someone who would at least have the knowledge of what I was going to talk about…" ***P5-HTN***

This participant expects characteristics associated with good customer service when he goes to collect his prescription from the pharmacy, viewing himself as a customer rather than a patient, although he acknowledges that pharmacists have knowledge of the medication he is collecting.

6.3.3 Experiences of using community pharmacy services

6.3.3.1 Seeking advice from pharmacists

In keeping with the conceptualisation of pharmacists being experts in medicine which was held by some of the participants, all of the participants who reported seeking advice from a pharmacist did so in relation to prescription medications, over-the-counter medication and minor ailments:

" *The only time's [asking a pharmacist for advice] been when um if I've had a really bad cold or I sometimes get sinus problems…and I'm very conscious that there are certain types of medicine for colds and cough medicines I can't take …or they exacerbate the situation so the advice has been more of what can I take…"* ***P8-HTN***

"…if there was something … you might have an earache or something wrong with the eyes …we have gone to the pharmacy then you know I've got an earache can you recommend some eardrops this sort of thing rather than ringing your doctor and saying I've got an earache it's a bit pathetic in a sense…but at the same time…you could do without earache so I think it's on that sort of issue…" ***P2-HTN-C/M***

These participants appeared comfortable seeking advice from pharmacists in relation to minor ailments that they perceived were not serious enough to require input from a doctor, or in relation to interactions between medicines. This may be because they saw this as part of the pharmacist's role and therefore saw them as an appropriate source of advice. However, whilst most of the participants indicated that they were happy to seek or receive advice from pharmacists in relation to medication and/or minor ailments, and had done so in the past, many of the participants did not perceive that they needed help from pharmacists to manage their CVD other than medication advice:

"I have to say I'm not really looking for anything from them [pharmacist] do you know what I mean? Other than that advice service when I've got a problem and I need to know what [medication] I can take…" ***P8-HTN***

It appeared that several of the participants interviewed in the present study did not feel they required support from pharmacists as they were satisfied with the input they received from other health professionals:

"…um I haven't haven't asked any questions about the medication or my condition…to a pharmacist because I didn't feel that I needed…the extra information um the GP has had taken the time… and had given me follow up appointments and then transferred to the practice nurse…" ***P3-HTN-C/M***

This appeared particularly applicable to patients who had other chronic conditions in addition to CVD:

"…if I was going in to see my doctor anyway which I do fairly frequently um I might well say um I think my blood pressure's gone up and this has happened or that's happened…" ***P2-HTN-C/M***

Having other chronic conditions meant that this participant had consultations with his GP on a regular basis which may provide him with more opportunities to raise any concerns he has about his blood pressure and be given self-management support by the GP than patients who do not have other chronic conditions. This may result in him feeling that he does not require additional support from a pharmacist. Another participant who already had regular input from other health professionals appeared resistant to involving more people in his medical care:

"I have to go and see the doctor once every two months for review uh and to get various prescriptions renewed including the antidepressants so uh he takes the blood pressure then at other times he may ask me to come in and see the practice nurse…the um discussions I have with the doctors … they are pretty much managing my health so um at the moment I don't see a need to involve anybody else…" ***P4-HTN-C/M***

In addition to this, another participant felt they did not require support from a pharmacist because of the quality of the relationship that they had with their GP:

*"It's not so much as qualified I think it's just I suppose I'm fortunate in that I've got a fairly good relationship with my GP**…**in the sense that I live in a village where it's a small practice the GP's been there for a number of years, do you know what I mean?"* ***P8-HTN***

However, this experience was not shared by all participants. One participant was unhappy with the input he received from his GP in relation to his hypertension:

"since then [hypertension diagnosis] other than putting me on medication and following me along for a few weeks to change the dose… that was kind of it really… it was just like oh yeah just stick you on some tablets and you'll be alright…" ***P5-HTN***

This participant did not have any other chronic conditions in addition to high blood pressure. It may be that participants with other co-morbid conditions in addition to hypertension and/or hyperlipidaemia receive more support than those without the conditions due to interacting with health professionals on a more frequent basis providing more opportunities for health professionals to intervene. Participants without other chronic conditions who do not receive the same amount of input from other health professionals may benefit from input from a pharmacist.

Finally, another participant suggested that pharmacists play a minimal role in his medical care as he was not seeking advice and does not always visit the pharmacy himself:

> *"…I suppose I don't have much to do with them [pharmacists] as instigated by me…I tend to get a repeat prescription and my wife actually picks them up because I'm not around so she picks up the prescription and that means I won't necessarily see them [the pharmacist]…"* ***P5-HTN***

As P5-HTN does not collect his prescription himself, there is not the opportunity for the pharmacist to advise him on self-management of his high blood pressure if needed. This may also be the case for other patients.

6.3.3.2 Receiving advice from pharmacists

The majority of participants gave the impression that, overall, the input they received from pharmacists was minimal. None of the participants reported being offered lifestyle advice by a pharmacist:

> ***Interviewer: "****What role, if any, does your community pharmacist play in helping manage your blood pressure?*
>
> ***Participant****: In reality very little" P4 HTN-C/M*

> ***Interviewer****: "And could you tell me about a time, if any, that a pharmacist has discussed diet or exercise or alcohol intake or smoking with you?*

Participant**: "…it's never really happened" **P6-HTN-C/Morbid

Some participants reported situations that potentially could have been used by pharmacists to facilitate patient self-management but were not utilised. One patient responded to a an advert promoting blood pressure testing services within a pharmacy, had his blood pressure tested and consequently was found to have high blood pressure:

***Interviewer:** "And did the pharmacist give you any advice themselves?*

Patient:** "Um I don't think so uh it was it was it was um yeah very much…you might well have a problem so you need to do something about it…" **P2-HTN-C/M

The patient describes a situation where the pharmacist has been involved in the identification of high blood pressure and signposted the patient to seek help from other sources, however it appears that the pharmacist did not supplement this with advice on how the patient could manage the condition.

Another patient described the limited input he had received from pharmacists:

*"I mean have to say in all the years that I've had the tablets that I'm on I think probably only about once …when I went to go pick up a prescription **…**that they said ooh can the pharmacist have a quick word with you?... and there it was very much a quick sit down, five minutes, and he had some sort of checklist from memory, whizzed through it and that was it**….**Do you know what I mean? So it had a very minimal impact I would say on any management of my blood pressure…" **P8-HTN***

He later elaborated:

*"…they had a checklist…to go though and it was do you exercise, how much do you drink, you know, do you know what weight are you, I wasn't weighed at all…it was just a checklist and you know, are you experiencing any problems? Well no…off you go then…" **P8-HTN***

This patient describes a rushed consultation that does not appear to have benefitted them given the way that it was recalled. It does not appear to have been a concordant consultation, with little opportunity for the patient to discuss any concerns he had. Similarly, another patient described a consultation that did not appear to benefit him:

"… I was sort of uh taken off and uh had a review session by the pharmacist which was the first time ever…I just sort of have felt it was a bit of um an imposition really… you know we've got your prescription but you're not getting it until we've given you a review and uh…you know the purpose of the review wasn't really ever explained...I just thought you know why I am doing this?…it wasn't what I wanted and you know I knew very well the side effects and the problems um of coming off some of these tablets…" ***P4-HTN-C/M***

On the other hand, a minority of the participants described pharmacists and pharmacy staff proactively inquiring if they required input or advice:

"…just as a general matter of course the staff always ask us you know is everything ok with your medication today are there any questions for the pharmacist is there anything you don't understand…" ***P1-HLD-C/M***

"…and it was different pharmacists basically but on both occasions the dose changed they commented…and said oh things must be going in the right direction…which is nice because you feel that somebody's actually taking an interest…you know and sharing good news it helps with your motivation so I really appreciated that…" ***P7-HTN, HLD-C/M***

6.3.3.3 Concerns about confidentiality

Some participants raised concerns about confidentiality and privacy in the pharmacy environment:

"…you wouldn't necessarily have the confidentiality or the atmosphere of trust and sharing… obviously they're on one side of the counter and you're on the other…" ***P5-HTN***

"I would feel less happy about discussing my medical affairs with somebody over the counter in a sort of busy shop…there's always signs up saying you know you can talk to your pharmacist about this and whatnot…I would probably not feel that sort of confident about it…you know if my neighbours came into the pharmacy at the same time I might be less happy about discussing um my medical uh issues…with a pharmacist…" ***P4-HTN-C/M***

"…there's no confidential area…you've just got a screen with a chair…but you are in the public area…and everybody can hear what's being said…so I don't really think that particular's got suitable environment especially if you had a problem and you wanted to talk about it…" ***P8-HTN***

The participants gave a sense of the shop counter acting as a barrier, and the shop environment not being suitable to discuss sensitive issues such as lifestyle behaviours. P4-HTN-C/M in particular did not appear to feel comfortable with the idea of discussing his health with a pharmacist in a public setting. Throughout his account, P4-HTN-C/M described his battle with mental illness in addition to hypertension, indicating that he would not feel comfortable discussing the conditions, which he saw as a private matter, in a retail setting.

6.4 Discussion

This study aimed to explore the experience of using community pharmacy services from the perspective of patients with hypertension and/or hyperlipidaemia. A thematic analysis using a Framework approach was conducted from which three themes entitled: 'perceptions of hypertension and hyperlipidaemia', 'perceptions of pharmacists' and 'experiences of using community pharmacy services' emerged.

The CS-SRM (Leventhal et al., 2003) can be applied to the participants' perceptions of hypertension and hyperlipidaemia and associated self-management behaviours. The majority of participants believed that lifestyle behaviours had caused them to develop hypertension and/or hyperlipidaemia and described making or attempting lifestyle behaviour change to control the conditions. This

suggests that most of the participants were aware of the role of lifestyle behaviours in CVD and that they needed to engage in regular exercise, stop smoking, drink alcohol in moderation and eat a healthy diet in order to self-manage the conditions. Understanding the cause of the condition also appeared important in order to understand the need to engage in appropriate lifestyle behaviours to self-manage the condition. Despite understanding the cause of their condition(s) and the need to control their condition through lifestyle behaviours, some participants found this difficult. Weight loss was an emotive issue for some participants, who appeared to blame themselves and feel judged for developing a preventable condition. It may be beneficial for pharmacists to have an awareness of how lifestyle behaviours are emotive topics for some patients and therefore need to be broached in a sensitive manner.

There appeared to be differences in the way participants with hypertension and/or hyperlipidaemia alone and participants with diabetes perceived the conditions. Diabetes was considered a more serious condition with more significant consequences; participants with diabetes reported concerns about having hypertension and/or hyperlipidaemia, but tended to perceive the conditions as related to their diabetes. The participants with diabetes described fearing the potential consequences of having diabetes (ranging from problems with foot care to death) whereas participants without diabetes did not appear to experience concerns about the potential consequences of hypertension/ hyperlipidaemia so saliently. Subsequently the participants with diabetes appeared to perceive engaging in self-management through lifestyle behaviours as of higher importance than some of the patients who only had hypertension and/or hyperlipidaemia, which appears to relate to their perceptions of the consequences of the respective conditions. Given that hypertension and hyperlipidaemia are asymptomatic, patients will not experience symptoms (which relate to the 'identity' domain of the CS-SRM) if they do not engage in self-management behaviours, unlike patients with symptomatic conditions such as diabetes. This may explain why the participants with diabetes perceived engaging in self-management through lifestyle behaviours of greater importance than patients with hypertension and/or hyperlipidaemia alone, as they would not experience any

symptoms if they did not engage in self-management behaviours. In addition to this, through daily blood glucose testing, many patients with diabetes receive regular feedback on the effectiveness of their self-management behaviours compared to patients with hypertension/hyperlipidaemia. This may act as a regular reminder of the potential consequences of not engaging in self-management behaviours (including lifestyle behaviours) therefore making the consequences of having diabetes more salient.

Furthermore, despite being an asymptomatic condition, some of the participants described symptoms that they perceived to be indicative of high blood pressure, a previously well-established finding (Meyer et al., 1985; Brewer et al., 2002; Marshall et al, 2012). Some of the participants appeared to associate effective self-management of hypertension with the absence of such symptoms. Consequently, some of the participants reported that they felt their hypertension was well managed because they did not experience any symptoms they perceived to be associated with the condition. This may result in patients believing that engaging in self-management behaviours (including lifestyle behaviours) is not important.

Many of the participants stated that they took medication to control their hypertension/hyperlipidaemia, however some of the participants reported that they did not like taking medication and were keen not to take any more medication than was necessary. Many other patients described a desire to be on as little medication as possible. This could be a starting point for pharmacists to initiate conversations about self-management, and the role lifestyle behaviours can play in self-management of conditions such as hypertension and hyperlipidaemia.

There was variation in the way participants perceived the pharmacist's role. Many of the participants directly stated or implied that they viewed pharmacists as having specialist knowledge in medicines, as reported in previous studies (Anderson et al., 2004; Eades et al., 2011; Latif et al., 2011; Peterson et al., 2010; Twigg et al., 2013). Some participants appeared to view pharmacists as health professionals and were keen on pharmacists playing more of an active role in facilitating patient self-management. Other participants did not appear to view pharmacists as health professionals and saw

no role beyond dispensing prescriptions, believing that giving lifestyle advice was not part of the pharmacist's role. These findings are in line with Eades et al. (2011) and an earlier systematic review by Anderson et al. (2004b), which found that patients'/pharmacy users' perceptions of pharmacist's ability to provide public health services were mixed; with some participants believing that pharmacists were capable of doing so whilst others questioned pharmacists' abilities. This also supports the findings of two recent qualitative studies, one conducted in Scotland and one in North West England, which found that patients did not view pharmacists as experts in health, and had concerns about pharmacists' competencies in public health (Gidman & Cowley, 2013; Saramunee et al., 2014).

There appeared to be some confusion surrounding the pharmacist's role, with some participants unsure about the services community pharmacists offer and how they are paid for. This is a common finding within the literature. A survey conducted by Weidmann et al. (2012) found that members of the general public in Scotland were not aware that pharmacists could offer weight management services, whilst a qualitative exploration conducted by Gidman and Cowley (2013) also found that members of the Scottish general public had a limited knowledge of the services pharmacists could offer and were unsure how to access them. Furthermore, another qualitative study conducted in Portugal found that despite reporting that they were satisfied with the service they received, patients were unable to conceptualise the pharmacists' role (Guerreiro, Cantrill, & Martins, 2010) and Perepelkin (2011) found that participants in a Canadian survey had conflicting conceptualisations of the pharmacists' role. Additionally, in a qualitative study of the views and experiences of patients with Type 2 diabetes, Twigg, Poland, Bhattacharya, Desborough, and Wright (2013) concluded that patients were not against pharmacist input, rather they did not have a clear understanding of how pharmacists could help them manage their condition.

Some of the participants in the present study believed that if pharmacists were to have a role in facilitating self-management of hypertension and hyperlipidaemia, there needed to be greater publicising of this so that the general public were aware that such services can be provided by

pharmacists. This was reported by Rapport et al. (2010) who conducted focus groups with pharmacists, pharmacy staff, stakeholders and the general public, and concluded that patients wanted a clearer identification of the pharmacist's role and recommended greater publicising of the pharmacist's role. The terminology 'community pharmacist' also initially appeared to confuse some participants, who appeared to be more familiar with the term 'chemist'. Despite the significant changes to the landscape of community pharmacy, moving from the traditional role to adopting roles further removed from dispensing medication that are more traditionally associated with a health professional identity, few patients noted this. This could be a reflection of patients not realising that pharmacists now have additional components to their role. However, this could also be a reflection of the intended changes to the pharmacists' role outlined in the pharmacy contract (DoH, 2005) not translating into changes in pharmacists behaviour in practice. In the present study, none of the patients reported pharmacists playing an active role in facilitating the self-management of their hypertension and/or hyperlipidaemia through advising about and facilitating engagement in lifestyle behaviours. Concerns about the workload of pharmacists increasing as a result of the expansion of services in accordance with the pharmacy contract along with increases in dispensing loads have been raised (Johnson et al. 2014). Between 2000 and 2010, the number of prescription items dispensed annually by community pharmacies increased by 67.9% to 926.7 million (NHS Information Centre, 2011). This is compounded by the fact that workload growth has not been matched by relative increases in numbers of registered pharmacists (Hassell, Seston, Schafheutle, Wagner, & Eden, 2011). A review of the literature by Hassell et al. (2011) concluded that there is some evidence supporting a link between heavy workloads and pharmacist wellbeing; the evidence suggests that pharmacists are experiencing stress in relation to high workloads although there was no conclusive evidence that this impacting on patient safety. It is likely that the dispensing workload is impeding pharmacists' abilities to play an active role in facilitating patient self- management through the provision of lifestyle advice, and supports patients' perceptions of the pharmacists' role primarily relating to dispensing medicines.

The retail environment of the community pharmacy appeared to underpin the views of participants who believed that lifestyle advice was not part of the pharmacists' role. Working in a setting that also sells cosmetics and other goods not associated with healthcare appeared to make the environment incongruent with lifestyle advice for some participants who appeared to view pharmacists as shop employees rather than health professionals. This supports the work of Hibbert, Bissell, and Ward (2002) who found consumerism to be a significant threat to professional work in the community pharmacy. Hibbert et al. (2002) conducted observation of pharmacist-patient interactions in the pharmacy along with one-to-one interviews and focus groups with participants exploring the role of the pharmacist in advice-giving in relation to over the counter medication. Like the present study, Hibbert et al. (2002) found that participants' focus was on obtaining a product rather than a professional service. The authors concluded that their findings illustrated antagonism between the consumer and the 'professionalising pharmacist', demonstrating examples of the pharmacists not being able to demonstrate their expertise in facilitating patient self-management (in this case in relation to minor ailments).

The current study findings are also in line with the findings of a recent qualitative study which concluded that the commercial environment of the pharmacy undermined patients' confidence in pharmacists, with patients raising concerns about the integrity of health professionals working in a business environment (Twigg et al., 2013). Notably, Rapport et al. (2010) concluded that the most significant environmental constraint of the community pharmacy is the retail environment which the authors assert causes a distraction from the pharmacist's work and may 'demean' the pharmacist from the patients' perspective. Relatedly, whilst there was some variation, the majority of participants perceived themselves primarily as customers rather than patients. This appeared to result in participants having different expectations of pharmacists, including good customer service, which may not be expected of other health professionals to the same extent. Again, this supports the findings of previous studies; Perepelkin (2011) found that the majority of 403 participants that completed a telephone questionnaire study described themselves as customers with only 14.9% of

respondents describing themselves as patients when visiting the pharmacy. Furthermore Renberg, Tornqvist, Sporrong, Lindblad, and Tully (2011) found that there was a distinct group of patients in their sample who saw the exchange between themselves and pharmacists as a business like in other shops.

In addition to the environment affecting patients' perception of the pharmacists' role, participants also raised concerns about a retail setting not being suitable for providing lifestyle advice due to concerns about privacy and patient confidentiality. Perceived lack of privacy and concerns about patient confidentiality have been reported in a number of previous studies (Anderson, Blenkinsopp, & Armstrong, 2004a; Eades et al., 2011; Rapport et al., 2010; Saramunee et al., 2014).

Several of the participants used GPs as a frame of reference when describing their perception of the pharmacist's role. As found in previous studies (Anderson et al., 2004a; Eades et al., 2011; Wendy Gidman & Cowley, 2013), participants appeared comfortable consulting pharmacists for advice on acute symptoms, minor ailments and medication interactions that they perceived were not serious enough to merit consulting their GP, in accordance with the conceptualisation of pharmacists as medicines specialists. However most participants reported that their GP was their preferred source of self-management support and advice. Again, this supports the findings of previous studies. Gidman and Cowley (2013) found that participants with long-term conditions chose their GP as a source of information and healthcare, perceiving pharmacy services as inferior to those offered by GPs whilst Weidmann et al. (2012) found that most patients interviewed would not feel comfortable discussing weight loss with a pharmacist, stating that they would prefer to see a GP or nurse who they perceived to have more expertise. A survey of the Australian general public conducted by Peterson et al. (2010) found that whilst participants believed that pharmacists could offer screening services for hypertension and hyperlipidaemia, participants indicated that they were more likely to use the services if provided by a doctor. Twigg, Poland, et al. (2013) concluded that patients view the GP as the 'controller' of their treatment as part of a 'strict health hierarchy', so approaching a pharmacist for advice potentially violates the natural order. This explanation appears to fit with the

results of the current and previous studies, with many participants appearing to perceive that the doctor is the expert controlling medical management of the condition. Therefore, the pharmacist, who many participants perceived to have less expertise than a doctor, was seen as having no role to play in helping them manage their hypertension and/or hyperlipidaemia.

Perhaps unsurprisingly, given the participants' perceptions of the pharmacist's role, in keeping with previous studies (Anderson et al., 2004a; Eades et al., 2011), most participants interviewed in the present study reported that they were not seeking support to self-manage their hypertension and/or hyperlipidaemia from a pharmacist. As previously discussed, the patients appeared to view their GP as the primary source of health advice and self-management support, and most of the patients reported that they did not require any more support. Having a chronic condition in addition to hypertension and/or hyperlipidaemia, as experienced by the majority of participants in the current study, appeared to result in increased opportunities to consult health professionals in primary and secondary care, potentially creating more opportunities to receive self-management support from health professionals than the participants who had no co-morbid chronic conditions.

6.4.1 Strengths and Limitations

This study provides an in-depth exploration of the experiences of patients with hypertension and or/hyperlipidaemia when using community pharmacy services. Conducting qualitative research with individual patients resulted in a rich description of the patient's experience; a methodology used less frequently than other approaches in pharmacy practice research. The interviewer was not a pharmacist; the patients may therefore have felt more at ease to express any concerns they had with pharmacy services than if they were interviewed by a pharmacist. However there are also limitations associated with this study. Due to time constraints, less time was allocated for recruiting participants for this study in comparison to other studies presented in this thesis given that the primary focus was on pharmacist behaviour. The population from which the participants were recruited was smaller than intended which may have limited the breadth of experiences in the sample and influenced the results. Only one female participated in the study and there was a larger proportion of patients with

co-morbidities than patients with just hypertension and/or hyperlipidaemia. Furthermore none of the participants were of low socioeconomic status. There was also considerable heterogeneity within the sample; one of the participants had received an organ transplant whilst two of the participants had diabetes. This is likely to have had an impact on the data collected and the conclusions that were drawn. The goal of qualitative research is to obtain rich and meaningful data; the heterogeneity in the sample is likely to mean that there was greater variation in the experiences of participants than there might have been in that of a sample that was more homogenous (e.g. a group of participants that was diagnosed with hyperlipidaemia/hypertension only). Had the sample been more homogenous, with greater shared experience, the data collected might have been richer and allowed a more in depth exploration of the experiences of this specific group when using community pharmacy services and therefore allowed more meaningful conclusions about the support needs of this group to be drawn. Despite these limitations, this study provides a valuable insight into how patients with hypertension and/or hyperlipidaemia perceive and use community pharmacy services.

6.5 Conclusion

In conclusion, there was variation in the way participants viewed pharmacists and their role in helping patients with CVD self-manage the condition: some felt that pharmacists were health professionals who had the potential to enhance their care whilst others felt that pharmacists' role did not extend beyond the provision of medicines. The retail environment appeared to influence participants' perceptions of the pharmacists' role. Despite being 'patients' collecting a prescription for a chronic condition, participants in this study viewed themselves as customers and they preferred to receive self-management advice from their doctor.

7 Chapter Seven: General Discussion

7.1 Introduction

The overarching aim of the work presented in this thesis was to understand and explain the behaviour of UK community pharmacists in relation to facilitating patient self-management of CVD through lifestyle behaviours. A programme of work was developed to address this aim which comprised of four studies with the following objectives:

i. To explore community pharmacists' experiences of giving lifestyle advice to patients with CVD (a qualitative interview study).
ii. To identify the predictors of pharmacists' lifestyle advice-giving behaviour in a cross-sectional sample of pharmacists (a quantitative survey study).
iii. To systematically review evidence examining the efficacy of interventions designed to enable pharmacists to facilitate patient lifestyle behaviour change and identify which theories and behaviour change techniques, if any, had been used in effective interventions.
iv. To explore the experiences of patients with hypertension and/or hyperlipidaemia related to having CVD and using community pharmacy services (a qualitative interview study).

More specific research questions were developed in order to answer the objectives above. These were as follows:

i. What are community pharmacists' experiences of giving lifestyle advice to patients with CVD.

ii. a) What are the predictors of pharmacists' intention to advise overweight patients with CVD about losing weight?

(b) What are the predictors of pharmacists' intention to advise patients with CVD how to adhere to their prescribed medication?

iii. a) What interventions are effective at enabling pharmacists to facilitate patient lifestyle behaviour change?

b) What theories, if any, were used in interventions that successfully enabled pharmacists to facilitate patient lifestyle behaviour change?

c) What behaviour change techniques were used in interventions that successfully enabled pharmacists to facilitate patient lifestyle behaviour change?

iv. a) What is the experience of using community pharmacy services in patients diagnosed with hypertension and/or hyperlipidaemia?

b) What is the patients' experience of having hypertension and/or hyperlipidaemia in order to contextualise their experiences of using community pharmacy services?

A mixed methods approach was deemed the most suitable to answer the above research questions (see chapter two for a full discussion of the rationale). This chapter will summarise the findings from each of the studies and discuss how they integrate with each other and the existing literature. Recommendations for pharmacy policy and practice and future research will be made along with a consideration of the strengths and limitations of this programme of work.

7.2 Summary of findings

The qualitative exploration of pharmacists' experiences of giving patients with CVD lifestyle advice (chapter three) found that while most of the pharmacists expressed positive attitudes towards facilitating patient self-management through giving lifestyle advice in theory, in practice they identified many barriers to doing so and did not appear to view the behaviour as routine pharmaceutical practice. Issues relating to professional identity, primarily role congruence and the perceived lack of appropriate remuneration for giving lifestyle advice, appeared to underpin commonly reported barriers to implementation which seemed to result in lifestyle advice being of lower priority than other pharmacy activities. The retail environment in which pharmacists practice was associated with role conflict between pharmacists' health professional and business employee

identities, and was perceived by participants to undermine the professional role of pharmacists to both patients and other health professionals. For pharmacists employed by multiple-owned pharmacies, perceived barriers to providing lifestyle advice to patients with CVD were more salient than for pharmacists employed by independent pharmacies. The former reported that pressure to provide a quick service and meet targets prevented them providing lifestyle advice. Some pharmacists felt that they did not have the appropriate training to approach sensitive topics such as lifestyle behaviours with patients, and some pharmacists appeared to lack the confidence to do so. Participants appeared more comfortable providing advice in relation to medicines, and if they did give patients lifestyle advice it appeared to be based around or in conjunction with advice about medicines in an MUR setting.

The cross-sectional survey, administered to community pharmacists in England (chapter four) found that pharmacists had significantly higher intentions to give medication adherence advice than weight loss advice to patients. There was also a significant difference in self-reported past behaviour, with participants reporting significantly higher provision of medication adherence advice than weight loss advice to patients with CVD who were overweight. The predictors of pharmacists' intentions to give medication adherence advice were: role congruence; what patients think about pharmacists giving medication adherence advice (subjective norm); what other pharmacists think about giving medication adherence advice (subjective norm); goal conflict (dispensing prevents giving patients medication adherence advice); past behaviour (medication adherence advice giving) and pharmacists' perceptions of patients. The model accounted for 44.1% of the variance in pharmacists' intentions to give patients with CVD medication adherence advice.

The predictors of pharmacists' intentions to give weight loss advice to overweight patients with CVD were: role congruence; what patients think about pharmacists giving weight loss advice (subjective norm); what other pharmacists think about giving weight loss advice (subjective norm), attitude towards giving overweight patients with CVD weight loss advice and past behaviour. The model accounted for 38.2% of the variance in pharmacists' intentions to give overweight patients with CVD

weight loss advice and was significant ($p<0.001$). The strongest predictor of pharmacists' intentions to engage in both behaviours was role congruence whilst subjective norms (perceptions of what patients think and pharmacists think of advice giving) were also strong predictors. Despite the superficial commonalities between the behaviours (i.e. giving advice to facilitate successful management of CVD) the determinants of pharmacists' intentions to engage in the behaviours differed. This suggests that although they share some common predictors, different constructs would need to be targeted to change pharmacists' engagement in two behaviours that appear to be the same.

The systematic review (chapter five) identified a very small number of relevant studies (n=10) and the reporting and methodological quality of the included studies was generally very poor. The majority of the interventions targeted participants' tobacco cessation advice giving, with one intervention targeting general lifestyle behaviour advice and one intervention targeting lifestyle advice in relation to diabetes self-management. The interventions were found to result in increased counselling ability (self-report or measured by an assessor) with the interventions which measured service delivery finding evidence of increased counselling post intervention. Of the two studies which measured patient outcome, one study found increased patient self-reported smoking cessation after intervention from pharmacists, the other finding increased self-reported smoking cessation in patients who had received the intervention however cotinine levels (a biological measure of nicotine consumption) were higher in intervention patients than controls. The interventions which measured self-efficacy found participants reported having increased self-efficacy to facilitate patient behaviour change post-intervention. However this finding should be interpreted with caution given that none of the studies measured self-efficacy as suggested by Bandura (1998). The behaviour change techniques used in the effective interventions were: instruction to perform behaviour; behavioural practice; demonstration of the behaviour; adding objects to the environment (e.g. counselling guides to help pharmacy students conduct tobacco cessation consultations with patients); social support and material reward. Social Cognitive Theory (Bandura, 2001) was cited as the theoretical basis of one

intervention. Despite these findings, due to the poor quality and reporting of the included studies, definitive conclusions about the effectiveness of the interventions cannot be drawn and the results should be interpreted with caution.

The final study presented in this programme of work (N.B this does not reflect the order in which the studies were conducted) sought to explore the experiences of patients with CVD using community pharmacy services (chapter six). This qualitative study found that whilst participants felt that there was the potential for pharmacists to help them self-manage their condition, there was variation in the way they perceived pharmacists. Some patients saw pharmacists as 'just' suppliers of medicines whilst others viewed pharmacists as health professionals who had the ability to facilitate self-management of their CVD. Most patients viewed themselves primarily as customers, did not expect to receive self-management support from a pharmacist and indicated that they preferred to consult their GP for CVD self-management advice and support. Some patients appeared to perceive hypertension and hyperlipidaemia as less severe than other chronic conditions such as diabetes. Patients without co-morbid chronic conditions appeared to receive less input from other health professionals and may benefit from pharmacist input more than patients with other co-morbidities who already receive self-management support, however it should be noted that such patients in this study indicated that they were not seeking this kind of support.

7.3 Pharmacists' perception of their role in supporting patients with CVD

Eades et al. (2011) conducted a systematic review of pharmacists' and patients' beliefs about pharmacists providing public health services (which covered diverse topics including smoking cessation, sexual health services, drug misuse, osteoporosis screening, type 2 diabetes, weight management, alcohol consumption and asthma management). They found that most pharmacists were positive about providing public health services and saw this as an important part of their role supporting the findings of an earlier review by Anderson et al. (2003). Both these reviews found that despite this, pharmacists viewed their public health roles as of less importance than those related to medicines, and that pharmacists were more comfortable providing advice in relation to medicines

than other types of advice (Anderson et al., 2003; Eades et al., 2011). The work presented in this thesis examined pharmacists' perceptions of a specific component of their public health role: facilitating patient self-management of CVD through lifestyle behaviours. The qualitative study of pharmacists' experiences of giving patients with CVD lifestyle (chapter three) supported the findings of the previous studies (Anderson et al., 2003; Eades et al., 2011), with most of the pharmacists appearing to view the provision of lifestyle advice as important, however secondary to and separate from medicines-related roles.

The quantitative study (chapter four) took this research a stage further and compared the predictors of pharmacists' intentions to give two different kinds of advice: one related to medicines (advice about medication adherence) and advice associated with pharmacists' newer public health role (weight loss advice for overweight patients with CVD). This added to the previous literature, supporting the finding that pharmacists viewed their public health roles as of less importance than those related to medicines: pharmacists had significantly more positive attitudes towards giving patients with CVD medication adherence advice than giving overweight patients with CVD weight loss advice, and were significantly more likely to intend to give patients with CVD medication adherence advice than they were to intend to give overweight patients with CVD weight loss advice. They were also significantly more likely to report having given patients medication adherence advice than giving overweight patients with CVD weight loss advice in the past. This study is the first to perform a within-participants comparison of intentions to engage in two different behaviours associated with pharmaceutical practice. The qualitative exploration of pharmacists' experiences of giving lifestyle advice (chapter three) identified considerable variation in the participants' attitudes towards pharmacists having a role in public health. Some participants believed that community pharmacists should move away from involvement in the dispensing process towards a more 'clinical' role with more involvement in facilitating patient self-management of CVD and other chronic conditions through lifestyle advice, whilst other participants believed that pharmacists should remain primarily involved in traditional roles rather than adopting additional clinical roles. This divergence was not

reflected in the findings of either of the systematic reviews by Anderson et al. (2003) and Eades et al. (2011).

The importance of pharmacists' perceptions of whether particular activities should be part of their role (role congruence) identified in the qualitative study was demonstrated in relation to pharmacists' intention to engage in medication adherence advice and weight loss advice giving behaviour in the quantitative study (chapter four), with role congruence emerging as the strongest predictor of pharmacists' intentions to give both types of advice. To date, this finding has not been reported within the pharmacy practice literature although it has been implicated in the lifestyle advice giving behaviour of other health professionals (Laws et al., 2008; 2009).

7.4 Patients' perceptions of pharmacists' role in facilitating CVD self-management

The exploration of the experiences of patients with CVD when using community pharmacy services found that the patients' perceptions of the pharmacists' role in facilitating CVD self-management through lifestyle behaviour change advice were mixed. Some patients appeared to view the pharmacist as a health professional who had the potential to provide self-management advice and support them to manage their CVD whilst other patients saw the pharmacists' role as one of dispensing and advising about medicines, and whilst some noted potential, they did not feel the pharmacists' role currently extended beyond this. This study reported more variation in patients' views that the conclusions of the Anderson et al. (2003) and Eades et al. (2011) systematic reviews which suggested that although patients did not expect to receive public health services from pharmacists, they were happy to receive this when it was offered. In the present study, all of the patients indicated that they saw their GP as the first port of call and preferred to receive self-management advice from this source.

7.5 Self-efficacy

Previous pharmacy practice research has identified pharmacists' confidence in their ability to perform public health roles, also known as self-efficacy (Bandura, 1977), as a factor that could influence the implementation of pharmacist-led public health services. Anderson et al. (2003) concluded that pharmacists were more confident providing services in relation to medicines and needed support to extend their role in public health whilst Eades et al. (2011) concluded from the results of their systematic review that pharmacists' self-efficacy was moderate to low in relation to performing public health related roles. The qualitative study which explored pharmacists' experiences of giving patients with CVD lifestyle advice (chapter three) found that some participants appeared to lack self-efficacy to give patients lifestyle advice, especially in relation to weight loss which they perceived to be a particularly sensitive topic. However, the quantitative study which examined the predictors of pharmacists' intentions to give medication adherence advice and weight loss advice to patients with CVD found that self-efficacy was not a significant predictor of pharmacists' intentions to engage in either behaviour in the final models.

In keeping with the findings of Eades et al. (2011), pharmacists' self-efficacy to give advice relating to medicines (in this case medication adherence advice) was significantly higher than pharmacists' self-efficacy to perform public health related roles (in this case give weight loss advice to overweight patients with CVD). Pharmacists' self-efficacy to perform public health related roles was moderate to low (pharmacists' mean self-efficacy to give weight loss advice was 2.76; a score of 1 indicated high self-efficacy and a score of 5 indicated low self-efficacy), again supporting the findings of Eades et al. (2011). However, hierarchical regression analysis demonstrated that whilst self-efficacy was a significant predictor of pharmacists' intentions to give both medication adherence and weight loss advice in the first step of the analysis (when TPB and SCT constructs were entered), when other variables including role congruence, goal facilitation and perceptions of patients were entered, self-efficacy was no longer a significant predictor of pharmacists' intention to give either type of advice.

This finding conflicts with the conclusions of the systematic reviews by Anderson et al. (2003) and Eades et al. (2011).

Role congruence was the strongest predictor of pharmacists' intentions to engage in both behaviours. When sensitivity analysis was performed and role congruence was removed from the model, self-efficacy was a significant predictor of pharmacists' intentions to give medication adherence advice however it was not the strongest predictor, and less variance in intention was explained by the model. Role congruence is an important determinant of pharmacists' intentions to give both types of advice, and it may be misleading to just focus on self-efficacy in order to promote engagement in either behaviour: pharmacists may be self-efficacious to give either types of advice however if they do not perceive these activities to be role congruent then they may not engage in them.

The current research did not assess pharmacists' behaviour and despite intention being a strong predictor of behaviour (Azjen, 1991; Godin et al., 2008) it could be that other factors are independently predictive of behaviour. It may be that self-efficacy comes to the fore when pharmacists are in a situation where they are required to engage in the behaviour (e.g. their behaviour is monitored in a training session) whereas constructs such as role congruence and subjective norms are important in the formation of intention to engage in the behaviour.

7.6 Training pharmacists to give lifestyle advice

The qualitative study of pharmacists' experiences of giving patients with CVD lifestyle advice found that some pharmacists felt that they had not received the appropriate training to prepare them to facilitate patient self-management of CVD through giving lifestyle advice. This supported the findings of previous studies (Anderson et al., 2003; Eades et al., 2011) which suggested that pharmacists lacked self-efficacy in their abilities to give patients lifestyle advice and recommended that training to target pharmacists' low confidence/self-efficacy to perform public health related roles and expand their role this area was developed. The systematic review of interventions to prepare pharmacists,

pharmacy staff and pharmacy students to facilitate patient lifestyle behaviour change (chapter six) found the studies that measured the effect of the intervention on self-efficacy/confidence in counselling abilities, all found that the intervention increased participants' self-efficacy/confidence in their counselling abilities. One of the interventions (the results of which were presented in two separate papers) was stated to be based on Social Cognitive Theory (Bandura, 1977), of which self-efficacy is a central component. However, due to poor reporting of intervention content and delivery, and the poor methodological quality of the studies, reliable conclusions about the role of self-efficacy in interventions that resulted in increased counselling behaviour cannot be drawn.

Whilst the quantitative study (chapter four) found that significantly more pharmacists felt that they had received appropriate training to give patients with CVD medication adherence advice compared with giving overweight patients with CVD weight loss advice, pharmacists' perceived receipt of appropriate training was not a significant predictor of intention to give either type of advice. A possible explanation for this may relate to self-efficacy. Previous research (Anderson et al., 2003; Eades et al., 2011) suggests that pharmacists lack self-efficacy in their abilities to give lifestyle advice and that training should focus on increasing pharmacists' self-efficacy. Of the relatively small number of interventions designed to prepare pharmacists to promote patient lifestyle change that have assessed self-efficacy, the intervention was found to increase pharmacists' self-efficacy (though, as previously highlighted, these findings should be interpreted with caution). Yet the quantitative study (chapter four) found that self-efficacy was not a determinant of pharmacists' intentions to give patients lifestyle advice (in this case, specifically weight loss to overweight patients with CVD). Therefore training may be successful at increasing pharmacists' self-efficacy to give lifestyle advice, however if self-efficacy is not a determinant of the behaviour in question (in the quantitative study self-efficacy was not a determinant of pharmacists' intentions to give either type of advice) then training will not be predictive of the outcome, which was the case for both types of advice.

7.7 The retail environment of community pharmacy

The ease of access and out of hours availability is frequently highlighted as a strength of community pharmacy, providing a means of accessing a large portion of the population, including individuals in both good and poor health and those who do not routinely use other healthcare services (Anderson et al., 2003;DoH, 2008; Eades et al. 2011). This has been attributed in part to pharmacies operating in retail environments (Bush et al., 2009; DoH, 2005). However the research presented in this thesis found that the environment also appeared to present significant challenges in relation to pharmacists providing lifestyle advice to facilitate patient self-management, with the environment appearing to structure pharmacists' behaviour.

First, the qualitative study (chapter three) found that practicing in a retail environment and therefore being a business employee appeared to result in a fundamental conflict between the 'health professional' and business employee components of the pharmacist's identity. Previous literature has identified that pharmacists can be reluctant to offer patients lifestyle advice for fear of a negative reaction (Anderson et al., Eades et al., 2011) however the qualitative research (chapter three) identified that role conflict may underpin this. The retail environment appeared to result in challenges that elicited role conflict for the pharmacists. Some of the pharmacists perceived that offering potentially unwelcome advice may affect their employment status, fearing that patients may stop coming to the pharmacy (and therefore not provide the pharmacy with remuneration for prescription items, which pharmacies currently rely on in order to be sustainable business). This appeared to result in some pharmacists not offering lifestyle advice to patients with CVD. Furthermore, as pharmacists are currently primarily remunerated for prescription items rather than the provision of lifestyle advice, some pharmacists indicated that, in combination with other factors, pharmacists are not motivated to give patients lifestyle advice as they receive no financial reward for doing so when they are already operating in a time-pressured environment that is reliant on dispensing prescriptions. One of the pharmacists suggested that the pharmacy contract, as it stands, does not support pharmacists facilitating patients to self-manage conditions through lifestyle

behaviours rather than use of medicines. This is due to pharmacists not being remunerated for lifestyle advice in the same way as they are for checking and dispensing medication, and if patients were to successfully self-manage their condition through lifestyle behaviours and not require medication pharmacists would actually lose revenue. Again, this presents a fundamental role conflict.

The findings from the qualitative study (chapter six) and previous research (Anderson et al., 2003; Eades et al., 2011) suggested that pharmacists felt under pressure from their employer to provide a quick service (by checking and dispensing medicines quickly) so patients did not have to wait. Some pharmacists cited this as preventing them from giving patients lifestyle advice, and this appeared to be particularly salient for participants employed by multiple-ownership pharmacies. The quantitative study (chapter four) found that participants who did not perceive the dispensing process to cause goal conflict with giving medication adherence advice (i.e. they did not feel that the dispensing process interfered with or prevented them giving medication adherence advice) were more likely to intend to give medication adherence advice than participants who perceived dispensing to cause goal conflict. However goal conflict from the dispensing process was not predictive of pharmacists' intention to give weight loss advice. Furthermore, pharmacy ownership was not a predictor of pharmacists' intentions to give either weight loss or medication adherence advice.

The findings of the qualitative study suggested that some of the participants felt that the retail environment they practiced in affected patients' perceptions of their role, and that the shop appearance meant that patients perceived them as shopkeepers rather than health professionals with expertise and responsibility for patient safety. There was some evidence to support this in the accounts of some of the patients with CVD who participated in the qualitative study (chapter six). As previously discussed, some patients saw the pharmacists' role as that of dispensing medicines and nothing more. This appeared to relate to the retail environment and the other activities that occur in the pharmacy environment such as selling cosmetics and other products not related to healthcare. In addition to affecting patients' perceptions of the pharmacist's role, the retail environment appeared to affect how patients with CVD perceived themselves and their role in the interaction between them

and the pharmacist. In keeping with previous literature, the patients who participated in the qualitative study all primarily saw themselves as customers, however some participants felt this status was interchangeable and moved from customer to patient if the pharmacist gave them health advice. As discussed in more detail in chapter six, this may result in users of pharmacy services having different expectations of pharmacists than they might have of other healthcare professionals working in more obvious clinical environments, and this was evident in the accounts of some participants who appeared to expect characteristics associated with good customer service in shops in their interaction with pharmacists.

As reported in previous studies (Anderson et al., 2003; Eades et al., 2011), some of the patients who participated in the qualitative study (chapter six) expressed concerns about their privacy and confidentiality, in this case if they were to receive lifestyle advice from pharmacists in a retail environment.

7.8 Pharmacists' engagement in pharmacy practice research

A major challenge encountered when conducting the current programme of research was recruiting pharmacists to participate in the research studies. This appears not to be uncommon, and other researchers working in pharmacy practice in the UK have stated that conducting research in community pharmacy poses difficulties due to pharmacy practice research being relatively new (Twigg, Bhattacharya, et al., 2013). It took approximately one year to recruit fifteen community pharmacists to participate in the qualitative study (chapter three) and the method of data collection had to be adapted to offer telephone interviews instead of face-to-face interviews to increase participation. Despite reaching the number of participants required for the study to be adequately powered, the response rate to the cross sectional questionnaire study with pharmacists (chapter 4) was relatively low at 18.4%. As discussed in chapter four, recruitment of health professionals to participate in research is notoriously difficult and low response rates are common (Cane, O'Connor & Michie, 2012; Eccles et al., 2012; Presseau et al., 2011).

Pharmacy practice research is a relatively new research area (DoH, 2008) and has been subject to change with the changing role of the pharmacist. In order for community pharmacy practice to develop, research to evaluate pharmacy services in order to develop new services is essential (Rosenbloom et al., 2000; Armour, Brilliant and Krass, 2007; Herbert et al., 2013). In 1997, the Pharmacy Practice Research Development Task Force recommended that all pharmacists should use research to inform their practice and improve health care, suggesting that a small portion of pharmacists (10%) should actively participate in research through collecting data and taking part in interventions (Gilbert, Mills, & Ward, 2006). Furthermore, the white paper *Pharmacy in England: building on strengths – delivering the future* (Department of Health, 2008) concluded that the evidence base for the efficacy and cost effectiveness of pharmacy services on clinical outcomes was at that time 'at best, patchy' and required further research to strengthen it. The White Paper goes on to highlight six principal research domains to evaluate pharmacy services: patient and public perceptions and satisfaction; impact on care and outcomes (including clinical and cost effectiveness, safety and people's understanding of their medicines); quality of service provision; value for money; impact on workload and flow and pharmacy staff attitudes.

However the limited research conducted in this area (outside the UK) has shown that pharmacist engagement in research is low. A cross sectional questionnaire study conducted in Australia by Peterson, Jackson, Fitzmaurice and Gee (2009) found that only one third of the 365 participants returning questionnaires (response rate: 35%) were currently participating in or had participated in research whilst a further one third of participants indicated that they were not interested in participating in research. The remaining one third had not previously participated in research but reported that they would consider doing so. Lack of time, lack of awareness of research opportunities and not being approached were cited as barriers to participating in research. A recent survey conducted by Hébert et al. (2013) investigating the willingness of 571 pharmacists in Montreal, Quebec to participate in a practice based network (defined as groups interested in designing, evaluating and disseminating solutions to problems in clinical practice) found that just over half

(58.9%) of participants indicated they were 'interested' or very' interested. Yet 41.1% of participating pharmacists indicated that they had little or no interest in participating and participants were more likely to report interest in services supporting clinical practice rather than research.

Some researchers have sought to examine why pharmacist participation in research is low. Rosenbloom et al. (2000) used a questionnaire to assess English community pharmacists perceptions of pharmacy practice research and barriers to engagement. They found that the majority of the 392 participating pharmacists perceived research as important, with 92% of respondents indicating that they felt it was important for pharmacists to be kept informed of research findings yet just over half (53.9%) of the participants were willing to participate in pharmacy practice research. Remuneration was identified as an important factor in research participation, with 74.2% of participants agreeing with the statement 'I would only participate in research if I was paid to do so'. Approximately two thirds (65.9%) of participants indicated that their daily activities prevented them from participating in research and 72.1% of participants agreed that they would get more involved in research if they had more time. Pharmacy ownership was identified as a factor influencing research participation, with 30.9% of participants employed by independent ownership pharmacies agreeing with the statement 'I have the opportunity to do research' compared to 16.4% of pharmacists employed by large ownership pharmacies. Rosenbloom et al. (2000) stated that it has been reported anecdotally that pharmacists employed by large ownership pharmacies are less likely to complete self-report questionnaires, however they reported that they did not find evidence of this in their study. When conducting the research presented in this thesis, all of the head office representatives of the large ownership pharmacies in England were contacted by the researcher. They either stated that they had a 'no research policy', that they were not willing to distribute information about the study to their employer or did not respond to the researcher. In the research presented here, participation was lowest amongst pharmacists from supermarket-owned pharmacies.

Compounding the problem of recruiting pharmacists was the difficulty of there being no other means (as a researcher who was not a pharmacist) of contacting pharmacists to participate in the research:

pharmacists cannot participate in research if the organisation they are employed by does not facilitate engagement in research and there is no other accessible database of pharmacists' contact details for pharmacy practice researchers. The Royal Pharmaceutical Society (RPS), when contacted, stated that they could only assist with pharmacist recruitment in studies that they had funded, and that the researcher would have to be a member of the RPS for this to occur. This is problematic, as not all researchers conducting pharmacy practice research are pharmacists.

Concerns about the research culture (or lack of it) in the pharmacy profession have been raised. Writing in the Pharmaceutical Journal, Wilson (2005) questioned why community pharmacy contributed so little original research with Gilbert, Mills & Ward (2006) responding by questioning whether pharmacists have 'sufficient interest and desire' to 'create' the time to run research projects. It could be that this is also related to pharmacists' role congruence, and pharmacists' perception of the relevance of research to their role. A recent article by Allen (2014) in Clinical Pharmacist called for research to be seen as 'everybody's business' and for 100% of the pharmacy population to be 'research active', defined as being 'aware and involved with varying levels of engagement' which range from using research evidence to inform practice, to collaborating in research as a partner to leading research. Whilst it is important for pharmacists to be involved in conducting research, it is also imperative that community pharmacists participate in research exploring the behaviour of pharmacists in order to improve pharmaceutical practice/ support for both patients and pharmacists themselves.

In order to explore perceptions of and identify facilitators to pharmacists participating in research, Armour et al. (2007) conducted a qualitative study exploring the views of eleven pharmacists who had participated in pharmacy research. Three themes emerged: pharmacists' perception of the purpose of research, pharmacists' personal motivation for participation in research and pharmacists' desired role in research. Four barriers to community pharmacists participating in research (both as participants and researchers)were identified: pharmacists mind-set (pharmacists who had conducted research perceived it as difficult to conduct and not part of standard pharmacy practice); lack of

communication (the pharmacists reported they were unaware of opportunities to participate in research and that research findings were not communicated back to them); infrastructure (the pharmacists perceived research to be time consuming with insufficient remuneration for participation) and skills/ knowledge (the pharmacists felt that they lacked the skills or knowledge to conduct research which Armour et al. (2007) concluded was closely linked to a lack of confidence). Armour et al. (2007) suggested a number of strategies to overcome these barriers including: educating pharmacy students about the importance of evidence based practice and the role pharmacists can have in this; educating practising pharmacists about services that are currently available due to previous research and the need for research to develop new services; improving communication of research outcomes between pharmacists and academics; researchers minimising demands on time, money and staff by being mindful of this when designing research protocols and considering how other pharmacy staff could support research and researchers providing organisational and administrative support to pharmacists participating in research.

7.9 Implications for research

As discussed above, the problems encountered when attempting to recruit pharmacists for the research presented in this thesis are an important finding in its own right and have considerable implications for pharmacy practice research and the advancement of evidence-based pharmacy practice. Pharmacist engagement and participation in research is required in order for an evidence base of the efficacy of pharmacy-based interventions to accumulate (outlined as an aim by the DoH, 2008) and to identify how to support pharmacists to change their behaviour in order to change the health behaviours of patients. It appears that a culture of engagement in research is currently not present in pharmacy practice in the UK. In order to advance pharmacy practice it appears that organisational level changes to support pharmacists' engagement in research need to occur. A database of pharmacists who are interested in participating in research that is accessible to pharmacy practice researchers (both with and without a pharmacy background) may also help facilitate pharmacists to engage in research.

Building upon the research presented here, the next step would be to examine the effect of the psychological constructs identified as predictors of pharmacists' intentions to engage in the different advice-giving behaviours on pharmacists' actual engagement in the behaviours. The (differing) constructs identified as predictive of pharmacists' intentions to give medication adherence advice and weight loss advice could also be targeted using appropriate behaviour change techniques in respective interventions designed to change pharmacists' behaviour. As highlighted in the findings of the systematic review (chapter six), there is a paucity of interventions to change pharmacists' lifestyle advice giving behaviour that are theory based, accurately described and rigorously evaluated using appropriate study designs to determine the effectiveness of the intervention on changing pharmacists' behaviour. Therefore any interventions developed need to follow these principles.

The importance of the role of role congruence in pharmacists' advice giving behaviour identified in the present research (appearing to underpin commonly cited barriers to pharmacists giving lifestyle advice) is interesting and warrants further exploration in more detail. The importance of this construct in relation to the provision of advice may extend beyond that of pharmacists, and therefore it may be useful to build upon previous work (eg. that by Laws et al., 2009) and examine the role of role congruence in the behaviour of other health professionals.

7.10 Implications for pharmacy policy and practice

The findings of the current programme of work have implications for community pharmacy practice specifically in relation to pharmacists supporting patients with CVD to self-manage their condition through lifestyle behaviours, and potentially more generally in relation to pharmacist-led public health services.

The aim of this programme of work was not to develop an intervention to change the behaviour of pharmacists in relation to facilitating patient self-management of CVD, and this falls out with the scope of this project. Nevertheless, there are a number of important findings from this research that

could be used to inform the development of interventions to support pharmacists to enable patient self-management of CVD.

The qualitative research demonstrated that there was variation in the pharmacists' perceptions of whether pharmacists should offer lifestyle advice whilst role congruence was the strongest predictor of pharmacists' intentions to give both medication adherence advice and weight loss advice. Therefore it may be beneficial for interventions aiming to increase pharmacists' provision of lifestyle advice to facilitate patient self-management of CVD, and potentially other conditions, to target role congruence through demonstrating the congruence of the target behaviour with the pharmacists' role. Subjective norms were also a significant predictor of pharmacists' intention to give medication adherence and weight loss advice, with what patients think appearing to be more important in relation to medication adhere advice and what other pharmacists think appearing to be more important in relation to weight loss advice. This suggests that interventions designed to promote pharmacists' giving patients medication adherence advice should promote the idea that patients think that pharmacists should provide this kind of advice, whilst interventions designed to promote pharmacists giving weight loss advice should promote the idea that other pharmacists think that they should offer this advice.

The qualitative study (chapter 3), in keeping with previous studies (Anderson et al, 2003) found that pharmacists did not integrate the provision of lifestyle advice and dispensing medicines as suggested in Choosing health through pharmacy (2005) or the NHS Future forum report (2012); rather they viewed them as separate activities. The quantitative research (chapter 4) found that pharmacists who intended to give medication adherence advice did not perceive dispensing activities in the pharmacy to cause goal conflict with giving medication adherence advice. Interventions to promote integrating the provision of lifestyle advice and dispensing activities may be helpful. It should be noted that interventions should not target advice giving per se, as despite superficially appearing to be the same behaviour, the research presented here demonstrated that whilst sharing some common

determinants, the determinants of intention to give weight loss advice and medication adherence advice differed.

The above recommendations are targeted at the individual level (i.e. individual pharmacists' behaviours). However, this programme of research has demonstrated that the environment pharmacists practice in plays an important role, and appears to affect pharmacists and patients perceptions of the pharmacist's role and structure both pharmacists' and patients' behaviour. Therefore it appears that changes at an organisational and policy level are required for pharmacists to fulfil the roles outlined in the pharmacy contract (DoH, 2005). The findings of this programme of research suggest that the pharmacy contract, at present, does not support the facilitation of patient self-management of CVD through giving lifestyle advice and the pharmacists' description of practice does not match the vision for the 2015 health promoting pharmacy outlined in *Choosing health through pharmacy* (DoH, 2005).Changing the way pharmacists are remunerated for the provision of lifestyle advice may result in increased provision of lifestyle advice by pharmacists. This may also have the knock-on effect of improving pharmacists' role congruence in relation to these activities through providing validation that this is an important part of the pharmacists' role.

7.11 Contributions to health psychology theory

The findings of the present study support extended TPB models such as the Godin et al. (2008) theory of health professional behaviour along with Law's theory of implementation (Laws et al., 2009). As discussed in chapter one, there has been controversy surrounding the TPB (Ajzen, 1991), with some authors questioning the utility of the model (Ogden, 2014; Sniehotta et al., 2013). The findings presented here suggest that whilst the TPB constructs alone are not sufficient to explain pharmacists' intentions to engage in two types of advice-giving behaviour (which the TPB (Azjen, 1991) posits), the results fit with a model of health professional behaviour (Godin et al., 2008) which augments TPB constructs with other constructs. The present research found role congruence to be particularly important in the advice-giving behaviour of pharmacists, adding support to the role of this construct in health professional behaviour (Godin et al., 2008; Laws et al., 2008, 2009).

The findings of the quantitative study (chapter four) highlight the value of analysing subjective norms separately rather than as a single variable, demonstrating that the perceptions of important others can vary: the beta weighting for the subjective norm relating to patients was higher than that relating to pharmacists for medication adherence advice whereas it was the opposite for weight management advice.

7.12 Strengths and Limitations

One of the major strengths of this programme of work was the use of mixed methods, a methodology that has been underutilised in pharmacy practice research (Hadi et al., 2013). As previously stated, the role of pharmacists in the UK has been subject to substantial changes and pharmacy practice is a relatively new area of research (DoH, 2008) and there is a lack of high quality, rigorous qualitative research in this field. The two qualitative studies presented in this thesis used semi structured interviews conducted with individual participants which generated rich data describing patients' and pharmacists' experiences. Detailed analysis of this data was subject to ongoing supervision from the author's (KK) supervisory team which ensured the validity of the research findings.

The quantitative study was developed based on the findings of the qualitative study, and was grounded in psychological theory. The study measured the predictors of participants' intentions to engage in two kinds of behaviour, allowing within participant comparison of intentions to engage in both behaviours. The use of theory based constructs with associated guidance describing how the constructs should be operationalised means that the research can be replicated in the future and allows identification of constructs that can potentially inform the development of behaviour change interventions. The systematic review, to present knowledge, is the first to review the effectiveness of interventions to enable pharmacists, pharmacy staff and pharmacy students to facilitate patient lifestyle behaviour change. The review synthesised diverse findings from studies using qualitative, quantitative and mixed methodologies, coding for use of theory and behaviour change techniques in order to identify the components of successful interventions.

There are however limitations to the research. Despite sampling participants with a breadth of opinions and experiences, as previously discussed, there were difficulties recruiting pharmacists to participate in this programme of research and consequently only one participant in the qualitative study (chapter three) was employed by a supermarket-owned pharmacy. Whilst qualitative research is not concerned with the number of participants and generalisability, instead assessing validity through the richness of the data collected and how close it gets to describing the phenomenon being researched, a greater breadth of views and richer data may have been collected if more pharmacists employed by supermarket pharmacies participated in the research. Furthermore, due to changes to the structure of the NHS and contracts going to tenure at the time the research was conducted, the organisation that had agreed to facilitate the recruitment of patients with CVD was not able to fulfil this role. This meant that participants were recruited from a potentially less diverse sample (employees at a university) rather than patients about to begin chronic disease self-management group, and as with the qualitative study with pharmacists, a greater breath of views and richer data may have been collected if more patients from more diverse backgrounds were recruited.

As previously highlighted in chapter four, emotion was not included as a determinant of pharmacists' advice giving behaviour. In the qualitative study, some pharmacists indicated that they were uncomfortable initiating conversations about weight loss in case patients found this offensive. It could be that emotion (in this case fear of patients' potential responses) is influencing pharmacists' advice- giving behaviour. It may also be the case that there is a wider range of negative emotions associated with giving lifestyle advice; in the qualitative research some pharmacists indicated that they did not think that it should be part of the pharmacists' role to give lifestyle advice. There therefore may be anger associated with the provision of lifestyle advice which may impact on pharmacists' advice giving behaviour. Despite not emerging as prominently as other factors such as role congruence in relation to the provision of advice in the qualitative research, it could be that emotion is an important determinant of pharmacists' advice giving behaviour. The role of emotion in pharmacists' advice giving behaviour therefore warrants further exploration in future work.

7.13 Conclusion

This programme of work evaluated the role UK community pharmacists could play in facilitating patient self-management of CVD, with a particular focus on the provision of lifestyle advice. Previous research had identified that whilst pharmacists perceived providing public health services as an important activity, there were a number of barriers to providing such services and pharmacists' actual provision of public health services did not match their ideal. A pragmatic approach which utilised mixed methods was used to explore the experiences of both patients with CVD and community pharmacists, assess the efficacy of interventions to train pharmacists to support patients to change lifestyle behaviours, and identify the predictors of pharmacists intentions to engage in two different types of advice giving behaviour to support patient self-management of CVD; one related to medicines and one related to lifestyle. The research found that psychological and environmental factors appeared to be key to pharmacists' provision of lifestyle advice, and pharmacists' perception of their role appeared to underpin many of the commonly cited barriers (such as time and workload) perceived to prevent pharmacists giving lifestyle advice. This emerged as more important than self-efficacy and receipt of appropriate training, which have been identified as the key factors of pharmacists' provision of lifestyle advice in the literature. The retail environment that pharmacists practice in appeared to structure pharmacists' behaviour and affect patients and pharmacists perceptions of their respective roles in the pharmacist-patient/customer interaction.

7.14 Final Reflections

The 'potential' for UK community pharmacists to provide a range of public health services is frequently alluded to within the pharmacy practice literature and policy documents. However, despite there being a great deal of potential, the effect on patient outcome and cost effectiveness of pharmacist-led interventions in facilitating patient self-management of CVD (and other chronic conditions) has not been reliably demonstrated and, at present, the scientific evidence base is poor.

Furthermore, as this thesis has outlined, there are formidable barriers to for researchers to overcome to gain access to practising community pharmacists to in order to conduct high quality research in which has the potential to improve the scientific evidence base for pharmacist-led services.

Despite there being great potential, in theory, for UK community pharmacists to facilitate patient self-management of CVD through lifestyle advice, at present, in practice, the retail environment and pharmacists' contractual framework does not appear to be conducive to pharmacists offering this kind of support. Pharmacists in the present study did not have strong intentions to offer patients lifestyle advice (in this case weight loss advice) and there appears to be variation in pharmacists' perceptions of whether they *should* offer lifestyle advice to facilitate patient self-management of CVD. Importantly, patients' perceptions of whether pharmacists could and should offer this kind of support was mixed, and all of the patients who participated in the current research project indicated that they would prefer to receive self-management advice from their GP rather than a community pharmacist. Changes to pharmacists' and patients' attitudes and behaviour in addition to changes to the pharmacy environment and remuneration practices would need to occur in order for pharmacist mediated patient self-management of CVD to occur as suggested in the best practice guidelines *Choosing health through pharmacy* (DoH, 2005).

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9 Appendices

9.1 RSAP Paper

Title: A qualitative study of English community pharmacists' experiences of providing lifestyle advice to patients with cardiovascular disease

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Keywords: cardiovascular disease, community pharmacists; lifestyle advice; professional identity; self-management

Abstract (245 words)

Background: The progression of cardiovascular disease (CVD) is modifiable through lifestyle behaviours. Community pharmacists are ideally placed to facilitate self-management of cardiovascular health however research shows varied pharmacist engagement in providing lifestyle advice.

Objective: This study explored community pharmacists' experiences and perceptions of providing lifestyle advice to patients with CVD.

Methods: In-depth semi-structured interviews were conducted with fifteen pharmacists recruited through snowballing from community pharmacies across the Midlands, England. A thematic analysis was conducted using a Framework approach.

Results: Pharmacists categorised patients according to their perceptions of the patients' ability to benefit from advice. Many barriers to providing lifestyle advice were identified. Confidence to provide lifestyle advice varied, with pharmacists most comfortable providing lifestyle advice in conjunction with conversations about medicines. Some pharmacists felt lifestyle advice was an integral part of their role whilst others questioned whether pharmacists should give lifestyle advice at all, particularly when receiving no remuneration for doing so.

Conclusion: Many pharmacists viewed providing lifestyle advice as important but identified many barriers to doing so. Lifestyle advice provision was influenced by pharmacists' perceptions of patients. Professional identity and associated role conflict appeared to underpin many of the barriers to pharmacists providing lifestyle advice. Pharmacists may benefit from enhanced training to: increase their confidence to provide lifestyle advice; integrate lifestyle advice with regular pharmaceutical practice and challenge their perceptions of some patients' receptiveness to lifestyle advice and behaviour change. Changes to the way UK pharmacists are remunerated may increase the provision of lifestyle advice

INTRODUCTION

Health behaviours such as diet, physical activity, tobacco use and alcohol consumption are responsible for approximately 80% of coronary heart disease and cerebrovascular disease, two of the major forms of cardiovascular disease (CVD).("Global Atlas on Cardiovascular Disease Prevention and Control," 2011) The risk of individuals with CVD developing further cardiovascular problems can be reduced through health behaviours such as: smoking cessation; regular physical activity; reducing alcohol and dietary salt consumption and taking medication to treat high blood pressure (hypertension) and high cholesterol (hyperlipidaemia).("Global Atlas on Cardiovascular Disease Prevention and Control," 2011) Such behaviours are largely under the control of individuals and therefore can be regarded as part of self-management of CVD. Recent UK government policy suggests that health professionals, including pharmacists, should view every interaction with patients as an opportunity to promote healthy lifestyle choices.("The NHS's role in the public's health: a report from the NHS future forum," 2012) The introduction of a new contractual framework and the "best practice" guidelines "Choosing health through pharmacy" which outline how pharmacists can provide public health services gave UK pharmacists a more defined role in public health.(*Choosing health through pharmacy - programme for pharmaceutical public health 2005-2015*, 2005) This includes supporting patients with chronic conditions such as hypertension and hyperlipidaemia. These patients can be identified when they collect prescription items dispensed at the community pharmacy, creating an opportunity for pharmacists to facilitate patient self-management of CVD through offering lifestyle advice.

However, previous research has identified varying attitudes and levels of pharmacist engagement in public health related activities.(Cordina et al., 2008; Eades et al.; Laliberte et al., 2012; Pfleger et al., 2008; Scott et al., 2007) Two comprehensive systematic reviews (Anderson et al., 2003; Eades et al., 2011) found that pharmacists were generally positive about their role in public health, however in practice the role was viewed as secondary to dispensing activities. Pharmacists' confidence in their ability to perform public health related roles was moderate to low. Many barriers to

pharmacists achieving more involvement in public health services have been identified and include workload, time pressure, lack of remuneration and lack of training.[Anderson et al., 2003; Eades et al., 2011; O'Loughlin et al., 1999] Additionally, pharmacy ownership has been found to influence pharmacists' public health activity. Bush, Langley and Wilson (2009) found that pharmacists employed by pharmacy multiples reported conflict with commercial interest as a significant barrier to them achieving the set public health agenda.[Bush et al., 2009]

To date, the only known publication assessing pharmacists' attitudes specifically towards CVD prevention and promotion was conducted in Canada.[O'Loughlin et al., 1999] Despite most pharmacists indicating an interest in developing a role in CVD prevention, few reported frequently advising about behaviour change to reduce CVD risk. To our knowledge, no study has explored the community pharmacist's experience of providing lifestyle advice for patients with CVD in a UK setting. Unlike systems in place within other countries, in the UK community pharmacists are employed by community pharmacies (private businesses) which act as contractors to the publicly funded National Health Service (NHS), with 80% of pharmacy profits derived from the NHS prescription business.[Conisbee, 2003] This sets the UK apart from other countries and therefore the impact on pharmacists' advice-giving behaviour needs to be explored. A qualitative approach was used to gain a deeper understanding of pharmacists' experiences, particularly given the number of potential barriers to engagement in public health activities identified in previous research.

Aim

The study aimed to explore English community pharmacists' experiences of providing lifestyle advice for patients with CVD.

METHODS

Study Design and Setting

Semi-structured interviews were conducted with community pharmacists at their workplace or by telephone. Ethical approval for the study was obtained from Aston University Research Ethics Committee.

Participants

Fifteen community pharmacists participated in the study. These were six men and nine women, mean age 30.8 years (range: 23-55 years). Pharmacy ownership was categorised according to the classification used by Bush et al. (2009)[Bush et al., 2009]: supermarket; multiple (200 outlets or more); large chain (more than 20 outlets but fewer than 200); small chain (20 outlets or fewer but more than 5); independent (5 outlets or fewer). One participant was employed by a supermarket community pharmacy, seven by multiple community pharmacies, two by small chain pharmacies and four participants by independent pharmacies. The mean time participants had practiced as qualified pharmacists was 7.2 years (range: 6 weeks to 34 years).

A variety of methods were used to advertise the study to pharmacists: writing to community pharmacies and following up with a telephone call; word-of-mouth and snowballing techniques. Where possible, the authors sampled pharmacists from supermarket, multiple and independent community pharmacies to obtain a breadth of perceptions and experiences.

Data Collection

The interviews - seven in person at the participants' workplace and eight by telephone - were conducted at a time convenient to the participant and lasted on average 30 minutes (range: 20 to 50 minutes). Open-ended questions allowed the participant to shape the direction the interview took, with the interviewer adopting a facilitative role, using an interview schedule to identify areas of interest and provide cues (see appendix). The schedule covered the following topics: facilitators and barriers to giving lifestyle advice; experience of delivering lifestyle advice; relationships with patients and other health professionals; the role of the community pharmacist and the suitability of the community pharmacy environment for receiving advice. The interview began in an open-ended manner, asking participants to 'tell me about your typical working day as a community pharmacist', then slowly moving to more sensitive topic areas such as 'describe your working relationship with other professionals involved in cardiovascular healthcare' once a rapport between the participant and interviewer had been established. The interviews were audio recorded and transcribed verbatim. The interviews were conducted until no new themes emerged.

Analysis

The interview transcripts were analysed thematically, focussing primarily on the participants' experience (Braun & Clarke, 2006). The analysis was interpretative, recognising the interaction between the researcher and the data. A Framework approach was used to structure the analysis. (Ritchie & Spencer, 1994) Framework Analysis is a five stage process of: familiarisation, forming a thematic framework, indexing, charting and mapping and interpretation. Familiarisation with the data was achieved through a process of reading and re-reading a small number of interview transcripts, noting the participants' use of language, repetition of words or thoughts patterns emerging from the data and any contradictions within the participants' accounts. This enabled the identification of emergent themes, constituted by: a collection of references indicating a pattern in how participants experienced the act of giving patients advice or how they perceived patients' behaviour, the participants' use of language to describe their experience of giving lifestyle advice and any conflicting ideas identified within or between the participants' accounts. A thematic framework was constructed using the emergent themes identified as described above from the interview, and prevalent themes identified through an a-priori literature review. Commonalities between emergent themes from the data and themes identified through the a-priori literature review and interview schedule were identified, with all themes given an equal weighting within the thematic framework. Each emergent theme and its associated sub-themes were assigned a number thus creating a numerical index to apply the thematic framework to the data. The researcher (KM) repeated the initial process of familiarisation and annotation with the remaining interview transcripts, adding any additional emergent themes to the thematic framework and applying the new items on the framework to previously analysed transcripts. This enabled the construction of charts which summarised the participants' extracts and where they were situated within the data alongside the emergent themes. The first author continually verified the findings with the co-authors to ensure the validity of interpretations.

RESULTS

The thematic analysis produced three main themes with associated sub-themes (see Table 1). In the reported analyses, participant pseudonyms were created to provide information about: pharmacy ownership [Supermarket ('Super') or multiple ('Multi') or independent ('Indep') which incorporated both independent and small chain pharmacy ownership; community pharmacist participant number (e.g. CP 1) and number of years the participant had been a practicing pharmacist (e.g. 8 yrs). In the quotations below, where respondents emphasised particular words these words are italicised.

Table 1: Emergent themes and sub-themes

Theme	**Sub-theme**
Barriers to providing lifestyle advice	Time and workload
	Patient factors
	Confidence
Professional identity	Health professional-patient relationship
	Lifestyle advice in Medicines Use Reviews
	Future direction of the profession
	Remuneration
	Pharmacy as a business and associated role conflict
Pharmacists' perceptions of patients	Categorising patients
	Beliefs about patients with CVD

Barriers to providing lifestyle advice

Time and workload. The most frequently cited barriers were time and workload, which were evident throughout the accounts of all the participants. Many pharmacists described balancing multiple roles in a time-limited environment which placed them under pressure. The pharmacists employed by multiple and supermarket pharmacies in particular described pressure to meet targets and provide a quick service. This appeared to leave some pharmacists resigned to not being able to offer patients advice:

> "…people are waiting so obviously you can't really talk to people …unless it's a quiet period which is rarely that we're quiet..." MultiCP4-(6 weeks).

Conversely, other pharmacists, notably more often those employed by independent pharmacies, appeared more confident to base the provision of advice on clinical need rather than the time available:

> "…the patients that we find need our time, they get our time and whether that means other people have to wait, they have to wait…" IndepCP3(2yr).

It appeared that the respondent did not fear the repercussions of keeping patients waiting which contrasts with the experiences of many of the pharmacists employed by multiple community pharmacies.

Patient factors. Many of the pharmacists felt that the role of the community pharmacist was not clearly defined which meant patients did not have a good understanding of the pharmacists' professional capacities. The pharmacists reported that the lack of a defined role made it difficult for them to provide lifestyle advice, as patients did not consider this part of the pharmacists' role:

> "…I still think the pharmacist's role isn't as defined as it should be… people still… they will always go to the doctor first, erm I don't think they realise what the pharmacist in the pharmacy can do…" MultiCP1(1yr).

> "I think a lot of patients just think the pharmacist gives out my tablets…" IndepCP5(1yr).

The retail environment in which the pharmacists practice appeared to contribute to this perception:

> "…a lot of patients don't see pharmacists as a healthcare professional; they see them as glorified shop owners…" MultiCP4(0.1yr).

It was also perceived that patients expected a quick service from pharmacists; it may be that the retail environment was responsible for this, leading to expectations of the kind of service associated with sales staff rather than health professionals. This expectation of brief transactions appeared to make providing lifestyle advice difficult:

"… I think that is the main issue with pharmacy is that pharmacy is all about erm in and out, in and out, in and out, they, they don't really see…very few patients see community pharmacists as a resource to be used like, like a GP…" MultiCP6(1yr).

Confidence. The pharmacists' confidence to provide lifestyle advice appeared to develop over time, however even experienced pharmacists could be reluctant to offer lifestyle advice uninvited:

> "…much as we're supposed to do it… I will not just speak to someone who is clearly overweight and start a conversation about weight..." IndepCP6(26yr).

Many pharmacists found it particularly difficult to initiate conversations about body weight:

> "…obviously it's a touchy subject, you know, if you've got a genuinely er larger person in front of you…you don't want to insult them, you don't want to...to make them feel uncomfortable so it's a catch 22 a little bit…" IndepCP5(1yr).

These pharmacists appeared to construct obesity as a taboo, making them reluctant to raise the topic with patients. However this reluctance was not limited to opportunistic advice which according to UK government policy[("The NHS's role in the public's health: a report from the NHS future forum," 2012)] should be offered to patients regardless of their reason for visiting the pharmacy. One pharmacist was so concerned about eliciting a negative patient response that she avoided informing a patient that they were overweight even after weighing them. The reluctance to initiate conversations about lifestyle behaviours with patients appears to stem from pharmacists expecting a negative reaction from patients in response to their advice:

> "…people can get aggressive but not many people do but you just don't wanna offend someone, that the biggest thing… you still want to make them happy but give them advice." MultiCP4(0.1yr).

The perception that patients may react negatively to lifestyle advice may make pharmacists reluctant to have conversations with patients about their lifestyle and the impact health behaviours can have on the management of CVD.

Some of the pharmacists felt that they did not receive appropriate skills training to prepare them to offer patients lifestyle advice:

> "…there is a lack of training as to how we will approach patients which I say is one of the challenges and how we would approach patients on you know, giving smoking [cessation advice] erm sort of the social skills side as well, having a general conversation with people and how we would convince them [to change their behaviour] …". MultiCP1(1yr).

Another pharmacist noted:

> "…a lot of university now is focused around healthcare, public health… but the way to put it across to people, there's not much, you've got to develop your own way…" MultiCP4(0.1yr).

This statement is particularly noteworthy, given that the pharmacist who does not feel he received appropriate training to convey public health messages (which often incorporate lifestyle advice) is a recent graduate and therefore has received his training after the introduction of the revised pharmacy contract which outlined the role of pharmacists in providing public health services. A perceived lack of training may also contribute to

pharmacists' reluctance to offer lifestyle advice if pharmacists do not feel they have the skills to offer such advice to patients.

Professional Identity

Health professional-patient relationship. The pharmacists expressed positive opinions about the role community pharmacy has, or could have, in promoting health behaviours to varying extents. In line with the 'health professional' identity and role of the community pharmacist, many of the pharmacists actively endorsed a patient-centred, collaborative approach to pharmaceutical practice. However the perceived importance of forming relationships with patients appeared to differ according the status of pharmacists' employers:

> "…the main difference [between the Independent workplaces and other pharmacies] is having a little talk with them about their medication … offer extra advice to them so they feel like somebody actually cares …" (IndepCP7-2yr).

Pharmacists employed by independent and notably the supermarket-owned pharmacies seemed to place more emphasis on the importance of building a relationship with patients than multiple-ownership pharmacists.

Lifestyle advice in Medicines Use Reviews . The pharmacists conceptualised providing lifestyle advice as an activity primarily performed as part of additional services offered in some English community pharmacies such as the Medicines Use Review (MUR) and New Medicines Service (NMS) which should incorporate advice on diet, exercise and smoking status. There appeared to be a clear distinction between providing lifestyle advice as part of MURs/NMS, which pharmacists reported as a common occurrence, and "core" aspects of community pharmacy practice such as checking and dispensing medication which did not appear to frequently incorporate lifestyle advice. Providing lifestyle advice appeared not to be a priority for some pharmacists:

> "…pharmacists have a number of other stuff to do…sometimes, I feel, [lifestyle advice] it becomes an afterthought….because…you feel…you've gotta get all the other stuff [to do]…." SuperCP1(8yrs).

Future direction of the profession. The pharmacists had differing, sometimes conflicting, opinions on the future of community pharmacy. Some pharmacists described their wish to move away from traditional roles and build upon the 'health professional' identity that involves giving lifestyle advice:

> "… it's pushing pharmacy towards a clinical role rather than the old dispensing." IndepCP5(1yr).

This respondent was very keen for pharmacists to have more involvement in patient care and to move away from the traditional dispensing process. However his use of the word 'pushing', which denotes a lack of consent or readiness, suggests that he believes that not all pharmacists share his vision, and some pharmacists may be resistant to their role changing. Another pharmacist questioned whether lifestyle advice should be part of the community pharmacists' role at all:

> "…we are looking at a nightmare scenario in the future and it would be good if somebody could stop it [ageing population and obesity], but whether that is the role of the pharmacist or not I don't know. It comes back again to time and our payment structure…" IndepCP1(23yrs).

This pharmacist appears to distance themself from the responsibility of offering patients lifestyle advice through citing barriers such as time constraints and the way pharmacists are remunerated. This is an important insight, with remuneration cited by many pharmacists as an important factor in the provision of lifestyle advice.

Remuneration. Some pharmacists referenced the importance of the dispensing process due to it providing the main source of the community pharmacy's income. A number of the pharmacists suggested that current remuneration practices were not conducive to delivering lifestyle advice and health promotion:

> "….if you are stopping a heart attack then they're not going to be taking any medicines and that's ultimately putting yourself out of business so it's not in your interests to keep people healthy as a pharmacist at the moment… what other profession does something to stop their future payments?" IndepCP1(23yrs).

Some pharmacists indicated that current remuneration practices resulted in there being less incentive to provide lifestyle advice than other activities in the pharmacy which are remunerated,

> "…you're providing the [lifestyle] advice …erm and you're getting no monetary reward for it… so most pharmacists will think oh I can't be bothered to be giving that advice, when there's no value to it for me". MultiCP6(1yr)

The pharmacist describes an inherent conflict between their role as a health professional with a responsibility to promote health through giving patients lifestyle advice, and their business employee role which focusses on financial return, which giving lifestyle advice does not currently provide.

Pharmacy as a business and associated role conflict. Most pharmacists explicitly made reference to the community pharmacy being a business environment in addition to a provider of healthcare. A pharmacy manager described the experience he would like people to have when they visit the community pharmacy:

> "…we are trying to always differentiate on customer care…the need and the expectation is that that person will sort of somehow when they next need some advice think "ooh, that nice person in that shop, I'll go and see them again"". MultiCP7(34yr).

Targeting the patient-pharmacist interaction as an opportunity to increase custom raises the question as to whether developing a patient-clinician relationship and enhancing profits are interlinked. One pharmacist described her hesitance to offer potentially unwelcome health advice for fear it may affect custom to the pharmacy:

> "I mean it's a business environment…erm so if you lose loads of customers your boss is on your back… if you insult somebody by telling them they look fat then you're going to lose that customer [laughs]" IndepCP2(2yrs).

Her belief that this would reflect on her employment status could lead to her not offering lifestyle advice, which conflicts with her health professional role. Other pharmacists expressed concern at company targets to perform a specified number of MUR consultations conflicting with the clinical need of patients:

> "…because I know colleagues....who are quite...they push it quite hard...but the problem is that I think the patient doesn't get anything out of it because it's just...I feel the patient's being...cajoled into a room because you want to do something..." SuperCP1(8yrs).

The company targets appear to be structuring the pharmacists' behaviour and therefore potentially influencing clinical decisions, presenting a challenge to the pharmacists' professional autonomy.

Pharmacists' perceptions of patients

Categorising patients .The pharmacists had models of different 'types' of patients which they used to categorise the patients they encountered. One supermarket pharmacist described how staff identified patients whom they perceived would respond well to receiving lifestyle advice:

> "...so they know which ones who you can talk to and which ones ...won't talk to you, which ones will follow through, which ones can provide advice for..." SuperCP1(8yrs).

Within the context of a busy, pressured workplace environment and a legal responsibility to ensure that patients are dispensed the correct medication, it makes sense that pharmacists would develop cognitive 'shortcuts', also known as stereotypes, to interpret patients' behaviour and be able to respond accordingly.[(Haslam et al., 2002)] The stereotypes created by pharmacists are important, as they are likely to influence the interactions the pharmacist has with patients and may influence the care patients receive. It follows that patients categorised as "ones" who "won't talk" are less likely to be given lifestyle advice than patients the pharmacist perceived to be more open to receiving lifestyle advice.

Beliefs about patients with CVD. Some pharmacists believed that patients with CVD lacked knowledge about their condition and appropriate self-management. Yet many pharmacists simultaneously believed that the majority or all patients (with CVD or otherwise) were aware of the direct association between health behaviours and poor health, citing this as a reason for not providing patients with uninvited lifestyle advice.

> "...in all honesty there's nobody on this planet that doesn't *know* that they need to lose weight or doesn't know that they need to cut their drinking a bit and so on, they *know* that, I don't believe there's anybody that doesn't know that maybe they could be healthier" IndepCP6(26yr .

Whilst patients may be aware that they need to change their behaviour, pharmacists offering such patients behaviour change advice may act as means of facilitating patients to change behavioural intentions into behaviour change.

DISCUSSION AND CONCLUSION

The pharmacists who participated in this study viewed providing lifestyle advice as important but identified many barriers to doing so. A novel finding from the study concerns the pharmacists' perceptions of patients. First, pharmacists appeared to categorise patients in terms of 'types' of patients who were open to receiving lifestyle advice and those who were not. Importantly, these stereotypes may influence whether some patients are given lifestyle advice by pharmacists. The pharmacists also appeared to believe that patients with CVD lacked awareness and knowledge of CVD, however simultaneously believed these patients were aware of the role health behaviours have in CVD development and management. This may lead pharmacists to believe that lifestyle advice will not benefit patients with CVD, and consequently such advice may not be a high priority activity in a busy pharmacy. Street, Gordon and Haidet (2007) [(Street Jr et al., 2007)] found physician communication behaviours to correlate with the physicians' perceptions of patients, with physicians being more patient-centred, less contentious and showing more positive emotions towards patients who they perceived to be better communicators, more actively involved in the consultation, more likely to adhere to treatment and more satisfied with treatment. It may be that patients who are not 'actively involved' in consultations, or perceived to be of a 'type' not open to receiving advice may in fact need more assistance than patients who are able to actively engage in encounters with health professionals.

Furthermore, pharmacists in the present study also believed that giving patients lifestyle advice may provoke a negative response, with some participants alluding to the potential of patients to become aggressive. This supports the findings of previous reviews which found that pharmacists feared 'interfering' with or offending patients.[(Anderson et al., 2003; Eades et al., 2011)] A recent qualitative study exploring pharmacists' attitudes towards providing advice about alcohol consumption also found that having concerns about offending or alienating customers was a major barrier to offering the service.[(Horsfield et al., 2011)] Research conducted with Australian clinicians found the clinicians' perceptions of how acceptable clients felt it was for them to offer lifestyle advice affected providing such advice, with 'low implementers' expressing concerns of appearing judgmental, receiving negative reactions from clients and damaging the clinician-client relationship.[(Laws et al., 2008)] It is also noteworthy that the pharmacists' perceptions contrast with those in the literature exploring patients' perceptions of pharmacists, which suggests that whilst most patients do not expect to receive lifestyle advice from a pharmacist, they are open to receiving it.[(Eades et al., 2011)]

Professional identity emerged as a prominent theme in relation to the provision of lifestyle advice, appearing to underpin many of the perceived barriers to providing lifestyle advice. At the core of this appeared to be the retail environment in which community pharmacists practise, resulting in a dual role of health professional and business employee. In keeping with previous research, [(Anderson et al., 2003; Eades et al., 2011)] most of the pharmacists were positive about a role in public health (in this case providing lifestyle advice) but reported difficulties achieving this due to barriers such as time, high workload and pressure to meet targets. Remuneration appeared key to pharmacists' provision of lifestyle advice for patients with CVD, with the pharmacists suggesting that current remuneration practices hindered their provision of lifestyle advice. Some pharmacists suggested that providing lifestyle advice was not in their best interests because they received no financial return for doing so. As a result, many pharmacists reported prioritising other activities (primarily dispensing) over providing lifestyle advice, again supporting the findings of previous studies.[(Anderson et al., 2003; Eades et al., 2011; O'Loughlin et al., 1999)]

However, the way barriers to providing lifestyle advice were perceived by pharmacists employed by multiple and independent pharmacies varied. Despite reporting high workloads and time pressure, pharmacists employed by independent pharmacies appeared to be more comfortable spending time offering patients lifestyle advice, even if other patients were

waiting to be seen. In contrast, these barriers seemed more salient to pharmacists employed by multiple pharmacies, with the supermarket pharmacist and many multiple pharmacists reporting pressure to provide a quick service and not keep other patients waiting. This in turn appeared to be underpinned by pressure to meet company targets, causing potential conflict between the pharmacist's health professional and business employee roles. This has implications for pharmacists providing lifestyle advice, and in the current study appeared to manifest in two ways: pharmacists conducting consultations to meet company targets rather than in response to clinical need and pharmacists not offering potentially unwelcome health behaviour advice to patients, fearing that this may have repercussions on their employment status if the patient reacted badly. This supports a previous research study by Bush et al. (2009)[(Bush et al., 2009)] which found that pharmacists working in multiple pharmacies experienced conflict with commercial interests as a significant barrier to providing the set public health agenda.

The retail environment of the community pharmacy was perceived to affect perceptions of the pharmacists' role, with participants inferring that patients did not recognise the community pharmacist as a health professional. Consequently lifestyle advice provision was reportedly affected, due to patients not fully recognising the pharmacists' professional opinion. It may be that the 'shop' appearance of the community pharmacy results in patients having different expectations and perceptions of community pharmacists than they have of other health professionals. This may result in patients perhaps expecting the 'customer service' that they expect in a retail environment, resulting in less tolerance to wait to be seen by a community pharmacist than other health professionals operating in a more traditional clinical environment.

Anderson et al. (2003) [(Anderson et al., 2003)] suggested that pharmacists have a reactive approach to public health provision and are most comfortable giving advice around medicines, which also appeared to be the case in the present study. The pharmacists seemed happy to provide lifestyle advice if the patient asked or if it related to medicine. The pharmacists primarily conceptualised lifestyle advice as part of MURs, pharmacy services which provide some patients with a yearly consultation with a pharmacist to assess the patient's use of medicine, incorporating some questions about their lifestyle. However, importantly, other than in these consultations there appeared to be a dichotomy between dispensing and lifestyle advice, and the pharmacists did not report routinely integrating lifestyle advice with their regular dispensing practices. This appeared to relate to a lack of time, fear of a negative patient response and a lack of confidence in giving lifestyle advice. According to Bandura (1977) [(A Bandura, 1977)], self-efficacy (confidence in one's ability to carry out a behaviour), is a key predictor of whether the behaviour is performed. Some pharmacists reported a lack of confidence in their abilities to initiate conversations about health behaviours with patients, with some pharmacists reporting that they had not received appropriate training to enable them to provide lifestyle advice. Interestingly, this was not restricted to pharmacists who had qualified before the introduction of the pharmacy contract; newly qualified pharmacists also reported a lack of self-efficacy to give patients lifestyle advice. This supports the findings of previous reviews which concluded that pharmacists - low levels of self-efficacy and required more training to increase their confidence in providing public health services.[(Anderson et al., 2003; Eades et al., 2011)]

Strengths and Limitations

This was an in-depth qualitative study conducted with community pharmacists in a UK setting. To our knowledge, it is the first study to explore English community pharmacists' experiences of providing lifestyle advice for patients with CVD. There are however limitations to this research. Firstly, in order to increase study participation, the method of interviewing participants differed, with seven pharmacists interviewed face-to-face and eight by telephone. This could have affected the quality of the data collected from the telephone interviews as the interviewer was not able pick up on the participants' body language and any non-verbal cues which may have affected the quality of the rapport established between the interviewer and participant. Alternatively, the increased sense of anonymity may have enhanced the quality of the data collected. There is a paucity of in-depth qualitative research in this field of research. The sample was representative of those working in a variety of community pharmacy settings and this resulted in contrasting as well as complementary accounts. The richness of the data collected and the internal validity of the analysis gives us confidence that the findings are transferable if not statistically generalizable.

Conclusion

In conclusion, many pharmacists saw the potential benefits of facilitating patient self-management of CVD through providing lifestyle advice. However, in practice they perceived multiple barriers to doing so and it did not appear to be routine practice. Issues relating to professional identity appeared key barriers to the implementation of lifestyle advice, particularly concerning the way pharmacists are currently remunerated which appeared to result in lifestyle advice being a lower priority than other pharmacy activities. The extent to which pharmacists perceived barriers to providing lifestyle advice to patients with CVD differed, with pharmacists employed by multiple owned pharmacies in particular reporting pressure to provide a quick service and meet targets as preventing them providing lifestyle advice. The retail environment of the community pharmacy was associated with potential role conflict and perceived to result in patients and other health professionals not appreciating the competencies of the community pharmacist. Some of the pharmacists lacked confidence in their ability to give lifestyle advice - particularly concerning weight loss - and did not appear to integrate lifestyle advice with routine pharmacy practice. The way pharmacists perceived and categorised some patients may result in pharmacists not offering certain patients lifestyle advice.

Practice Implications

In order to implement government policy, contractual obligations and best practice guidelines, pharmacists may benefit from enhanced training to increase their self-efficacy to provide lifestyle advice to patients with CVD. Pharmacists may also benefit from education in integrating lifestyle advice with regular dispensing practice and capitalising on interactions with patients in a time-pressured environment. Challenging pharmacists' perceptions of 'types' of patients who may benefit from lifestyle advice and expectations of negative patient responses to such advice may also be beneficial. Changes to the way pharmacists are remunerated for providing lifestyle advice may increase pharmacists' provision of lifestyle advice for patients.

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9.2 Appendix 2 – Participant Information Sheet

Participant Information Sheet

Project Title: Community pharmacists' experiences of public health provision for non-diabetic patients with hypertension and hyperlipidaemia.

You are being invited to take part in a research study. Before you decide whether or not to take part, it is important for you to understand why the research is being done and what it will involve. Please take time to read the following information carefully.

What is the purpose of the study?

In recent years, formalised by the pharmacy contract, pharmacists have become increasingly involved in activities relating to public health. A strong body of evidence consistently shows that interventions delivered by pharmacists have significant clinical benefits in relation to a number of cardiovascular disease risk factors. However research has found varying levels of pharmacist-led health promotion activity. A wide range of factors influence pharmacists' health promotion activity therefore more research is needed to develop a greater understanding of community pharmacists' experience, particularly in relation to cardiovascular health in the non-diabetic population.

Why have I been chosen?

Community pharmacists working in chain and independently owned pharmacies at different geographical locations across the Midlands have been invited to take part in this study.

What will happen to me if I take part?

If you decide to take part in the study the researcher will arrange to meet with you at a convenient time and place. This could be at your home, workplace or at a meeting venue. Participation in the study involves a single interview which is expected to last between 45 and 60 minutes. The researcher will ask you some questions about your experience, thoughts and opinions about providing public health services in the pharmacy, particularly in relation to cardiovascular health. The interview will be recorded using a digital recording device so the interviewer can transcribe it at a later date. At the end of the interview you will be asked to give

yourself a different name so that nobody will be able to identify you from the data. Anything you say will be kept completely confidential.

Are there any potential risks in talking part in the study?

It is not expected that you will experience any disadvantages as a result of participating in the study. You may have concerns about expressing opinions that your employer may disapprove of, given that an audio recording of the interview will be made. Anything that you chose to say will remain confidential. Nobody, including your employer, will be able to identify you or your place of work from the study results.

Do I have to take part?

No, you have no obligation to take part in this study. If you do decide to take part in the study you can still stop and withdraw at any point without having to provide an explanation.

Will my taking part in this study be kept confidential?

All of the information that you tell the researcher will be kept completely confidential. Only the researcher will know who you are. You will be asked to choose a different name for yourself, and you will be known under that name. The interview will be recorded on a password protected digital audio device which will be stored in a locked filing cabinet at Aston University. The recording will be downloaded onto a password protected computer at Aston University. The interview recording and transcript will be stored for up to 5 years after which it will be destroyed.

What will happen to the results of the research study?

The interviews will be analysed and the results will be published as part of a PhD thesis and potentially in an academic journal. The researcher's academic supervisors may look at an anonymised version of the interview transcript. Direct quotations of what you have said in the interview may be used as part of the results. Nobody will be able to identify you from the quotations or results of the study.

You will be given the opportunity to give the researcher your contact details if you would like to be sent a copy of the study findings.

Who is organising and funding the research?

Kirsty Morton, a PhD student from the School of Life and Health Sciences at Aston University is organising and conducting the research. The research is supervised by Professor Helen Pattison, Dr Rachael Powell and Dr Chris Langley from the School of Life and Health Sciences at Aston University. The research is funded by the Economic and Social Research Council (ESRC) and the Medical Research Council (MRC).

Who has reviewed the study?

The study has been reviewed and approved by Aston University's Ethics Committee.

Who do I Contact if Something Goes Wrong or I need Further Information?

If you have any questions, concerns or would like further information about the study please feel free to contact the researcher, Kirsty Morton, at mortonk2@aston.ac.uk or 0121 204 4250.

You can also contact the researcher's supervisor, Professor Helen Pattison, on h.m.pattison@aston.ac.uk or telephone 0121 204 4073.

Who do I contact if I wish to make a complaint about the way in which the research is conducted ?

If you have any concerns about the way in which the study has been conducted you should contact the Secretary of Aston University Research Ethics Committee, John Walter, on j.g.walter@aston.ac.uk or telephone 0121 204 4665.

9.3 Appendix 3 – Volunteer Consent Form

Volunteer Consent Form

Title of Project: Community pharmacists' experiences of public health provision for non-diabetic patients with hypertension and hyperlipidaemia.

Name of Chief Researcher: Kirsty Morton

		Tick Box
1	I confirm that I have read and understood the information sheet for the above study. I have had the opportunity to consider the information, ask questions and have had any questions answered satisfactorily.	
2	I understand that my participation is voluntary and that I am free to withdraw at any time without giving any reason, without my legal rights being affected.	
3	I agree to the interview being digitally recorded and transcribed with my personal information removed.	
4.	I understand that my interview responses will be looked at by the researcher's academic supervisors. These responses will not contain any personal information that could identify me.	
5.	I understand that I may be directly quoted under another name. The things I say may be published but any publication will not contain any personal information that could identify me.	
6.	I agree to take part in the above study.	

Name of volunteer	Date	Signature

Researcher Date Signature

7.	I would like to be sent a summary of the study findings.	

Email/ Postal Address…….....

9.4 Appendix 4 – Interview Schedule

1. **Talk me through your typical working day.**

2. **What are the five activities which form the most important part of your working day?**

3. **What role does a community pharmacist currently play in identifying patients at risk of experiencing a cardiovascular event/ future cardiovascular events?**
   [Prompts: Screening, Identification process (prescription for particular medications, provision of self-monitoring devices, referral to other services, behaviour/lifestyle change advice.]

4. **What additional services or activities (if any) do you think community pharmacists could provide for cardiovascular patients in the future?**
   [Prompts: provision of self-monitoring devices, advice on medication, screening, identification process, behavioural/lifestyle change advice]

5. **Talk me through a recent time you have given a cardiovascular patient lifestyle advice.**
   [Prompts: Identification process, advice provided, confidence in ability to do so, was it successful, willingness of patient to receive advice].

6. **How do you feel about initiating conversations with patients regarding health behaviours such as diet and exercise?**
   [Prompts: Confident – if so why, not confident – if not, why not?].

7. **Describe any challenges to promoting patient self-management of cardiovascular health in the community pharmacy.**
   [Prompts: Time, workload, space, perception of patient's reaction, company policy, lack of confidence in abilities, lack of training].

8. **What (if anything) would make it easier to promote patient self-management of cardiovascular health in the community pharmacy?**

[Prompts: Time, workload, space, perception of patient's reaction, company policy, confidence in abilities, appropriate training]

9. **In an ideal world what do you think should be part of a community pharmacists' role?**

10. **What input do you think patients would like from their community pharmacist with regards to managing their cardiovascular health?**
[Prompts: medication advice, behaviour/lifestyle advice, advice re: self-monitoring devices, referral to other services].

11. **Describe the role different staffing groups within the pharmacy play in the delivery of cardiovascular health promotion.**
[Dispensers' role, healthcare assistants' role, professional relationship with pharmacist].

12. **What are your thoughts on the suitability of the community pharmacy to provide/deliver public health services in general?**
[geography, opening hours, ease of access, time pressures, privacy, space, pharmacist training]

13. **From your perspective, what role has the PCT played in cardiovascular health promotion and prevention of CVD?**

14. **Describe your working relationship with other professionals involved in cardiovascular healthcare.**
[Referrals to and from GPs, any areas of conflict, professional identity, impact on service].

15. **Is there anything I haven't asked about that you feel is important/relevant?**

Additional Information

1. Age
2. Gender

3. Ethnicity

4. Number of years in practice

5. Independent/Multiple pharmacy:

- Independent (5 branches or fewer)
- Small Chain (more than 5, up to 20 branches),
- Large Chain (more than 20, up to 200 branches),
- Multiple (200 branches or above)
- Supermarket.

6. Post code of pharmacy (used for deprivation score)

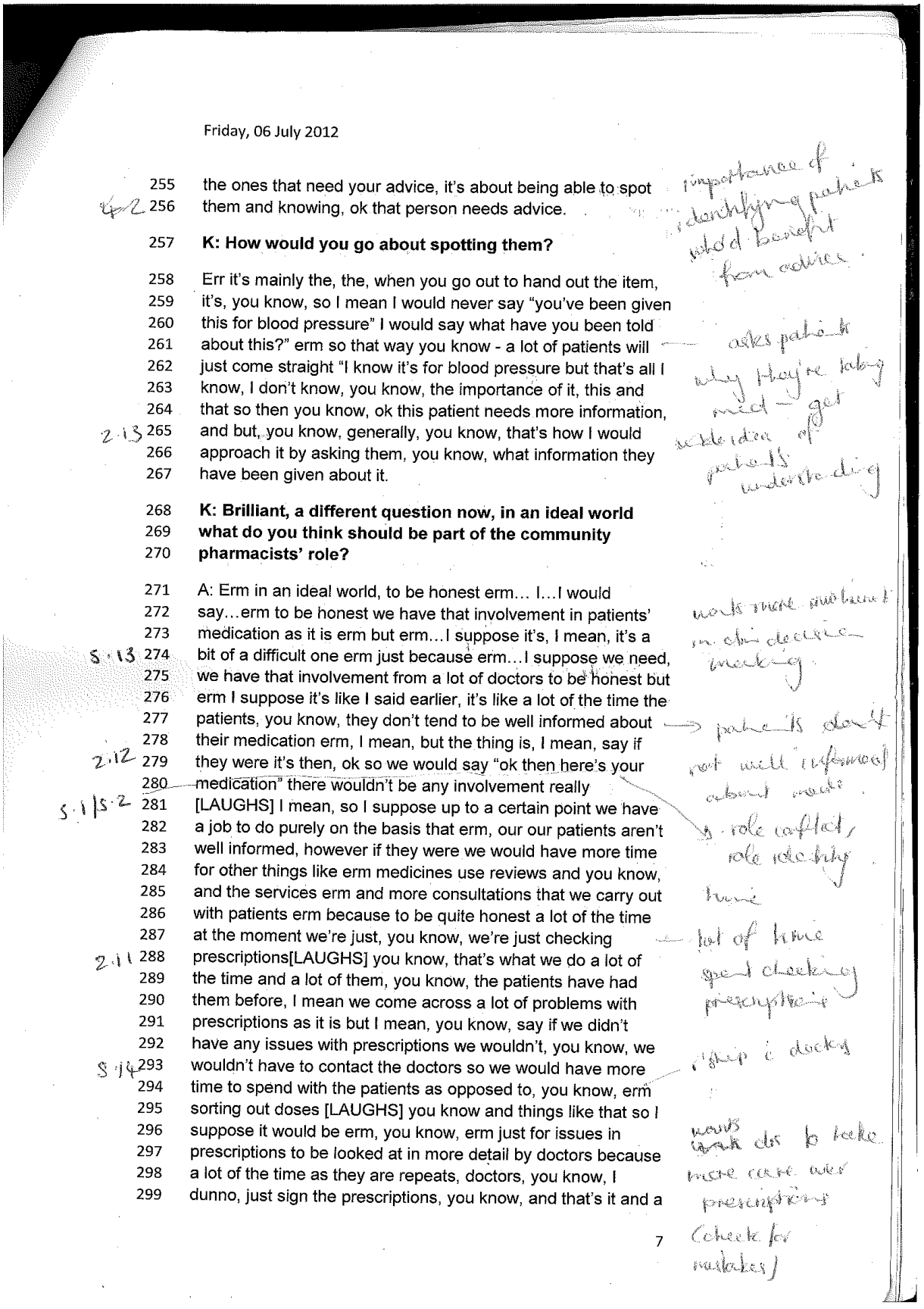
7. Services offered by participant's pharmacy:

- Smoking cessation
- BP testing
- Blood glucose testing
- Cholesterol testing
- Weight Management
- Medicine Use Reviews

- New Medicines Service

- Are you happy (a) to be contacted regarding participation in future research studies including piloting questionnaires and (b) facilitating the recruitment of patients for another study through distributing leaflets and displaying posters in your pharmacy

9.5 Appendix 5 – Example analysis



Friday, 06 July 2012

the ones that need your advice, it's about being able to spot them and knowing, ok that person needs advice.

K: How would you go about spotting them?

Err it's mainly the, the, when you go out to hand out the item, it's, you know, so I mean I would never say "you've been given this for blood pressure" I would say what have you been told about this?" erm so that way you know - a lot of patients will just come straight "I know it's for blood pressure but that's all I know, I don't know, you know, the importance of it, this and that so then you know, ok this patient needs more information, and but, you know, generally, you know, that's how I would approach it by asking them, you know, what information they have been given about it.

K: Brilliant, a different question now, in an ideal world what do you think should be part of the community pharmacists' role?

A: Erm in an ideal world, to be honest erm… I…I would say…erm to be honest we have that involvement in patients' medication as it is erm but erm…I suppose it's, I mean, it's a bit of a difficult one erm just because erm…I suppose we need, we have that involvement from a lot of doctors to be honest but erm I suppose it's like I said earlier, it's like a lot of the time the patients, you know, they don't tend to be well informed about their medication erm, I mean, but the thing is, I mean, say if they were it's then, ok so we would say "ok then here's your medication" there wouldn't be any involvement really [LAUGHS] I mean, so I suppose up to a certain point we have a job to do purely on the basis that erm, our our patients aren't well informed, however if they were we would have more time for other things like erm medicines use reviews and you know, and the services erm and more consultations that we carry out with patients erm because to be quite honest a lot of the time at the moment we're just, you know, we're just checking prescriptions[LAUGHS] you know, that's what we do a lot of the time and a lot of them, you know, the patients have had them before, I mean we come across a lot of problems with prescriptions as it is but I mean, you know, say if we didn't have any issues with prescriptions we wouldn't, you know, we wouldn't have to contact the doctors so we would have more time to spend with the patients as opposed to, you know, erm sorting out doses [LAUGHS] you know and things like that so I suppose it would be erm, you know, erm just for issues in prescriptions to be looked at in more detail by doctors because a lot of the time as they are repeats, doctors, you know, I dunno, just sign the prescriptions, you know, and that's it and a

9.6 Appendix 6 – Final Questionnaire

Aston University

MRC Medical Research Council

E·S·R·C ECONOMIC & SOCIAL RESEARCH COUNCIL

Predictors of community pharmacists' intentions to provide weight loss and medication adherence advice for patients with CVD

Thank you for participating in this research study. All the information you provide in this questionnaire will be treated with the strictest confidence.

For the purpose of this study, the term 'patients with HTN/HLD' refers to people who are taking medication for hypertension and/or hyperlipidaemia.

Q1 **Please indicate if you are**

◯ A community pharmacy owner **Go to Q4**

◯ A community pharmacy employee/locum **Go to Q2**

Please indicate how much you agree or disagree with the following statements by ticking the appropriate box.

Q2 My current employer thinks that I should advise all patients collecting a prescription for HTN/HLD how to:

	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
Adhere to their medication as prescribed	◯	◯	◯	◯	◯
Lose weight (if overweight)	◯	◯	◯	◯	◯

Q3 Patients collecting a prescription for HTN/HLD think I should advise them how to:

	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
Adhere to their medication as prescribed	◯	◯	◯	◯	◯
Lose weight (if overweight)	◯	◯	◯	◯	◯

Q4 Other pharmacists think that I should advise all patients collecting a prescription for HTN/HLD how to:

	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
Adhere to their medication as prescribed	◯	◯	◯	◯	◯
Lose weight (if overweight)	◯	◯	◯	◯	◯

Q5 Advising patients with HTN/HLD how to adhere to their prescribed medication is:

Good	◯ 1	◯ 2	◯ 3	◯ 4	◯ 5 Bad
Pleasant (for me)	◯ 1	◯ 2	◯ 3	◯ 4	◯ 5 Unpleasant (for me)
Useful	◯ 1	◯ 2	◯ 3	◯ 4	◯ 5 Worthless
Satisfying	◯ 1	◯ 2	◯ 3	◯ 4	◯ 5 Unsatisfying

Q6	Advising patients with HTN/HLD how to lose weight is:					
	Good	◯ 1	◯ 2	◯ 3	◯ 4	◯ 5 Bad
	Pleasant (for me)	◯ 1	◯ 2	◯ 3	◯ 4	◯ 5 Unpleasant (for me)
	Useful	◯ 1	◯ 2	◯ 3	◯ 4	◯ 5 Worthless
	Satisfying	◯ 1	◯ 2	◯ 3	◯ 4	◯ 5 Unsatisfying

Q7	*Please indicate how strongly you agree or disagree with the following statements by ticking the appropriate box.*					
		Strongly agree	**Agree**	**Neither agree nor disagree**	**Disagree**	**Strongly disagree**
	I intend to advise all patients collecting a prescription for HTN/HLD about adhering to their prescribed medication.	◯	◯	◯	◯	◯
	I intend to give weight loss advice to all overweight patients with HTN/HLD.	◯	◯	◯	◯	◯

Q8	*Please indicate how strongly you agree or disagree with the following statements by ticking the appropriate box.*					
		Strongly agree	**Agree**	**Neither agree nor disagree**	**Disagree**	**Strongly disagree**
	I am confident that I could advise a patient with HTN/HLD how to adhere to their prescribed medication.	◯	◯	◯	◯	◯
	For me, advising patients with HTN/HLD how to adhere to their prescribed medication is easy.	◯	◯	◯	◯	◯
	Whether or not I advise a patient with HTN/HLD how to adhere to their prescribed medication is entirely up to me.	◯	◯	◯	◯	◯
	I am confident that I could advise an overweight patient with HTN/HLD how to lose weight.	◯	◯	◯	◯	◯
	For me, advising an overweight patient with HTN/HLD how to lose weight is easy.	◯	◯	◯	◯	◯
	Whether or not I advise an overweight patient with HTN/HLD how to lose weight is entirely up to me.	◯	◯	◯	◯	◯

The following questions relate to giving advice in particular circumstances.

Please indicate how strongly you agree or disagree with the following statements by ticking the appropriate box.

Q9	I am confident I can advise a patient with HTN/HLD how to adhere to their prescribed medication...					
		Strongly agree	**Agree**	**Neither agree nor disagree**	**Disagree**	**Strongly disagree**
	Even if they do not ask for the advice.	◯	◯	◯	◯	◯
	Even if they appear uninterested.	◯	◯	◯	◯	◯
	Even if there are other patients in the pharmacy waiting to be seen.	◯	◯	◯	◯	◯
	If I know the patient well.	◯	◯	◯	◯	◯
	If the conversation is part of an MUR.	◯	◯	◯	◯	◯

Q10 I am confident I can advise an overweight patient how to lose weight...

	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
Even if they do not ask for the advice.	○	○	○	○	○
Even if they appear uninterested.	○	○	○	○	○
Even if there are other patients in the pharmacy waiting to be seen.	○	○	○	○	○
If I know the patient well.	○	○	○	○	○
If the conversation is part of an MUR.	○	○	○	○	○

Q11 *Please indicate how strongly you agree or disagree with the following statements by ticking the appropriate box.*

	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
I feel that advising patients with HTN/HLD how to adhere to their medication as prescribed is an important part of my role as a pharmacist.	○	○	○	○	○
I feel that advising overweight patients with HTN/HLD how to lose weight is an important part of my role as a pharmacist.	○	○	○	○	○

Q12 I feel that I have been given the appropriate training to advise patients with HTN/HLD how to:

	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
Adhere to their medication as prescribed	○	○	○	○	○
Lose weight (if overweight)	○	○	○	○	○

Q13 My involvement in the dispensing activity in the pharmacy <u>prevents</u> me from advising patients with HTN/HLD how to:

	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
Adhere to their medication as prescribed	○	○	○	○	○
Lose weight (if overweight)	○	○	○	○	○

Q14 My involvement in the dispensing activity in the pharmacy <u>facilitates</u> me in advising patients with HTN/HLD how to:

	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
Adhere to their medication as prescribed	○	○	○	○	○
Lose weight (if overweight)	○	○	○	○	○

Q15 *Please indicate how strongly you agree or disagree with the following statements by ticking the appropriate box.*

	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
I can tell which patients are going to react badly to me giving them advice.	◯	◯	◯	◯	◯
I can predict which patients with HTN/HLD will benefit from my advice.	◯	◯	◯	◯	◯
I can easily distinguish patients who are motivated to adhere to their prescribed medication from patients who are not motivated to adhere to their prescribed medication.	◯	◯	◯	◯	◯
I can easily distinguish patients who are motivated to lose weight from patients who are not motivated to lose weight.	◯	◯	◯	◯	◯

Q16 **The following question relates to patients with HTN/HLD that you <u>personally</u> interact with.**

What proportion of patients with HTN/HLD that you see do you...

	0-20%	21-40%	41-60%	61-80%	81-100%
Advise about adhering to their prescribed medication.	◯	◯	◯	◯	◯
Think are overweight.	◯	◯	◯	◯	◯
If overweight, give weight loss advice to.	◯	◯	◯	◯	◯

Q17 **Finally some questions about you and your workplace.**

	Male	Female	Prefer not to say
Are you:	◯	◯	◯

Q18 How long have you worked as a community pharmacist?

Q19 Do you work

◯ Full time ◯ Part time

Q20 Are you working as a locum?

◯ Yes ◯ No

Q21 What describes the pharmacy that you work in? (tick all that apply)

◯ Independent (5 braches or fewer) ◯ Multiple (200 branches or above)

◯ Small chain (more than 5, up to 20 branches) ◯ Supermarket

◯ Large chain (more than 20, up to 200 branches)

Q22 Do you work

◯ Full time ◯ Part time

Q23 If you would like to be sent a summary of the study findings please provide your email address in the space below. Your email address will not be forwarded to anyone else.

Many thanks for taking part in this research study.

9.7 Appendix 6 – Invitation Letter

Aston University

Aston Triangle

Birmingham

B4 7ET

Tel + 44 0121 204 3000

www.aston.ac.uk

Dear Community
Pharmacist(s)

Project Title: Predicting community pharmacists' intentions to provide weight loss and medication adherence advice to patients with cardiovascular disease

My name is Kirsty Morton and I am a PhD student from Aston University. I am interested in community pharmacists' experiences of providing public health services for patients with cardiovascular disorders and would be grateful if you would consider taking part in the above study.

Participation involves filling out a single questionnaire that will take up to 30 minutes. This can be filled in online via this link X or with a paper copy if you prefer. The research has received ethical approval from Aston University Ethics Committee, and is supervised by Professor Helen Pattison, Professor Chris Langley and Dr Rachael Powell.

If you have any questions please do not hesitate to contact me on the details provided below.

Yours
faithfully

Kirsty
Morton

9.8 Appendix 8 – Participant Information sheet

Participant Information Sheet

Project Title: Predicting community pharmacists' intentions to provide weight loss and medication adherence advice to patients with cardiovascular disease

You are being invited to take part in a research study. Before you decide whether or not to take part, it is important for you to understand why the research is being done and what it will involve. Please take time to read the following information carefully.

What is the purpose of the study?

In recent years, formalised by the pharmacy contract, pharmacists have become increasingly involved in activities relating to public health. A strong body of evidence consistently shows that interventions delivered by pharmacists have significant clinical benefits in relation to a number of cardiovascular disease risk factors. However research has found varying levels of pharmacist-led health promotion activity. A wide range of factors influence pharmacists' health promotion activity therefore more research is needed to develop a greater understanding of community pharmacists' experience. This study is investigating how pharmacists experience giving two different kinds of health promotion advice (weight loss and medication adherence advice) to patients with cardiovascular disease.

Why have I been chosen?

Community pharmacists working in England have been invited to take part in this study.

What will happen to me if I take part?

If you decide to take part in the study you will be asked to fill out a single questionnaire. This can either be filled in online or using a paper version. You will read information about the study, and then you will be asked to consent to taking part in the study. It is expected this will take around 30 minutes.

Are there any potential risks in talking part in the study?

It is not expected that you will experience any disadvantages as a result of participating in the study. You may be concerned that this is a test of your practice or that your employer will be able to identify you or your place of work from the responses you give. All the information you give in the questionnaire will be kept strictly confidential and nobody will be able to identify you from the responses you give. This questionnaire is not designed to test you; we are interested in your experience of giving patients different kinds of advice.

Do I have to take part?

No, you have no obligation to take part in this study. If you do decide to take part in the study you can still stop and withdraw at any point up to submitting the completed questionnaire (after which the data becomes anonymised and can't be traced)

Will my taking part in this study be kept confidential?

Yes. All of the data generated from the questionnaire is anonymous. If you complete the questionnaire online, data is stored on a secure server at Aston University. If you complete a paper copy of the questionnaire it will be stored in a locked filing cabinet in a locked room. In both cases, your data is completely anonymous – no identifying details will be stored with the data.

What will happen to the results of the research study?

The data will be analysed and the results will be published as part of a PhD thesis and potentially in an academic journal.

You will be given the opportunity to give the researcher your contact details if you would like to be sent a copy of the study findings.

Who is organising and funding the research?

Kirsty Morton, a PhD student from the School of Life and Health Sciences at Aston University is organising and conducting the research. The research is supervised by Professor Helen Pattison, Dr Rachael Powell and Professor Chris Langley. The research is funded by the Economic and Social Research Council (ESRC) and the Medical Research Council (MRC).

Who has reviewed the study?

The study has been reviewed and approved by Aston University's Ethics Committee.

Who do I Contact if Something Goes Wrong or I need Further Information?

If you have any questions, concerns or would like further information about the study please feel free to contact the researcher, Kirsty Morton, at mortonk2@aston.ac.uk or 07973184217.

You can also contact the researcher's lead supervisor, Professor Helen Pattison, on h.m.pattison@aston.ac.uk or telephone 0121 204 4073.

Who do I contact if I wish to make a complaint about the way in which the research is conducted ?

If you have any concerns about the way in which the study has been conducted you should contact the Secretary of Aston University Research Ethics Committee, John Walter, on j.g.walter@aston.ac.uk or telephone 0121 204 4665

9.9 Appendix 9 – List of excluded studies

		Reason for exclusion				
Title	**Author, Year**	**Not an intervention for target population**	**Participants not pharmacists/ pharmacy staff/students.**	**Intervention does not target relevant lifestyle behaviours**	**Does not evaluate effect of intervention on behaviour**	**Report not available**
General practitioners perceptions about the extended roles of the community pharmacists in the state of Karnataka: A study	Adepu & Nagavi (2006)		x			
A national diabetes care and education programme: the Ghana model	Amoah et al (2000)		x			
12th Annual International Joint Conference of the University-of-the-West-Indies Diabetes Outreach Program/Caribbean-Food-and-Nutrition-Institute	Anon (2006)	x				
Smoking-cessation services in Iowa community pharmacies	Aquilino et al. (2003)	x				
Evaluation of the Washington State National Pharmaceutical Stockpile dispensing exercise, part II--dispensary site worker findings	Beaton et al. (2004)		x			
The pharmaceutical prescription	Belton (2000)			x		
Training during practical pharmacology sessions for undergraduate medical students: An experience with a modified teaching programme	Bhavsar et al. (1999)		x			
Systematic review of the effectiveness of community pharmacy-based interventions to reduce risk behaviours and risk factors for coronary heart disease	Blenkinsopp et al. (2003)	x				
A tailored intervention to support pharmacy-based counseling for smoking cessation	Bock et al. (2001)				x	
Changes to supervision in community pharmacy: pharmacist and pharmacy support staff views	Bradley et al. (2013)			x		
Assessment of the effectiveness of pharmacists' activities in treatment of tobacco-addicted patients in the context of pharmacists' counselling in Cracow's pharmacies	Brandeys et al (2009)			x		
The making of a nutrition professional: the Association for Nutrition register	Cade et al (2012)	x				
A survey of parenteral therapy services provided to home patients by Australian hospital pharmacies	Capes et al (1997)	x				
Misoprostol for prevention of postpartum hemorrhage: An evidence-based review by US Pharmacopeia (USP)	Carpenter (2001)	x				
Tobacco use and cessation counseling--global health professionals survey pilot study, 10 countries, 2005	Centers for Disease (2005)		x			
Integrated Chronic Obstructive Pulmonary Disease Management in Primary Care	Chavannes (2008)			x		
A Pharmacotherapy Capstone Course to Advance Pharmacy Students' Clinical Documentation Skills	Conway & Ahmed (2012)			x		
Audit of nutritional supplements within three general practices	Cooper (2007)			x	x	
The implementation of the Counterweight Programme in Scotland, UK	Counterweight Project (2012)	x				
Assessment of healthcare professionals' knowledge about warfarin-vitamin K drug-nutrient interactions	Couris et al. (2000)			x		

		Reason for exclusion				
Title	**Author, Year**	**Not an intervention for target population**	**Participants not pharmacists/ pharmacy staff/students.**	**Intervention does not target relevant lifestyle behaviours**	**Does not evaluate effect of intervention on behaviour**	**Report not available**
Options for action of a more environmentally acceptable use and handling of pharmaceuticals	Deffner & Goetz (2008)			x		
A week long diabetes simulation for pharmacy students	Delea et al. (2010)			x		
Randomized Trial Assessing the Effectiveness of a Pharmacist-Delivered Program for Smoking Cessation	Dent et al. (2009)	x				
Tobacco treatment practices of pharmacists in Montana	Dent et al. (2010)	x				
Active-Learning Strategies to Develop Health Literacy Knowledge and Skills	Devraj et al. (2010)			x		
The impact of training and delivering alcohol brief intervention on the knowledge and attitudes of community pharmacists: A before and after study	Dhital et al. (2013				x	
Effectiveness of alcohol brief intervention delivered by community pharmacists: study protocol of a two-arm randomised controlled trial	Dhital et al. (2013)				x	
Improving Pharmacy Staff Knowledge and Practice on Childhood Diarrhea Management in Vietnam: Are Educational Interventions Effective?	Duc Minh et al. (2013)			x		
Connecticut Competency-Based Point of Dispensing Worker Training Needs Assessment	Durante et al. (2014)			x		
Public health in community pharmacy: A systematic review of pharmacist and consumer views	Eades et al. (2011)	x				
Consensus statement on office-based treatment of opioid dependence using buprenorphine	Fiellin et al. (2004)			x		
Developing and evaluating training for community pharmacists to deliver interventions on alcohol issues	Fitzgerald et al. (2009)				x	
Virtual reality skills training for health care professionals in alcohol screening and brief intervention	Fleming et al. (2009)		**x**			
The Evolving Role of the Community Pharmacist in Chronic Disease Management - A Literature Review	George et al. (2010)	**x**				
An assessment of emergency preparedness in western Wisconsin	Gilmore et al. (2007)			**x**		
A motivational interviewing skills course for pharmacy students	Goggin et al. (2010)			**X**		
Allied health professionals' use of online evidence: a survey of 790 staff working in the Australian public hospital system	Gosling et al (2004)		**x**			
Prevention of HIV/AIDS and other blood-borne diseases among injection drug users - A national survey on the regulation of syringes and needles	Gostin et al. (1997)		**x**			
Organization and results of student pharmacist bone mineral density screenings in women	Harris et al. (2010)			**x**		
What do community pharmacists think about undertaking screening and brief interventions with problem drinkers? Results of a qualitative study in New Zealand and England	Horsfield et al. (2010)	**x**				
Nutrition and nurturing: A service-learning nutrition pharmacy course	Jarvis et al. (2004)			x		
CLARION: A novel Interprofessional approach to health care education	Johnson et al. (2006)		x			
An advanced diabetes care course as a component of a diabetes concentration	Johnson et al (2003)			x		

		Reason for exclusion				
Title	**Author, Year**	**Not an intervention for target population**	**Participants not pharmacists/ pharmacy staff/students.**	**Intervention does not target relevant lifestyle behaviours**	**Does not evaluate effect of intervention on behaviour**	**Report not available**
Role of community pharmacists in the prevention and management of the metabolic syndrome in Kuwait	Katoue et al. (2013)			x		
Certified diabetes expert nurse and nurse educators in Japan	Kawaguchi. (2007)		x			
Alcohol brief intervention in community pharmacies; a feasilbity study of outcomes and customer experiences	Khan et al. (2013)				x	
Community pharmacists' involvement in smoking cessation: familiarity and implementation of the National smoking cessation guideline in Finland	Kurko (2010)	x				
Recent trends on the future of graduate education in the pharmaceutical sciences and research	Kushwaha et al. (2010)	x				
Retail pharmacists and doping in sports: knowledge and attitudes. A national survey in France	Laure et al. (2000)			x		
Therapeutic lifestyle changes and pharmaceutical care in the treatment of Dyslipidemias in adults	Lenz (2005)	x				
An elective course on lifestyle modifications in pharmacotherapy	Lenz (2007)				x	
Therapeutic lifestyle strategies taught in U.S. Pharmacy Schools	Lenz et al. (2009)				x	
First steps towards interprofessional health practice in Tanzania: An educational experiment in rural Bagamoyo district	Leshabari et al. (2012)			x		
Weight management in primary care: how can it be made more effective?	Maryon-Davis (2005)	x				
A diabetes care team--role of diabetes specialists and certified diabetes educator	Matsuoka (2001)	x				
The Role of Academic Pharmacy in Tobacco Cessation and Control	McBane et al. (2013)	x				
Delphi survey of experts' opinions on strategies used by community pharmacists to reduce over-the-counter drug misuse	McBride (2003)			x		
Provision of advice on alcohol use in community pharmacy: a cross-sectional survey of pharmacists' practice, knowledge, views and confidence	McCraig et al. (2011)	x				
Advancing patient care through innovative practice: The Clinical Partners Program	Mehta et al. (2005)				x	
Student Confidence in Tobacco Cessation Counseling	Melton et al. (2011)					x
Smoking Cessation Counseling Practices of Texas Pharmacists	Meshack et al (2009).	x				
Involvement of Sudanese community pharmacists in public health activities	Mohamed et al. (2013)	x				
Public health and the pharmacist: a challenge of importance regarding training	Momas (2009)	x				
Atherothrombosis: epidemiology, pathophysiology, and prevention	Munger (2004)	x				
An Advanced Pharmacy Practice Experience in Public Health	Patterson (2008)				x	
Ask, advise and refer: hypothesis generation to promote a brief tobacco-cessation intervention in community pharmacies	Patwardhan & Chewning (2009)	x				
An exercise prescription course to improve pharmacy students' confidence in patient counselling	Persky (2009)				x	

		Reason for exclusion				
Title	**Author, Year**	**Not an intervention for target population**	**Participants not pharmacists/ pharmacy staff/students.**	**Intervention does not target relevant lifestyle behaviours**	**Does not evaluate effect of intervention on behaviour**	**Report not available**
Drugs and professional interactions: the modern day pharmacist	Petty (2003)			**x**		
Vaccination delivery by chain pharmacies in California: Results of a 2007 survey	Pilisuk et al. (2010)	**x**				
Subsidised nicotine replacement therapy in a community pharmacy setting	Poder et al. (2005)	**x**				
A Team-Based Learning Course on Nutrition and Lifestyle Modification	Pogge (2013)				**x**	
An elective, interdisciplinary health care case studies course	Popovich (2000)		**x**			
Diabetes care: Model for the future of primary care	Posey & Tanzi (2010)	x				
The community pharmacist and the problem of excessive drinkers	Pouyet-Poulet et al. (2001)	x				
Tobacco use and cessation counseling among health professional students: Lebanon Global Health Professions Student Survey	Sadde et al. (2009)	x				
Efficacy of continuing education in improving pharmacists' competencies for providing weight management service: Three-arm randomized controlled trial	Sarayani et al. (2012)				x	
Quality of drug use in Swedish nursing homes - A follow-up study	Schmidt & Fastbom (2000)			x		
Vaccine-related standard of care and willingness to respond to public health emergencies: A cross-sectional survey of California vaccine providers	Seib et al. (2012)	x				
Pharmacy-based needle exchange (PBNX) schemes in South East England: a survey of service providers	Sheridan et al. (2000)	x		x		
HIV prevention and drug treatment services for drug misusers: a national study of community pharmacists' attitudes and their involvement in service specific training	Sheridan et al. (1997)			x		
Implementation of pharmaceutical care services for patients with hyperlipidemias by independent community pharmacy practitioners	Shigby & Pugh (1997)			x		
A Diabetes Self-Management Education Class Taught by Pharmacy Students	Shrader et al. (2013)				X	
The long-term learning effect of training in stage of change for smoking cessation: a three-year follow up of community pharmacy staff's knowledge and attitudes	Sinclair et al. (1999)				x	
Pharmacovigilance of over-the-counter products based in community pharmacy: A feasible option?	Sinclair et al (1999)			x		
Community pharmacy personnel interventions for smoking cessation	Sinclair et al (2004)	x				
Linking India Global Health Professions Student Survey data to the World Health Organization Framework Convention on Tobacco Control	Sinha et al (2010)	x			x	
National survey of US health professionals' smoking prevalence, cessation practices, and beliefs	Tong et al (2010)	x				
Sleep disorders and hypnotic agents: medical, social and economical impact	Touitou (2007)			x		
Weight management in community pharmacy: what do the experts think?	Um et al (2013)	X				

	Reason for exclusion					
Title	**Author, Year**	**Not an intervention for target population**	**Participants not pharmacists/ pharmacy staff/students.**	**Intervention does not target relevant lifestyle behaviours**	**Does not evaluate effect of intervention on behaviour**	**Report not available**
Practice-based buprenorphine maintenance treatment (BMT): how do French healthcare providers manage the opiate-addicted patients?	Vignau et al. (2001)			x		
Is level of knowledge, attitude and use of folic acid among pregnant women in Croatia a call for public health action?	Vitale et al (2009)			x		
Need for weight management in Switzerland: findings from National Blood Pressure Week 2009	Volken et al. (2011)	x				
Tobacco use and cessation counselling: cross-country. Data from the Global Health Professions Student Survey (GHPSS), 2005-7	Warren et al. (2008)	x				
Views of the Scottish general public on community pharmacy weight management services: international implications	Weidmann et al. (2012)	x				
Evaluation of the Swiss Society of Pharmacists' campaign "Future Non-Smoker"	Wick et al. (2000)	X				
Preparing pharmacy students and pharmacists to provide tobacco cessation counselling	Williams (2009)	x				
Community pharmacists and men's health in rural Victoria	Wood et al. (2004)			x		
Call to action: Integrating student pharmacists, faculty, and pharmacy practitioners into emergency preparedness and response	Woodard et al. (2010)			x		
Effectiveness of a pharmacist-based smoking-cessation program and its impact on quality of life	Zillich et al. (2002)					

9.10 Appendix 10 – Example data collection form

Data Extraction Form

Study ID (surname first author & year published)	Maguire et al 2001
Notes	

- **General Information**

Date form completed	9/2/14
Name person extracting data	Kirsty
Report title (title of paper/report)	A randomized controlled trial of a smoking cessation intervention based in community pharmacies
Reference details	
Report author contact details	
Publication type (journal, report)	Journal article
Possible conflicts of interest (for study authors)	

- **Eligibility**

Study Characteristics	**Review Inclusion Criteria (list here)**	**Yes/No/Unclear**	**Location in text**
Type of study	**Randomised control trial** (inc ppt randomisation to conditions, include control and intervention group, includes baseline and outcome measures)	yes	325
	Non-randomised control trial		
	Before and after study		
	Intervention study (inc. outcome measures, no baseline measures)		
	Other design (state)		
Participants	Community pharmacists, patients.		
Types of intervention	Educational (?) Follow up from researcher		
Types of outcome measures	Self-reported smoking cessation		
Decision (Include/Exclude)	INCLUDE		
Reason for exclusion			

Notes	

DO NOT PROCEED IF STUDY IS EXCLUDED FROM REVIEW

- **Population and setting**

	Description (inc. comparative info for intervention and control group if available)	**Location in text (page no)**
Population description (where are ppts drawn from?)	Pharmacists in London and northern Ireland	326
Setting (inc. location & social context)	No information	
Method(s) ppt recruitment	mailing and via an advertisement in the pharmaceutical press"	326
Notes		

- **Methods**

	Descriptions as stated in report/paper	**Location in text**
Aim of study	No specific aim stated. State that paper "reports a randomized controlled trial, evaluating a specially structured intervention package, the Pharmacists' Action on Smoking(PAS) developed and piloted in Belfast"	326
Design	RCT	
Unit of allocation?		
Start/End date	?	
Duration of participation (recruitment to last follow up)	2 years(?) last patient follow up.	
Notes		

- **Risk of bias**

Domain	**Risk of bias** Low/High/Unclear	**Support for judgement**	**Location in text**
Random sequence generation (selection bias)	High	Pharmacists not randomly allocated to either condition – they delivered both 'intervention care' and 'standard care'.	326
Allocation concealment (selection bias)	High	Pharmacists not randomly allocated to either condition – they delivered both 'intervention care' and	

		'standard care'.	
Blinding of participants and personnel (performance bias)	High	**Outcome group:** Smokers blind to condition? **All/**Pharmacists delivered both conditions	
Blinding of outcome assessment (detection bias)	High	**Outcome group:** **All/** Pharmacists delivered both conditions so not blind.	
Incomplete outcome data (attrition bias)	High	Does not provide any information on drop outs	
Selective outcome reporting? (attrition bias)	High	Does not provide any information on drop outs	
Other bias	Pharmacists paid £15 for every smoker enrolled and followed up at 12 months		
Notes			

- **Participants**

Provide overall data and, if available, comparative data for each intervention or comparison group

	Descriptions as stated in report/paper	**Location in text**
Total number eligible	Pharmacists (not stated) Patients – not stated	
Total number recruited	Pharmacists – 124 Patients - 484	326, 328
Withdrawals and exclusions	Not stated	
Age (mean, range etc)	Pharmacists – not stated Patients: Intervention: 42 (17-69) Control: 38 (25-72)	328
Sex	Pharmacists – not stated Patients: Intervention: F 107, M 158. Control: F 96, M 123	328
Race/ethnicity	Not stated	
Occupation (pharmacy undergraduate/qualified pharmacist/pharmacy staff)	Community pharmacists	
Notes		

- **Intervention groups**

Copy and paste table for each intervention and comparison group

	Descriptions as stated in report/paper	**Location in text**
Description	(a) No information given	

1. Theoretical basis of intervention: how was it developed, rationale, use of theory.	(b) 3 hour workshop on smoking cessation (inc. detailed description of methodology). Covered epidemiology, smoking stats, use of NRT, cycle of change model and PAS model (Maguire, 1995, 1996, 1997). Followed up by one of two researchers to provide support re implementation of intervention. Pharmacists 'trained to identify as many opportunities for promotion of the services as possible' so study not limited to customers asking for NRT – ask clients about smoking when dispensing meds.	
2. Elements/components of intervention		326
3. Use of BCTs within interventions aimed at changing pharmacists' behaviour		
Duration of intervention (how long?)	3 hour training session. Does not state how long follow up lasted, how many times or how long after initial training prog.	326
Timing (frequency, duration of each episode)	As above	
Delivery (mechanism, medium intensity, fidelity)	No information.	
Providers (number, profession, training)	One of the authors provided training. He and another researcher provided follow up. No other information given.	326
Notes	n.b. being paid for every smoker enrolled and followed up at 12 months.	

- **Outcomes**

Copy and paste for each outcome

	Descriptions as stated in report/paper	**Location in text**
Outcome name	Smoking status	
Outcome definition used in study (for comparison to ours)	Self-reported abstinence supported by negative urinary cotinine test at 12 months	328
How was outcome measured? (e.g. questionnaires, exams, self -reflection, observation)	Self-report and urine test	327
Unit of measurement (if applicable)		
Is outcome tool validated? (if applicable)		
Notes		

	Descriptions as stated in report/paper	**Location in text**

Outcome name	Pharmacists' experiences during study	328
Outcome definition used in study (for comparison to ours)		
How was outcome measured? (e.g. questionnaires, exams, self -reflection, observation)	Semi structured interview and focus group	328
Unit of measurement (if applicable)		
Is outcome tool validated? (if applicable)		
Notes		

- **Results**

	Descriptions as stated in report/paper	**Location in text**
What analysis was used to determine outcome of data?	Qual: clustering the data using the "Gestault method" (??) Chi square analysis and descriptive stats.	
If appropriate, state statistical analysis used. **What results were reported?** (e.g. CIs, means, p values)	44% of pharmacists had enrolled at least 1 patient in study whilst only 24 pharmacists enrolled 12 or more patients in 1 year. In PAS group none of the pharmacists reported follow up consultations beyond 4 weeks other than for supply of NRT. Smoking cessation: PAS model 14.3% had abstained for 12 months compared with 2.7% of controls (chi squared= 16.2, p<0.001). At 3 months 11% of non PAS reported not smoking compared with 27.5% of PAS group. Cotinine levels higher in intervention group than control group.* Reported that pharmacy type, size, pharmacist age or gender did not influence smoking cessation rates (but do not provide figs).	328
If applicable, reported qual. Findings	NB. Not reported as themes, just summarised. Pharmacists believed PAS model was practical, useful and successful smoking cessation intervention. Felt knowledge of cycle of change (Bunton et al, 1999) was valuable when trying to change clients smoking behaviour. Lack of time and insufficient remuneration main barriers. Some felt project lost them custom. Pharmacists felt need to improve relationships with GPs. Pharmacists also commented on need to improve pharmacists and counter assistants'	329

	communication skills to facilitate clients becoming more receptive to health promo advice	
Notes	Pharmacists who did not recruit any patients did not want to participate in interviews/focus groups. *Explained as either chance finding or because some ppts in intervention group said they were abstainers but abstained for day or two before urine test in order to pass it.	

- **Applicability**

Does the study directly address the review question? (any issues of partial/indirect applicability?)	Did not state review question/aim	

- **Other Information**

	Descriptions as stated in report/paper	**Location in text**
Key conclusions of study authors		
References to other studies	Maguire 1996	
Correspondence required for further study information (what and from whom?)	PAS model can be effective method of providing smoking cessation support in the community pharmacy setting. Concluded that increased success in PAS condition compared to standard advice demonstrates that increased success was due to advice and support offered by community pharmacists. Minority of pharmacists who initially expressed interest were motivated to take part in study and many were not able to recruit patients at "desired rate". Concluded enthusiastic pharmacists could volunteer for this rather than expecting all pharmacists to participate.	
Correspondence received (from whom, what and when?)		
Notes		

9.11 Appendix 11 MMAT

Types of mixed methods study components or primary	ia (see tutorial for definitions and examples)	Responses			
		Yes	No	Can't tell	Comments
Screening questions	• Are there clear qualitative and quantitative research questions (or objectives*), or a clear mixed methods question (or objective*)?				
(for all types)	• Do the collected data allow address the research question (objective)? E.g., consider whether the follow-up period is long enough for the outcome to occur (for longitudinal studies or study components).				
not feasible or appropriate when the answer is 'No' or 'Can't tell' to one or both screening questions.					
1 Qualitative	11 Are the sources of qualitative data (archives, documents, informants, observations) relevant to address the research question (objective)?				
	12. Is the process for analyzing qualitative data relevant to address the research question (objective)?				
	13. Is appropriate consideration given to how findings relate to the context, e.g., the setting, in which the data were collected?				
	14. Is appropriate consideration given to how findings relate to researchers' influence, e.g., through their interactions with participants?				
2. Quantitative	2.1 Is there a clear description of the randomization (or an appropriate sequence generation)?				
randomized controlled	2.2. Is there a clear description of the allocation concealment (or blinding when applicable)?				
(trials)	2.3. Are there complete outcome data (80% or above)?				
	2.4. Is there low withdrawal/drop-out (below 20%)?				
3. Quantitative	3.1 Are participants (organizations) recruited in a way that minimizes selection bias?				
non-randomized	3.2. Are measurements appropriate (clear origin, or validity known, or standard instrument; and absence of contamination between groups when appropriate) regarding the exposure/intervention and outcomes?				
	3.3. In the groups being compared (exposed vs. non-exposed; with intervention vs. without; cases vs. controls), are the participants comparable, or do researchers take into account (control for) the difference between these groups?				
	3.4. Are there complete outcome data (80% or above), and, when applicable, an acceptable response rate (60% or above), or an acceptable follow-up rate for cohort studies (depending on the duration of follow-up)?				
4. Quantitative	4.1 Is the sampling strategy relevant to address the quantitative research question (quantitative aspect of the mixed methods question)?				
descriptive	4.2. Is the sample representative of the population understudy?				
	4.3. Are measurements appropriate (clear origin, or validity known, or standard instrument)?				
	4.4. Is there an acceptable response rate (60% or above)?				
5. Mixed methods	5.1 Is the mixed methods research design relevant to address the qualitative and quantitative research questions (or objectives), or the qualitative and quantitative aspects of the mixed methods question (or objective)?				
	5.2. Is the integration of qualitative and quantitative data (or results*) relevant to address the research question (objective)?				
	5.3. Is appropriate consideration given to the limitations associated with this integration, e.g., the divergence of qualitative and quantitative data (or results*) in a triangulation design?				
to 14), and appropriate criteria for the quantitative component (2.1to 2.4, or 3.1to 3.4, or 4.1to 4.4), must be also applied.					

9.12 Appendix 12 Participant Information Sheet

Participant Information Sheet

Project Title: Community pharmacists' experiences of public health provision for non-diabetic patients with hypertension and hyperlipidaemia.

You are being invited to take part in a research study. Before you decide whether or not to take part, it is important for you to understand why the research is being done and what it will involve. Please take time to read the following information carefully.

What is the purpose of the study?

In recent years, formalised by the pharmacy contract, pharmacists have become increasingly involved in activities relating to public health. A strong body of evidence consistently shows that interventions delivered by pharmacists have significant clinical benefits in relation to a number of cardiovascular disease risk factors. However research has found varying levels of pharmacist-led health promotion activity. A wide range of factors influence pharmacists' health promotion activity therefore more research is needed to develop a greater understanding of community pharmacists' experience, particularly in relation to cardiovascular health in the non-diabetic population.

Why have I been chosen?

Community pharmacists working in chain and independently owned pharmacies at different geographical locations across the Midlands have been invited to take part in this study.

What will happen to me if I take part?

If you decide to take part in the study the researcher will arrange to meet with you at a convenient time and place. This could be at your home, workplace or at a meeting venue. Participation in the study involves a single interview which is expected to last between 45 and 60 minutes. The researcher will ask you some questions about your experience, thoughts and opinions about providing public health services in the pharmacy, particularly in relation to cardiovascular health. The interview will be recorded using a digital recording device so the interviewer can transcribe it at a later date. At the end of the interview you will be asked to give yourself a different name so that nobody will be able to identify you from the data. Anything you say will be kept completely confidential.

Are there any potential risks in talking part in the study?

It is not expected that you will experience any disadvantages as a result of participating in the study. You may have concerns about expressing opinions that your employer may disapprove of, given that an audio recording of the interview will be made. Anything that you chose to say will remain confidential. Nobody, including your employer, will be able to identify you or your place of work from the study results.

Do I have to take part?

No, you have no obligation to take part in this study. If you do decide to take part in the study you can still stop and withdraw at any point without having to provide an explanation.

Will my taking part in this study be kept confidential?

All of the information that you tell the researcher will be kept completely confidential. Only the researcher will know who you are. You will be asked to choose a different name for yourself, and you will be known under that name. The interview will be recorded on a password protected digital audio device which will be stored in a locked filing cabinet at Aston University. The recording will be downloaded onto a password protected computer at Aston University. The interview recording and transcript will be stored for up to 5 years after which it will be destroyed.

What will happen to the results of the research study?

The interviews will be analysed and the results will be published as part of a PhD thesis and potentially in an academic journal. The researcher's academic supervisors may look at an anonymised version of the interview transcript. Direct quotations of what you have said in the interview may be used as part of the results. Nobody will be able to identify you from the quotations or results of the study.

You will be given the opportunity to give the researcher your contact details if you would like to be sent a copy of the study findings.

Who is organising and funding the research?

Kirsty Morton, a PhD student from the School of Life and Health Sciences at Aston University is organising and conducting the research. The research is supervised by Professor Helen Pattison, Dr Rachael Powell and Professor Chris Langley from the School of Life and Health Sciences at Aston University. The research is funded by the Economic and Social Research Council (ESRC) and the Medical Research Council (MRC).

Who has reviewed the study?

The study has been reviewed and approved by Aston University's Ethics Committee.

Who do I Contact if Something Goes Wrong or I need Further Information?

If you have any questions, concerns or would like further information about the study please feel free to contact the researcher, Kirsty Morton, at mortonk2@aston.ac.uk or 0121 204 4250.

You can also contact the researcher's supervisor, Professor Helen Pattison, on h.m.pattison@aston.ac.uk or telephone 0121 204 4073.

Who do I contact if I wish to make a complaint about the way in which the research is conducted ?

If you have any concerns about the way in which the study has been conducted you should contact the Secretary of Aston University Research Ethics Committee, John Walter, on j.g.walter@aston.ac.uk or telephone 0121 204 4665.

9.13 Appendix 13 – Consent form

Volunteer Consent Form

Title of Project: Community pharmacists' experiences of public health provision for non-diabetic patients with hypertension and hyperlipidaemia.

Name of Chief Researcher: Kirsty Morton

		Tick Box
1	I confirm that I have read and understood the information sheet for the above study. I have had the opportunity to consider the information, ask questions and have had any questions answered satisfactorily.	
2	I understand that my participation is voluntary and that I am free to withdraw at any time without giving any reason, without my legal rights being affected.	
3	I agree to the interview being digitally recorded and transcribed with my personal information removed.	
4.	I understand that my interview responses will be looked at by the researcher's academic supervisors. These responses will not contain any personal information that could identify me.	
5.	I understand that I may be directly quoted under another name. The things I say may be published but any publication will not contain any personal information that could identify me.	
6.	I agree to take part in the above study.	

_____ _____ _____

Name of volunteer Date Signature

_____ _____

Researcher Date Signature

9.14 Appendix 14 – Interview Schedule

a) **Tell me about your health.**

b) **Tell me about your high blood pressure and/or high cholesterol.**
[Prompts: what condition is, how long patient has had it, whether they perceive any symptoms]

c) **What do you think caused your high blood pressure and/or high cholesterol?**
[Prompts: diet, age, exercise, smoking, familial, other]

d) **How were you diagnosed with high blood pressure and/or high cholesterol?**
[Prompts: visit to pharmacist, doctor or practice nurse, encouraged to see health professional by friend/relative]

e) **If you were having problems with your high blood pressure/cholesterol medication, who would you go to for advice?**
[Prompts: pharmacist, doctor, nurse, friend/relative]

f) **Tell me about the medicines you are taking.**
[Statins, water tablets,]

g) **How do you monitor your high blood pressure and/or high cholesterol?**
[Prompts: self-testing, check-ups with health professionals (doctor, nurse, pharmacist)]

h) **Have you done anything differently since you were diagnosed with high blood pressure and/or high cholesterol?**
[Prompts: diet, weight loss, exercise, stopped smoking, adhere to prescribed medication]

i) For diabetic + hyperlip/hyperten patients: **Are there any differences in the way you manage the diabetes compared to your high blood pressure/cholesterol?**
[Prompts: relationship with doctor/pharmacist/nurse, response to symptoms, medication adherence, lifestyle]

j) **In your opinion, what is the role of the community pharmacist?**
[Prompts: dispense prescriptions, medication advice, health information, lifestyle advice, screening services, smoking cessation, weight reduction services]

k) **Does your community pharmacist help you manage your high blood pressure and/or high cholesterol?...Tell me more…**
[Prompts: medication advice (MURs/NMS), health information, lifestyle advice (diet, exercise, weight loss, smoking cessation)]

l) **Tell me about a recent time you've gone to a pharmacy to collect your blood pressure/cholesterol medication.**
[Prompts: interaction with pharmacist, advice offered by the pharmacist (if any), information patient required (if any), questions pharmacist asked (if any)]

m) **Has a community pharmacist discussed your diet or exercise habits with you? Tell me more.**
[Prompt: patient/pharmacist initiate the conversation, helpful/unhelpful]

n) **What are your thoughts on the suitability of the pharmacy as a place to receive advice about your diet and exercise**?
[Prompts: privacy, pharmacist qualifications, pharmacist's role, appropriate location]

o) **What help or support would you like to receive from your pharmacist in relation to your condition**?

[Prompts: dispensing of medication, medication advice and monitoring, lifestyle change advice, condition self-management support]

p) Is there anything I haven't asked about that you think is relevant or important?

Demographics

1. Age
2. Gender
3. Condition (hypertension/hyperlipidaemia/diabetes)
4. Duration since patient was diagnosed.
5. Postcode
6. Occupation
7. Have a regular pharmacy they visit?