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General practioners' and psychiatrists' attitudes to and involvement in cardiovascular health promotion for people with serious mental illness (SMI).

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General practitioners' and psychiatrists' attitudes to and involvement in cardiovascular health promotion for people with serious mental illness (SMI).

Dr Jude Nnamdi Chukwuma

Submitted to the Swansea University in fulfilment of the requirements for the Degree of Medical Doctorate

2012

Declaration

This work has not previously been accepted in substance for any degree and is not being concurrently submitted in candidature for any degree.

Signed ....

Date 26/07/2012

STATEMENT 1

This thesis is the result of my own investigations, except where otherwise stated. Where correction services have been used, the extent and nature of the correction is clearly marked in a footnote(s).

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Thesis summary

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Candidate's Surname / Family Name: Chukwuma

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Candidate for the Degree of: MD in Medicine.

Full title of thesis: General practitioners' and psychiatrists' attitudes to and involvement in cardiovascular health promotion for people with serious mental illness (SMI)

Summary:

Background: People with serious mental illness (SMI) have higher than average rates of cardiovascular disorders, and tend to die young from these disorders. Health promotion and lifestyle counselling are some of the many ways of reducing morbidity and mortality in this very vulnerable population.

Aims: To investigate General Practitioners' (GP) and psychiatrists' attitudes to cardiovascular health promotion for people with SMI, establish their levels of involvement in these important clinical activities, and explore any associations between the health practitioners' own health behaviours / lifestyles and their attitudes to, and involvement in, cardiovascular health promotion for people with SMI.

Method: The design was a cross sectional survey using a 27-item questionnaire. Data was analyzed using chi-square tests, odd ratios, t-tests, linear and logistic regression.

Results: 280 of 294 questionnaires were received (response rate 95.2%); GP and psychiatrist respondents were similar in terms of age and sex distribution. GPs' and psychiatrists' attitudes and reported behaviours differed. In univariate analyses psychiatrists were significantly more likely, than GPs, to report positive attitudes to cardiovascular health promotion. Conversely, GPs were significantly more likely, than psychiatrists, to report day-to-day involvement in identifying cardiovascular risk factors among people with SMI. In multivariate analyses a more complex picture emerged with other factors proving important.

Conclusions: GPs and psychiatrists differed in their attitudes to and reported involvement in cardiovascular health promotion for people with SMI. Factors other than professional status alone were important.

Implications for further research, training, style of working and methods of remuneration are discussed.

Abstract

Background:

People with serious mental illness (SMI) have higher than average rates of cardiovascular disorders, and tend to die young from these and other common diseases. Health promotion and lifestyle counselling may be able to contribute to reducing morbidity and mortality in this very vulnerable population.

Aims:

To investigate General Practitioners' (GPs)' and psychiatrists' attitudes to cardiovascular health promotion for people with SMI, establish their levels of involvement in these activities, and explore any associations between the health practitioners' own health behaviours / lifestyles and their attitudes to and involvement in cardiovascular health promotion for people with SMI.

Hypotheses:

(1) GPs are more likely than psychiatrists to report positive attitudes to health promotion for people with SMI.
(2) GPs are more likely than psychiatrists to report involvement in cardiovascular health promotion for people with SMI.
(3) There are no differences between GPs and psychiatrists in terms of the effects of their own health behaviours on their attitudes to cardiovascular health promotion for people with SMI.

(4) There are no differences between GPs and psychiatrists in terms of the effects of the practitioners' own health lifestyles on their involvement in cardiovascular health promotion for people with SMI.

Methods:

A cross-sectional survey was administered to GPs and psychiatrists attending conferences and meetings in Wales using a previously validated questionnaire supplemented by additional items. Power calculations were based on previous work. Descriptive statistics were used to compare demographic characteristics of the sample. Means, standard deviations and confidence intervals were calculated for normally distributed continuous variables. Univariate analyses to examine associations between variables of interest were conducted using Pearson chi-square (x^2) for 2 by n tables, whilst student's t-tests were used to compare means between groups. To simplify the data, and to explore further the univariate associations, new summary variables were derived by combining existing variables whose properties were then examined. As well as reducing complexity this also created variables which could be treated as continuous and used in the multivariate analysis and tests of hypotheses. The tests of hypotheses were conducted using linear regression. Multivariate analysis of categorical dependent variables was conducted using logistic regression.

Results:

The response rate was 95.2% with 280 of 294 completed questionnaires being returned. One hundred nineteen were from GPs, and 158 were from psychiatrists. Both groups were similar in terms of age and sex profile and similar to the age sex breakdown of all GPs in Wales.

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Hypothesis one: in univariate analyses GPs were more negative than psychiatrists about the 'effectiveness of lifestyle interventions' (t=-2.49, p=0.016) and scored lower than psychiatrists on 'taking responsibility for health promotion' (t=-2.913, p=0.004). From linear regression analysis a more nuanced picture emerged which accounted for 7.3% of the variance. The following independent variables, in order of descending effect, were predictive of being positive about the 'effectiveness of lifestyle interventions':

- belief in own life style counselling skills;
- taking responsibility for delivering lifestyle interventions;
- being a psychiatrist rather than a GP.

Hypothesis two: GPs were significantly more likely than psychiatrists to report day-to-day involvement in cardiovascular health promotion for people with SMI in both univariate and multivariate analyses (hypothesis two). The other predictor variables in the linear regression models were, in order of significance, having a positive attitude to lifestyle interventions and taking responsibility for health promotion. The model accounted for 8% of the variance.

Hypothesis three: no relationships were found between GPs' and psychiatrists' own lifestyle behaviours and their attitudes to cardiovascular health promotion. GPs were more likely than psychiatrists, before and after adjusting for age and sex, to report being current smokers (odds ratio 2.65, 95% CI from 1.16 to 6.03) and to report an unspecified level of recreational alcohol consumption (odds ratio 2.27, 95 % CI from 1.33 to 3.87).

Hypothesis four: in linear regression analyses a weak relationship was found between GPs' and psychiatrists' not using alcohol and their reported involvement in health promotion for people with SMI. This had less effect than whether they were a GP or a psychiatrist, with GPs significantly more likely than psychiatrists to be actually involved in cardiovascular health promotion for people with SMI.

Conclusions:

In this questionnaire based survey, GPs and psychiatrists differed in their attitudes to and reported involvement in cardiovascular health promotion for people with SMI. Factors other than professional status were also important. The first hypothesis was partially rejected – GPs were more negative than psychiatrists – but this was less important than respondents' belief in their own counselling skills and taking responsibility for life style interventions. Given that the final model only accounted for 7.3% of the variance other factors must also be important. Hypothesis two was accepted as, conversely, GPs were significantly more likely than psychiatrists actually to be involved in delivering cardiovascular health promotion to people with SMI. Hypothesis three was accepted. However, it was noted that GPs were more likely than psychiatrists to be current smokers and to report alcohol use. When testing hypothesis four, a weak relationship was found between 'no current alcohol use' and being involved in health promotion, although this effect was less significant than being a GP, rather than a psychiatrist. The main limitations of the study are: the sampling frame, and the self report nature of the data. The former may have led to selection bias. The latter may have led to reporting bias. These are mitigated by the high response rate and the demographic similarity of the sample to the general population of GPs.

Implications:

If replicated, the study may have implications for training about health promotion and lifestyle counselling across undergraduate and postgraduate levels. A review of consultation times, particularly within general practice, to accommodate extended episodes of consultation might, if feasible, facilitate delivery of cardiovascular health promotion and lifestyle counselling for people with SMI.

Despite relatively less positive attitudes, GPs report greater involvement, than psychiatrists, in health promotion for people with SMI. This may partly be explained by the current formal inclusion of health promotion in the Quality Outcome Framework (QOF) of the GP contract. It would be interesting to investigate how mental health promotion for people with SMI in secondary care could be encouraged. One possibility in England would be to research the possibility of including it in CQUIN (Commissioning for Quality and Innovation) payment frameworks for secondary care.

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Acknowledgements

Statement of authorship

I participated in all stages of this research project under the supervision of Professor Keith Lloyd. As author of the thesis, I was principally involved in planning, design, data collection, data entry, data analyses and writing up of the thesis. I was responsible for the choice of study design, and the planning of all stages of the research. My involvement was based on a literature review and my previous knowledge of the field.

The planning and execution of data collection, analyses and writing up were entirely my responsibility.

Abbreviations and definitions

BMI – Body Mass Index

CHD – Coronary Heart Disease; a form of CVD

CME – Continuing Medical Education

CPA – Care Programme Approach

CPD – Continuing Professional Development

CVD – Cardiovascular Disorder; a group of disorders which includes CHD

CQUIN – Commissioning for Quality and Innovation

DoH – Department of Health

EBM – Evidence Based Medicine

FP / FPs – Family Practitioner / Family Practitioners; a term for General

Practitioners in some countries including North America

GMS contract – General Medical Services NHS contract; a type of contract for

General Practitioners

GP / GPs – General Practitioners

HA / HAs – Health Authority / Health Authorities

HImP / HImPs – Health Improvement Programme / Health Improvement

Programmes

HPC – Health Promotion Committee

LHB / LHBs – Local Health Board / Local Health Boards

LMC – Local Medical Committee

LTSA / LTSAs – Long Term Service Agreement / Long Term Service Agreements

MAAG – Medical Audit Advisory Group

MHPro – Mental Health Professional

NHS – National Health Service

NICE – National Institute of Clinical Excellence

NRES – National Research Ethics Service

PAD – Peripheral arterial disease

PCT / PCTs – Primary Care Trust / Primary Care Trusts

PMHP – People with mental health problems (SMI)

Psych – psychiatrist

QoF / QOF – Quality Outcome Framework

QMAS – an Information Technology based system or tool for collating and calculating QOF points accumulated by GP practices at the end of the financial year. It takes account of the size of the practice and the practice population with the chronic illness (e.g. cardiovascular disorders) in converting the points into a payable amount.

Red book – the contract or terms of service for General Practitioners that was in operation through the 1990s until 31st March 2004, when a new General Medical Services (GMS) NHS contract was introduced.

SMI – Serious mental illness

UK – United Kingdom

WHO – World Health Organisation

1 Introduction.

Health promotion and disease prevention form a major part of the health strategies outlined by various governments throughout the world; In the United Kingdom cardiovascular disease prevention has been incorporated in various government white papers including the *Health of the Nation* (DoH 1992) and *Our Healthier Nation* (DoH 1998). A number of physical health problems, including cardiovascular risk factors, are commoner in people with serious mental illness (SMI) compared to the general population. People with SMI die young from these common, but preventable health risks. The public health white paper *Choosing Health: making healthier choices easier* specifically identified the need to improve the physical health of people with SMI (DoH 2004).

GPs make a significant contribution to the implementation of the care plan for people with SMI. They are, in the majority of cases, the first formal contact for people presenting with psychiatric conditions, and they tend to take a leading role in the management of the physical health component of the care plan for people with SMI in the community.

Psychiatrists are increasingly concerned about the particular vulnerability of people with SMI to cardiovascular disorders. The relative increased vulnerability in this patient population may be related to their lifestyle: the positive value that they may attach to maintaining a current lifestyle, as well as, to the barriers to their uptake of lifestyle interventions. These barriers include, among others, the attitudes of health

and social care professionals involved in the care and treatment of this patient population.(Carrick & Lloyd 2004; Faulkner & Biddle 2001; Wylie et al. 2002; Williams et al. 2004).

Few studies have examined the attitudes and involvement of primary and secondary care practitioners in cardiovascular health promotion for people with SMI. In order to plan strategies of future cardiovascular health promotional collaboration between General Practitioner and psychiatrist, we need to appraise and understand the attitudes to and current involvement of these professionals in cardiovascular health promotion for people with SMI.

I became interested in the area, because I observed substantial mismatch between health practitioners' wealth of knowledge of cardiovascular morbidity and mortality in people with SMI, and the level of health promotional / lifestyle modifying activities dedicated to preventive measures in this vulnerable population.

2 Background: cardiovascular health promotion in the UK.

2.1 The history and development of cardiovascular health promotion in the UK.

2.1.1 The history of health education and health promotion in the UK.

Health education has its roots in the 19th century temperance movement and in the public health work of the same period (Beattie 1992), including the Ladies Sanitary Reform Society. Both the temperance society and the Sanitary reformers worked with very poor people, who were living and working in squalid conditions, encouraging what could be described as lifestyle changes (Blane 1979). The 19th century health workers faced a dilemma between tackling problems at an individual or family level, as opposed to structural changes at societal level, e.g. waste disposal and water supply. By the 20th century, these two methods of health interventions had been established. Other ways of offering health-improving interventions were: school nurses, health visitors, central council for health educators and health education in schools. . The Second World War was a period of mass health education and immunisation. The term 'health promotion' was first used in the late 1970s or early 1980s, also during this time public health became central issue in health planning. Over the subsequent years, the emphasis widened to include both hospital-based and primary care-based health promotional interventions. Interdisciplinary training and target-setting strategies were utilized not just by the UK government, but by multinational agencies. Examples of such

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targets are the *Health for All 2000* (WHO 1979) and *Health of the Nation* (DoH 1992).

Following devolution, Wales and Scotland have continued to promote cardiovascular health. This is exemplified in a number of government initiatives and policies including the *Welsh Health Circular (2007) 082* (Welsh Assembly Government 2007); the *Promoting Cardiovascular Health: The Stroke Risk Reduction Action Plan.* (Welsh Assembly Government 2010); and the *Primary Prevention of Cardiovascular Disease in Scotland: We Must Go Further* (NHS Health Scotland 2005).

2.1.2 The historical development of cardiovascular health promotion within secondary care.

The publication of the *Health of the Nation* White Paper (DoH 1992) brought health promotion to the forefront of health planning and strategising in the UK healthcare sector. However, this coincidentally came at a time of significant financial constraints within the NHS, thus the almost immediate focus on cost containment. An ever increasing competition between healthcare interventions arose, leading to greater emphasis on issues like: outcomes, costs, cost-effectiveness and value for money, in deciding which interventions t are likely to receive funding.

The publication of *National Service Framework for Coronary Heart Disease* (DoH 2000) was followed by a move towards primary disease prevention, as opposed to

the traditional treatment of cardiovascular diseases, as well as, greater focus on an individual's absolute risk and selected population's relative increased risk.

People with SMI are particularly vulnerable to cardiovascular diseases. Some of the factors likely to contribute to this particularly increased vulnerability include issues related to medication, lifestyle, and the relative positive value that may be attached to maintaining a current lifestyle by people with SMI, as well as, the barriers to uptake lifestyle interventions by this population. In the last decade or two, psychiatrists are beginning to focus more on the cardiovascular well-being of individuals with SMI, through health promotion and education, as well as, regular physical reviews as part of the Care Programme Approach (CPA).

2.1.3 The historical development of cardiovascular health promotion within primary care.

A number of quality improvement initiatives were introduced in various regions of the UK from the early 1990s. These were initially on an ad hoc basis with different regions developing their own indicators. As time went on more central and nationwide initiatives were introduced, such as the National Institute for Clinical Excellence (NICE), presently the National Institute for Health and Clinical Excellence, which provides guidance on promoting good health and preventing and treating ill health, as well as a series of National Service Frameworks. The National Service Framework for Coronary Heart Disease (DoH 2000) was one that seemed to have initiated a move towards primary cardiovascular disease prevention with increased emphasis on the absolute risks and vulnerabilities of individuals to

cardiovascular diseases.

The standardisation and centralisation of these quality improvement initiatives, and the realisation that health promotion should be an important focus of health policy in the UK, along with a corresponding need for indicators that can be used to monitor the progress and performance of health promotion endeavours (Dean 1988) appear to have motivated the UK government to introduce standardised performance indicators across the country and link performance to GPs' pay – *Making Sense of the Red Book* (Chrisholm 1989) and *The Quality and Outcomes Framework* (NHS 2004) – resulting in contracts for GPs which include a range of performance measures in various organizational and clinical areas, including health promotion. What appears to have been overlooked in the performance rated contract is the particular vulnerability of people with SMI to cardiovascular diseases. It seemed that there was an implicit assumption that an individual must have a cardiovascular disease in order to be prioritized for cardiovascular health promotional interventions within the contract.

2.1.4 The organisational relationship of cardiovascular health promotion between primary and secondary healthcare.

The NSF for CHD and the subsequent modernised GP contract form the backbone for cardiovascular health promotion and prevention of CHD in the high risk population within primary, secondary and tertiary care services. Also; it gives guidelines on the development of protocols across primary, secondary and tertiary

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services, and agreed at primary care trusts and practice levels. It stipulates that GPs and primary care teams should develop a register of CHD patients for audit purposes, through which these practices can maintain contact with patients who mostly at risk of suffering renewed heart problems, and offer them a variety of services, including dietary and other lifestyle advice. The package as a whole is in line with the *NHS Plan* (DoH 2000), a ten year reform plan / vision published in July 2000. This plan not only underpins the founding principles of the NHS, namely, access to care for all on the basis of need, not ability to pay, but introduces significant challenges across the NHS. Two of these challenges are particularly important in terms of health promotion: firstly, partnership across the NHS to ensure the best possible care, and secondly, promoting healthy living across all societies to minimise variations in care. *The Primary care, General Practice and the NHS Plan* (DoH 2001) covers similar grounds to the *NHS Plan,* but was aimed more specifically at primary care professionals.

2.1.5 The development of cardiovascular health promotion within secondary healthcare from 1990 to time of study:

In England, *the National Service Framework for Coronary Heart Disease* (DoH 2000) is the most significant step in cardiovascular health promotion in the history of the NHS. Following devolution the Welsh, Scottish and Northern Ireland governments have continued in similar directions. Published in March 2000, the NSF for CHD set out a strategy to modernise cardiovascular heart disease (CHD) services for the subsequent 10 years. It followed the White Paper on public health, *Saving Lives: Our Healthier Nation* (DoH 1999), which prioritized cardiovascular

heart disease. The NSF for CHD highlights the need to provide structured and systematic care services for the prevention and treatment of CHD and stroke and aims to reduce deaths from CHD and stroke by 40% by the year 2010 in people aged 75 and below. It has 12 standards ranging from reducing heart disease in the population, to preventing CHD in high risk patients, and cardiac rehabilitation. It sets out the rationales for effective interventions; service models, immediate priorities, milestones and goals, as well as, models for monitoring and auditing through performance indicators. It identifies key lifestyle risk factors for CHD, namely smoking, poor diet and exercise, and highlights reduction of obesity and physical inactivity through regular physical activity, as a major factor in reducing cardiovascular disease mortality in general, and CHD in particular.

The NSF for CHD brought together, under one umbrella, a number of strategies and policies in the preceding years aimed at identifying risk factors for cardiovascular disorders and at putting into practice activities to reduce these risk factors and promote healthy lifestyles. Some of these strategies include the White Paper on Tobacco, *Smoking Kills* (DoH 1998), *Health Survey for England 1996* (Stationery Office 1998), and *Quantification of the Effects of Air Pollution in the United Kingdom* (DoH 1998). Table 2.1 summarizes the 12 Standards of the NSF for CHD.

Table 2.1: The 12 Standards of the NSF for CHD (adapted from the *Coronary Heart Disease: National Service Framework for Coronary Heart Disease - Modern Standards and Service Models*; DoH 2000).

Standards 1 & 2: **Reducing heart disease in the population**	1. *The NHS and partner agencies should* develop, implement and monitor policies that reduce the prevalence of coronary risk factors in the population, and reduce inequalities in risks of developing heart disease. 2. *The NHS and partner agencies should* contribute to a reduction in the prevalence of smoking in the local population.
Standards 3 & 4: **Preventing CHD in high risk patients**	3. *General practitioners and primary care teams should* identify all people with established cardiovascular disease and offer them comprehensive advice and appropriate treatment to reduce their risks. 4. *General practitioners and primary care teams should* identify all people at significant risk of cardiovascular disease but who have not developed symptoms and offer them appropriate advice and treatment to reduce their risks.
Standards 5,6 & 7: **Heart attack and other acute coronary syndromes Standard**	5. *People with symptoms of a possible heart attack should* receive help from an individual equipped with and appropriately trained in the use of a defibrillator within 8 minutes of calling for help, to maximise the benefits of resuscitation should it be necessary. 6. *People thought to be suffering from a heart attack should* be assessed professionally and, if indicated, receive aspirin. Thrombolysis should be given within 60 minutes of calling for professional help. 7. *NHS Trusts should* put in place agreed protocols/systems of care so that people admitted to hospital with proven heart attack are appropriately assessed and offered treatments of proven clinical and cost effectiveness to reduce their risk of disability and death.
8: Stable angina	8. *People with symptoms of angina or suspected angina should* receive appropriate investigation and treatment to relieve their pain and reduce their risk of coronary events.
Standards 9 & 10: **Revascularisation**	9. *People with angina that is increasing in frequency or severity should* be referred to a cardiologist urgently or, for those at greatest risk, as an emergency. 10. *NHS Trusts should* put in place hospital-wide systems of care so that patients with suspected or confirmed coronary heart disease receive timely and appropriate investigation and treatment to relieve their symptoms and reduce their risk of subsequent coronary events.
Standard 11: **Heart failure**	11. *Doctors should* arrange for people with suspected heart failure to be offered appropriate investigations (e.g. electrocardiography, echocardiography) that will confirm or refute the diagnosis. For those in whom heart failure is confirmed, its cause should be identified – treatments most likely to both relieve their symptoms and reduce their risk of death should be offered.
Standard 12: **Cardiac rehabilitation**	12. *NHS Trusts should* put in place agreed protocols/systems of care so that, prior to leaving hospital, people admitted to hospital suffering from coronary heart disease have been invited to participate in a multidisciplinary programme of secondary prevention and cardiac rehabilitation. The aim of the programme will be to reduce their risk of subsequent cardiac problems and to promote their return to a full and normal life.

2.1.6 The organisation and development of health promotion within primary care services from 1990 to time of study.

The Government's white paper, *Working for Patients* (DoH 1989) was a major step in highlighting the need for health promotion within the NHS. It was around the same time that the GPs' terms of service have been published – *the Statement of Fees and Allowances* (DoH 1990) also known as the *Red Book*. The *Red Book* (and its subsequent amendments) stated that all GPs were eligible to be paid for undertaking health promotion activities. It suggested that each GP practice should send an annual description of its proposed health promotion activities to the Local Health Promotion Committee (HPC). The HPC would then advise the health authority as to the appropriateness of the proposal, and recommend approval or denial of payment. By the end of each calendar year, the practices sent to the HPC confirmation of the health promotion activities carried out in the course of the year. This included any additions or alterations to the pre-approved description, together with an explanation for the variations. The health authority held the documentation received from the practices, via the HPC, as assurance that the work has been carried out. Based on this the health authority could recover past, or withhold future payments, if confirmation was not received or inaccurate documentation was submitted by a practice, and this could take as long as it was needed for the health authority to be able to confirm that the approved activities have been carried out (Ellis & Chrisholm 1997).

The HPC had to provide reasons in writing if it decided not to recommend approval

of the health promotion activities of any practice. Each HPC was composed of: a chairperson and three members appointed by the Local Medical Committee (LMC), two members appointed by the health authority, and one member appointed by the local Medical Audit Advisory Group (MAAG), one by the Local Effectiveness Committee in Wales and one by the Area Clinical Audit Committee in Scotland.

The HPC took a number of factors into account when considering practice submissions for recommendation; these included: patient needs, local health priorities, modern authoritative medical opinion and the *Health of the Nation* (1998) strategy in England, the *Strategic Intent and Direction* (2004) in Wales or the Scotland's *Health: A Challenge for us All* (2006). GP practices were allowed to join together for the purpose of health promotion activities provided, they were paid by the same health authority. Also, GPs in partnerships and those who worked as a group were allowed to provide jointly any of the health promotion activities for patients on their lists.

Of note was the apparent omission, from the *Red Book*, of strategies likely to identify and specifically channel cardiovascular health promotion activities to the more vulnerable and high risk group of people with severe SMI.

The *Red Book* and its subsequent amendments remained in operation until 31st March 2004, when a new *General Medical Services (GMS) NHS* contract was introduced. *The Quality and Outcomes Framework* introduced as part of the new

contract became a new system for payment for GPs in the NHS. A subsequent revision of this system remains in operation at the time of this study. It is supported by an IT system termed QMAS. Participation in the QOF system is voluntary for GP practices, but GPs are encouraged to participate. It is monitored and audited by the Primary Care Trusts (PCTs) in England, the Local Health Boards (LHBs) in Wales and the Health Boards in Scotland, who commission and reward practices for implementing good practice in their surgeries. Such good practice is measured by the QOF points accumulated by the practice in the course of the financial year. In the 2004 contract a total of 1050 achievable QOF points were designed around 146 performance indicators in four domains; clinical standards, organizational standards, patient experience and additional services. The clinical domain included, among other items, coronary heart disease, stroke or transient ischaemic attack, hypertension and mental health. While the organizational domain included, among other items, records and information about patients and information for patients.

QOF points allocated for best practice are now collated at the end of the financial year using the QMAS which then takes account of the size of the practice and the practice population with the chronic illness e.g. a cardiovascular disorder, in converting the points into a payable amount (Wikipedia 2007). It is notable that this contract explicitly detailed specific financial reward for aspects of cardiovascular health promotion for individuals with a diagnosed cardiovascular problem. However, it apparently failed to address the issue of providing targeted service for

people without a diagnosis or cardiovascular problems, but who are at significantly increased risk of developing such a condition, as well as, those who, due to their particular vulnerability, are less able to access generic cardiovascular health promotional activities e.g. people with SMI.

A revision of the GMS contract in April 2006 increased the clinical domain of QOF from 11 to 18 areas and reduced the achievable number of points from 1050 to 1000 by re-organisation. However, the basic structure remains unchanged. The additional clinical areas include, among other items, obesity and smoking.

Under 'Exception Reporting', the contract acknowledged that not all patients are willing to accept interventions offered by GP practices, and suggested that in order for GPs to avoid losing points on account of circumstances that are outside their control, they can exclude those patients from counting towards their achievement by including them in exception reporting. Some of the patient groups for whom exception reporting is allowed includes, among others, those refusing investigation or treatment, and those with supervening conditions (Wikipedia 2007).

Some would argue that given the very nature of some serious mental illnesses, and the sometimes associated loss of insight, some people with SMI may effectively and inadvertently be included in exception reporting. The contract seems to have omitted strategies likely to encourage GPs to target this very vulnerable group specifically and proactively, and offering them additional

encouragement towards cardiovascular health promotion.

2.1.7 The organisation and development of health promotion in secondary mental health services.

The historical development and organisation of health promotion within secondary healthcare are discussed in sections 2.1.2, 2.1.4, and 2.1.5. There is currently no specific nationally agreed arrangement for providing primary or secondary health promotion within mental health (psychiatric) services. If a person with SMI, who is currently receiving inpatient mental health care, is thought to develop a new onset CVD, a referral may be made directly for secondary care CVD review. On the other hand, referrals are made indirectly to secondary care CVD clinics (via GPs) when people with SMI who are currently receiving outpatient mental health care (community patients) are thought to develop a new onset CVD. Once referred, secondary CVD preventative measures are offered as part of the rehabilitation package in line with the NSF for CHD. Such secondary rehabilitative measures are carried out almost in parallel with continuing mental health care, with little if any liaison with mental health service providers.

The reasons for the lack of a formal, fully established and UK-wide, arrangement for cardiovascular health promotion in secondary care mental health services are not clear. However, it is notable that in recent years, with increasing awareness of the excess vulnerability of people with SMI to CHD and other CVDs, commissioning PCTs are beginning to include health promotion and lifestyle counselling as part of the CQUIN agreement with their mental health NHS

providers. An NHS mental health service provider trust would earn an additional 1.5% of its annual income if it fulfils all aspects of its CQUIN agreement with appropriate commissioning PCT. However, this has yet to be rolled out nationally in England, and similar arrangements are not in place for Wales, Scotland or Northern Ireland.

2.2 Cardiovascular health promotion in England: current provision:

2.2.1 Current policies and strategies.

The blueprint for the provision of cardiovascular health promotion in England is built on the White Papers: *Smoking Kills* (DoH 1998) and *Saving Lives: Our Healthier Nation* (DoH 1999), as well as the subsequent *National Service Framework (NSF) for Coronary Heart Disease.* The NSF for CHD was developed with the assistance of an expert External Reference Group. Its members included clinicians, scientists, epidemiologists, health service managers and voluntary agencies. Most importantly, it included patient and carer representatives from the British Cardiac Patients Association. It highlights the importance of equity and fairness in providing cardiovascular health promotion. It recognises the potential impact of changes on individuals and on the population as a whole, particularly, in those at higher than average risk (primary prevention). It also recognizes the role of health promotion in the prevention of cardiovascular disorders in those individuals who have had a heart attack or heart operation (secondary prevention and cardiac rehabilitation), helping them recover more quickly and to stay well.

Some of the important principles underpinning the NSF are that reducing the burden of CHD is not just the responsibility of the NHS, but requires action right across society, and that excellence requires important, simple things to be done right all the time.

Three of the twelve standards established in the NSF for CHD specifically address the prevention of cardiovascular disorders through health promotion and lifestyle changes over a 10 year period commencing year 2000; It called on the NHS and partner agencies to develop, implement and monitor policies that reduce the prevalence of coronary risk factors in the population, and reduce inequalities in risks of developing heart disease, as well as, contribute to a reduction in the prevalence of smoking in the local population. It highlights the need to put in place agreed protocols / systems of care so that, prior to leaving hospital, people admitted to hospital suffering from coronary heart disease have been invited to participate in a multidisciplinary programme of secondary prevention and cardiac rehabilitation.

The aim of the programme will be to reduce the risk of subsequent cardiac problems and to promote their return to a full and normal life. It specifically suggested that general practitioners and primary care teams should identify all people with established cardiovascular disease, and offer them comprehensive advice and appropriate treatment to reduce their risks, as well as, identify all people at significant risk of cardiovascular disease, but who have not developed

symptoms, and offer them appropriate advice and treatment to reduce risk (DoH 2000).

The NSF for CHD recommends that local delivery plans for improving the prevention and treatment of CHD will be drawn up by local implementation teams. These plans will be reflected in Health Improvement Programmes (HImPs) drawn up by Health Authorities (HAs) and their partners, and in Long Term Service Agreements (LTSAs). It also recommends that the NHS and partner agencies should contribute to the delivery of the local programme of effective policies on reducing smoking, promoting healthy eating, promoting physical activity and reducing overweight and obesity, as well as, agree detailed locally relevant referral criteria and care pathways for cardiovascular diseases (DoH 2000).

2.2.2 Current theories of health promotion.

There are many theories of health promotion. At the level of the individual, the main theories are: the Social Learning theory, the Health Belief Model, the Theory of Reasoned Action, and the Transtheoretical (stages of change) Model.

The focus of the Social Learning theory is that behaviour is the product of a 3-way continual interaction between inherent behaviour, personal factors and environmental influences. Social Learning theory is based on the principle of learning and modelling through the interaction of environmental (social) and psychological (cognitive) factors that influence behaviour. It suggests that attention, retention, and motivation are necessary ingredients for learning and reproducing

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behaviour. It is derived from the work of Albert Bandura which proposed that social learning occurs through four main stages of imitation, namely: close contact, imitation, understanding of concepts, and role modelling. It incorporates the psychology of operant conditioning and reinforcement.

In Social Learning theory, behaviour is influenced by environmental and psychological factors. It is thought that the consequences of behaviour have an impact on the motivation of people to engage in that specific behaviour. People tend to avoid negative consequences, but tend to desire positive results. If a positive outcome is expected or obtained from a behaviour, then the likelihood to engage in that behaviour increases.

Financial incentives as incorporated in the QOF remuneration package for GPs may be considered a form of positive reinforcement for health promotion, as involvement in health promotion is likely to be reinforced with positive outcomes (financial incentives and improvement in cardiovascular wellbeing). Critics argued that the original framework of social learning theory failed to acknowledge the influence of free will, and took a deterministic view of human behaviour. However, this issue appears to have been addressed in subsequent modifications of the original theory.

The Health Belief Model was developed in the 1950s by a group of the U.S. Public Health Service social psychologists who wanted to explain the low uptake of

disease preventative measures. In this model, the individual's perceived threats of and susceptibility to a health problem prompts an appraisal of the potential benefits of engaging in the recommended behaviour for preventing or managing the problem (Ogden et al. 2007). This model appears to be associated with the "cycle of change" within the Transtheoretical model that includes precontemplation, contemplation, decision / determination, action and maintenance (discussed later in this section). This cycle may be driven in either direction by the outcome of the above appraisal process.

The Health Belief Model is driven by six major concepts: perceived susceptibility, perceived severity, perceived benefits, perceived costs, motivation, and other modifying factors.

Perceived susceptibility (an individual's perception of the likelihood of personally acquiring the condition) interacts with perceived severity (an assessment of the seriousness and potential consequences of the condition). These are balanced against perceived benefits (perception of positive consequences of adopting preventative behaviours) on one hand, and the perceived costs (assessment of expenditure and barriers to preventative behaviours) on the other. The balance of the above individual assessment partially determines motivation for change. Motivation is also influenced by a number of modifying factors, including: personal variables, external influences, personality, etc.

An individual's likelihood to engage in an health-related behaviour depends on the person's perception of four critical areas: the severity of a potential illness, the person's susceptibility to that illness, the benefits of taking a preventive action, and the barriers to taking that action (Ogden et al. 2007).

The common-sense approach of the health belief model is seen as a strength, because it is easy for non-psychologists to assimilate and apply. However, it has been criticised for its apparent neglect of social factors, and lack of causal ordering.

The theory of reasoned action derives from social psychology. It is based on the belief that humans are rational, and that human behaviours are under voluntary control (Sheppard et al. 1988). Three general constructs are linked in the theory of reasoned action: behavioural intention, attitudes, and subjective norms. 'Behavioural intention' is a function of both attitudes toward a behaviour and subjective norms toward that behaviour. 'Attitudes' are the sum of beliefs about a particular behaviour weighted by the individual's evaluation of the importance of these beliefs. 'Subjective norms' refer to the influence of people in the individual's social environment on his / her behaviour, i.e. the individual's perceived opinions of other people weighted by the importance the individual attributes to each of these opinions.

The theory suggests that actual behaviour is predicted by person's behavioural

intention, which is the sum of the person's attitude towards the behaviour and subjective norms. In other words, a person's voluntary behaviour is predicted by the individual's attitude toward that behaviour and how he / she thinks other people would view him / her if he / she performed the behaviour. A criticism of the theory of reasoned action is its apparent disregard for the influence of structural and other environmental factors on behaviour.

The Transtheoretical Model consists of four core constructs, namely: stages of change, processes of change, decisional balance, and self-efficacy. (Prochaska et al. 1997). Stages of change describe change as a process involving progress through a series of stages: precontemplation, contemplation, preparation, action, maintenance and termination (Prochaska et al. 1997). Prochaska et al. suggested that interventions to change behaviour are more effective if matched to individual stages of change. Stages are defined as follows:

Precontemplation – the individual is not intending to take action in the foreseeable future, and is likely to be unaware that his / her behaviour is problematic.
Contemplation – the individual is beginning to recognize that his / her behaviour is problematic, and starts to look at the pros and cons of the specified behaviour.
Preparation – the individual is intending to take action in the immediate future, and may begin taking small steps towards change.
Action – the individual has made specific overt lifestyle modifications, and positive change has occurred.

Maintenance – the individual is working to prevent relapse. This stage may last indefinitely.

Termination – the individual has no further temptation and can be certain that he / she will not return to the old unhealthy habit as a way of coping.

Relapse (recycling) – this is not considered a stage in itself, but rather the return from action or maintenance to an earlier stage (Prochaska et al. 1997).

Prochaska et al. defined 'processes of change' as covert and overt activities that people use to progress through the stages, and defined 'decision balance' as a reflection of the individual's relative weighing of the pros (potential benefits) and cons (costs) of changing a target behaviour. They suggested that the 'decision balance' is one of the best predictors of future change. The pros and cons combine to form a decisional 'balance sheet' of comparative potential gains and losses of changing a target lifestyle (Prochaska et al. 1997).

'Self-efficacy' was defined by Prochaska et al. as the situation-specific confidence people have and which enables them to cope with high risk situations without relapsing to their unhealthy habit (Prochaska et al. 1997).

Although the Transtheoretical Model is arguably the dominant model of health behaviour change, it has attracted significant criticism. A systematic review published in 2003 of 23 randomized controlled trials suggested that stage based interventions are no more effective than non-stage based interventions, or no

intervention, in changing smoking behaviour (Riemsma et al. 2003).

Attitudinal research is a commonly used method of attempting to understand people's beliefs. In this study of health promotion, the author used a valid measure based on the Social Learning and Health Belief Models to understand GPs' and psychiatrists' attitudes to, and involvement in, cardiovascular health promotion for people with SMI. Different theories of health promotion operate at community and organizational levels.

2.2.3 Current provision.

Currently GPs and their team keep an electronic register of all people with established cardiovascular disease, and offer them comprehensive advice and appropriate treatment to reduce their risks. They also keep registers of other peoples with established diagnoses that suggest a relatively increased risk of cardiovascular disease, but who have not developed symptoms, and offer them appropriate advice and treatment to reduce their risks. GPs are offered performance rated reward for their adherence to the policies and strategies through QOF. However, the current registers do not include a register specifically for people with SMI despite clear evidence of their increased risk (Brown et al. 2000; Osby et al. 2000), and the many barriers to availability of and access to cardiovascular health promotion for this vulnerable and underserved population. Prior to leaving hospital, people admitted to hospital suffering from CHD are invited

to participate in a multidisciplinary programme of secondary prevention and cardiac rehabilitation aimed at reducing their risk of subsequent cardiac problems and promoting their return to a full and normal life.

2.2.4 Cardiovascular health promotion for people with SMI; evidence for need.

Cardiovascular disease causes 29.2% (16.7 million) of all deaths globally, and there is an increasing trend. It is rapidly becoming the leading cause of death in the developing world (WHO 2005) and it was predicted that by 2010, it was to become the leading cause of death in developed world (WHO 2003). The three biggest clinical challenges that Primary Care Trusts (PCTs) in the UK are facing have been identified as CHD, stroke and diabetes (Mead 2003). Diabetes is increasingly regarded as a cardiovascular disease, with about three quarters of deaths in diabetics being due to CVD (Mead 2003), and if this assumption is accepted the CVD becomes the single biggest challenge faced by PCTs/LHBs in the UK. The rate of CVD is two to three times higher in people with SMI than the general population (Brown et al. 2000; Osby et al. 2000). Women with SMI have an even higher risk of developing CHD than men (Goff et al. 2005). Although a number of risk factors associated with CVD e.g. age, sex and family history, cannot be modified, there are a number of modifiable risk factors including: smoking, poor diet, level of exercise and alcohol consumption (Robson & Gray 2007). Some of these risk factors act in combination to produce other risk factors and health conditions including obesity, hypertension, diabetes and hyperlipidemia, which in turn contribute to CVD. Most of these health conditions and health behaviours are

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common in people with SMI and can be prevented or minimized (Harris & Barrowclough 1998; Brown et al. 2000).

2.2.5 Current gap in provision.

Importantly, despite the rigorous efforts aimed at promoting equity and fairness in the current provision, there still exists an apparent failure to address fully the particular and peculiar needs of the more vulnerable group of people with SMI, who are at high risk of developing cardiovascular diseases, and who may have limited ability to access or accept the generic cardiovascular health promoting and lifestyle changing interventions available. This gap clearly needs addressing.

3 Literature review.

3.1 Literature review strategy.

GPs' and psychiatrists' attitudes to, and involvement in, cardiovascular health promotion for people with SMI as a subject can be multifaceted and extensive. It was thought that a comprehensive literature search of the primary subject would be facilitated by breaking the primary subject down to a number of secondary subjects that interact to make up the broad primary broad subject.

Based on previous knowledge of the subject and ongoing continuing professional education and development, the following secondary subjects were thought to extensively and adequately address the various aspects of the primary subject. The secondary subjects were: cardiovascular health promotion in primary care; mental illness and physical health; attitudes of GPs and psychiatrists; mental illness in primary care; and communication / collaboration between GPs and psychiatrist.

A thorough search of existing literature for current evidence on attitudes and involvement of health professionals in cardiovascular health promotion for people with SMI was then designed using search strategy developed in line with the above primary and secondary subjects.

The current evidence on attitudes to, and involvement of, health practitioners in

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cardiovascular health promotion for people with SMI is reviewed under this section.

A computer aided search of MEDLINE (1980–2008), EMBASE (1980–2008), Psychinfo (1990–2008), CINAHL (1990–2008) and Google Scholar were conducted. This was supplemented by hand searching of relevant journals including the *British Journal of Psychiatry* (1990–2008), *International Review of Psychiatry* (1990–2008), *The British Journal of General Practice* (1990–2008) and the *British Medical Journal* (1990–2008). All Review and empirically based studies on cardiovascular health promotion in primary care, attitudes of GPs and psychiatrists, mental illness in primary care, and communication and collaboration between GPs and psychiatrists were selected, as were all review studies on mental illness and physical health.

Searches were conducted using MeSH terms (an indexing system used by MEDLINE / Pubmed) for example:
"Mental Disorder" AND "Physical Health";
"Mental Disorder" AND "Primary Care".
And limits of "English language and Humans" was applied.

Further searches were conducted using the text words: "Mentally Ill Persons", "General Practice", "Family Practice", and "psychiatrists". Also "Communication", "Collaboration", and "Co-operative Behaviour".
Relevant studies were identified and examined in detail. Current and planned key

policy documents from the Department of Health and the Welsh Assembly Government, available at the time of the study, were also identified via hand and computer-aided searches, and examined in detail. A quality criteria based on the Evidence Based Medicine hierarchy was applied with Systematic Review being considered the highest level of evidence, followed by Randomized Controlled Trials, Cohort Studies and Case-Control Trials. Expert Opinions were considered the lowest level of evidence.

3.2 People with SMI are a vulnerable group.

People with SMI die young from common, but often preventable health problems. A number of health problems including cardiovascular disorders are more common in people with SMI compared to the general population. Osborn et al. reported that the uptake of preventive measures is generally low in the socially excluded population of people with SMI, and this may further increase the health inequalities they face (Raine & Bassnett 2004).

The reasons for the relative vulnerability to physical health problems in this patient population are multifaceted and may be related to their lifestyle, the positive value that they may attach to maintaining a current lifestyle, medication side effects, as well as, to the barriers to uptake of lifestyle interventions. These barriers include the attitudes of health and social care professionals involved with this population and the relative value attached to lifestyle changes by people with SMI themselves

(Faulkner & Biddle 2001; Wylie et al. 2002; Carrick & Lloyd 2004; Williams et al. 2004).

Although the adverse effects of institutionalization on the physical and mental wellbeing of people with SMI are well known, a recent study by Morgan et al. (2008) found that metabolic syndrome – a condition highly associated with cardiovascular disorders – is more prevalent in people with SMI treated on clozapine and residing in the community, when compared with a similar population residing within a long-stay in-patient rehabilitation unit (Morgan et al. 2008). Although this finding remains to be replicated, and the reasons for such a difference remain unclear, the authors suggested that it may be partially explained by the differences in the nature of the care provided to in-patients, who receive regular (and possibly, relatively nutritious) meals, structured daily activities including regular exercise, and improved access to medical care (Morgan et al. 2008). They went on to suggest that the in-patient group could be considered a temporary, but captive audience to measures designed to address physical health needs as compared to the community patients.

3.2.1 Smoking.

The incidence of CHD and sudden death directly relates to the number of cigarettes smoked (Hammond & Horn 1958; Doll & Hill 1964; Kahn 1966; Feinleib & Williams 1975). People with SMI tend to be heavier smokers smoking more than 25 cigarettes a day (Kelly & McCreadie 2000). The prevalence of smoking in

people with schizophrenia and bipolar affective disorder has been estimated in various epidemiological studies as ranging from 58% to 88%. This estimate is three times higher than the estimate for the general population (Hughes et al. 1986; de Leon et al. 2002). It has even been suggested that smoking is ingrained in the culture of psychiatry (Robson & Gray 2007).

Health professionals often doubt this group of patients' motivation to stop smoking, and promote smoking by using cigarettes to manage service users' behaviours (McNeill 2001). However, evidence exists to suggest that some people with SMI would like to give up smoking, if appropriate support is offered. If professionals are trained to ask if people smoke and offer them advice, an increased number of smokers could be identified and offered advice (Lancaster et al. 2003). Individual counselling by a trained therapist could help smokers quit (Lancaster & Stead 2003). Brief, simple advice from physicians could also help smokers quit, and group programmes are more effective than self-help materials (Silagy & Stead 2003; Stead & Lancaster 2003).

3.2.2 Alcohol.

People with SMI tend to drink considerably and are seen as high-risk drinkers. Chronic alcohol intake is associated with QT-interval prolongation and puts people at increased risk of death from dysrhythmia, if they continue to drink to excess (Day et al. 1993). Excess alcohol consumption is also associated with cardiomyopathies and hypertension, with consequent increases in the risk of CHD,

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stroke and renal disease.

There is a dose-response relationship between alcohol consumption and both diastolic and systolic blood pressures; alcohol consumption ranks second only to diabetes as an acquired cause of hypertension, and is responsible for 11% of all cases of hypertension (Vandongen & Puddey 1994). Ockene et al. demonstrated that screening and brief counselling by nurses and physicians in primary care, reduced alcohol consumption by high-risk drinkers after six months (Ockene et al. 1999).

3.2.3 Diet.

People with SMI have poor dietary habits. Their average intake of fruits and vegetables is less than half the recommended portions (McCreadie 2003). Some antipsychotics, mood stabilizers and antidepressants increase appetite and make people thirsty. Fast food and carbonated drinks that are high in saturated fats and sugar are quick, affordable and easy options for people on low income to satisfy their thirst and hunger (Robson & Gray 2007). Among low income earners there are many people with SMI. The physical health consequences of poor diet include cardiovascular diseases, diabetes, and obesity.

3.2.4 Obesity.

Obesity is a global epidemic. Its prevalence in people with SMI is related to both: iatrogenic causes, and to lifestyle. Obesity is associated with a combination of

reduced physical activity and consumption of high energy, nutrient-poor foods. It leads to a number of disabling conditions including hypertension, insulin resistance and diabetes, as well as, to an increased risk of heart disease (WHO 2003). Although some antipsychotic medications are associated with weight gain, disproportionately large body mass indexes have also been observed in drug naïve people with schizophrenia (Thakore et al. 2002). Obesity is a particular problem in women with SMI (Allison et al. 1999).

3.2.5 Physical activity and exercise.

The WHO identifies physical inactivity as one of the leading causes of death in developed countries (WHO 2003). Yet there is convincing evidence of the preventative effect of exercise on risk factors for CHD and other cardiovascular diseases (Morris et al. 1973; Paffenbarger et al. 1993). Encouraging people to follow national recommended guidelines to improve physical health through activity is a major public health challenge. People with SMI face an even greater challenge (Robson et al. 2007), and are less physically active than the general population (Brown et al. 1999; McCreadie et al. 2003). The causes are thought physical inactivity in this population are thought to be multifactorial and include comorbid depression, negative symptoms of schizophrenia, the sedative effects of some antipsychotics, financial limitations, low motivation and poor confidence (Robson et al. 2007).

3.2.6 Metabolic Syndrome.

Metabolic Syndrome refers to a cluster of risk factors associated with increased morbidity and mortality due to cardiovascular disorders (Lakka et al. 2002).

There are various definitions of the Metabolic Syndrome, but it is generally diagnosed when three or more of the following conditions are present: central obesity, impaired glucose tolerance, hypertriglyceridaemia, hyper-cholesterolaemia and hypertension.

There are many risk factors. Women with SMI seem to be at particular risk in both hospital and community settings (Allison et al. 1999; Morgan et al. 2008). Some antipsychotic medications are particularly associated with the Metabolic Syndrome, and it has been recommended that the prescription of such therapeutic agents should trigger pro-active pursuit of health promotion and lifestyle interventions in people with SMI (Chukwuma et al. 2008).

Patients suffering from the Metabolic Syndrome can expect to have a two to three-fold increase in mortality due to CHD (Lakka et al. 2002). It appears to be the single most important explanation for the increased prevalence of cardiovascular diseases in people with SMI.

3.3 Studies on cardiovascular health monitoring in primary care

People with a diagnosis of cardiovascular disorders should receive secondary prevention. A major component of such secondary preventive measures is routine cardiovascular monitoring in primary care in line with the guideline detailed in the *National Service Framework for Coronary Heart Disease* (DoH 2000). The NSF for CHD also stipulates that such preventive services should be extended to people at higher than average risk of developing cardiovascular diseases in order to prevent them from going on to develop such disorders.

People with serious mental illness are increasingly believed to be at relatively increased risk for a variety of reasons yet there are few studies on cardiovascular health monitoring in primary care and none specifically targeting people with serious mental illness.

Studies examining cardiovascular health monitoring in primary care are summarized in chronological order in Table 3.1. Relevant findings are then discussed.

Table 3.1 Studies on Cardiovascular Health Monitoring in Primary Care.

Author	Setting	Design	Main finding
McCarney et al. 2000	UK, 1998-9	Audit (survey)	A substantial number of secondary prevention issues were addressed through advice and information leaflets at modest cost.
Kershenba um et al. 2000	Israel, 2000	Survey	They found that with multiple reading, blood pressure tended to be lower, and fewer patients were classified as hypertensive. They concluded that using an automatic blood pressure recording device seemed to be a practical way of achieving multiple readings in a busy clinic. This was a survey, thus the level of evidence was not high in the hierarchy. There are no reports of its replication, and no reports of similar results in an RCT (a higher level of evidence).
Rabinowitz et al. 2005	Israel, 2001-3	Audit (survey)	Implementation of screening and monitoring resulted in marked improvement in risk factor levels and use of medication in accordance with indications
Hennessy et al. 2006	2006	A cluster RCT	This was a large study involving over 10,000 patients, thus it had adequate power to identify any real difference. The main finding was that, in patient with hypertension, the intervention (academic detailing, provision of educational materials to the healthcare providers, and provision of educational and motivational materials to the patients) produced no effect or, at best, relatively modest effect on control of hypertension (defined as blood pressure below 140/90mm Hg after six months follow-up).

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Table 3.1: (continued) Studies on Cardiovascular Health Monitoring in Primary Care.

Paynter et al. 2006	UK, 2006	Narrative review	Diagnosing and treating cardiac problems within the primary care setting provided more timely and preventative support, and reduced the overall burden on the NHS. Cardiac telemedicine enabled nurse practitioners to carry out ECG monitoring and send off readings for analysis. Expert cardiologists at the monitoring centre provided nurse practitioners with an immediate verbal interpretation and full written ECG report, to aid clinical decisions. Cardiac telemedicine approach delivered cost benefits and efficiency across the trust.
Dunkley et al. 2007	UK, 2005-2006	Cross sectional survey	Overall, prescribing was well achieved for anti-platelet medication but poor for statins. Standards of assessment of blood pressure, smoking status, and smoking cessation advice were high. However, approximately only half of the patients received advice about exercise or had their body mass index checked. Furthermore, for all indicators, standards of care for patients who additionally had a diagnosis of CHD were better than for patients without CHD
Ma et al., 2008	US, 2003-2004	Retrospective (case-control) study.	The odds of not having blood pressure controlled were greater for patients with co-morbidities (1.6; 95% confidence limits 1.1 to 2.4). This was a large retrospective study, with good power. However, it was only a case-control study, thus can only infer association rather than cause/effect.
Santschi et al., 2008	Europe, 2007-2008	A pragmatic cluster RCT	GP monitoring of drug adherence in collaboration with pharmacists, using electronic methods, achieved a better blood pressure control in hypertensive patients. However, the impact of monitoring decreased with time.

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The majority of the publications reviewed concentrated on the highly technical aspects of cardiovascular monitoring and measurement of the effectiveness of various techniques of cardiovascular monitoring in primary care or community settings. An example of this type of study is provided by Santschi et al. (2008) who considered the impact of electronic monitoring of drug adherence on blood pressure control in primary care. This was a pragmatic, cluster randomised controlled study, and found that GP monitoring of drug adherence in collaboration with pharmacists, using electronic methods, achieved a better blood pressure control in hypertensive patients. However, the impact of monitoring decreased with time. Although the articles concentrating on the technical aspects are clearly important, they were not considered relevant to the current study and were therefore excluded. A list of other articles which were evaluated but considered to have no direct bearing to the current study can be provided on request.

The article by Ma et al. (2008) analysed the United States National Ambulatory Medical Survey Data to examine the rates of, and factors associated with, hypertension screening, treatment and control. It was a large study involving all physician office visits in the United States between 2003 and 2004. The large number of visits increased the power of the study and the external validity of the findings. They found that the odds of not having blood pressure control were greater for patients with co-morbidities (1.6; 95% confidence limits 1.1 to 2.4). They concluded that more intervention efforts were needed to further reduce the gaps and variations in routine practice in relation to evidence based practice guidelines

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in hypertension screening, treatment and control.

Kershenba et al. (2000) compared the method of reading blood pressure using sphygmomanometer with multiple successive readings using an automatic device. They found that with multiple reading, blood pressure tended to be lower, and fewer patients were classified as hypertensive. They concluded that using an automatic blood pressure recording device seemed to be a practical way of achieving multiple readings in a busy clinic.

These findings are clearly important but strictly speaking fall outside the scope of the current study. The current study specifically deals with the health promotional and lifestyle counselling aspects of cardiovascular monitoring for people with severe mental illness. The evaluation of identified literature using the above specific objective limited the number of relevant papers.

Two further papers merit specific mention. Firstly, Henessy et al. (2006) conducted a large randomised controlled trial to measure the effectiveness of multifaceted educational intervention to improve ambulatory hypertension control. The intervention was academic detailing, provision of educational materials to the healthcare providers, and provision of educational and motivational materials to the patients. Patients were followed up for six months, the outcome measure was blood pressure control defined as below 140/90mm Hg. The results were consistent with no effect or, at best, relatively modest effect of the intervention

among patients with hypertension. This study was a very large one, involving over 10,000 participants and was adequately powered to identify any real difference.

Secondly, paper by Paynter et al. (2006) which was a narrative review of a model to deliver expert cardiac support in the community. The article outlined how cardiac problems can be assessed in the primary care environment, to improve patient care and help alleviate some of the operational and financial burdens on secondary and emergency care providers. It examines the innovative cardiac telemedicine service approach, at the Bridgwater Community Hospital, in monitoring and managing cardiac conditions within primary care. The main findings were that diagnosing and treating cardiac problems within the primary care setting provided more timely and preventative support, and reduced the overall burden on the NHS; that cardiac telemedicine enabled nurse practitioners to carry out ECG monitoring and send off readings for analysis; and that expert cardiologists, at the monitoring centre, provided nurse practitioners with an immediate verbal interpretation and full written ECG report to aid clinical decisions. It concluded that by opting for a cardiac telemedicine service, clinicians got fast, expert interpretation of ECG results, enabling them deliver timely and more effective, preventative care. It also delivered cost benefits and efficiency across the trust.

McCarney et al. (2000) introduced a monitoring system to ensure that issues relating to cardiovascular health promotion were covered systematically with patients following a first episode of cardiovascular disease at a single GP practice

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in the UK. Eligible patients were identified by an automated search on the practice database, and contacted by a health visitor. A checklist ensured that all appropriate issues on health promotion were covered. The system was easily introduced at the practice and a total of 62 patients were seen during the year. A substantial number of secondary prevention issues were addressed through advice and information leaflets.

The project was felt to be a useful addition to care by the workers involved. The authors acknowledged that it was possible that many of the health promotional issues might have been addressed eventually in routine practice, but argued that the new system ensured that they were dealt with promptly, efficiently and were well documented. They also acknowledged that the specific benefits of using health visitors as opposed to primary care nurses or other healthcare professionals for such activities were not explored within their study.

This was a study set in one practice dealing only with secondary preventive measures. There was no standardised method of assessing needs for specific interventions (e.g. serum cholesterol check, blood pressure monitoring or urine analysis). The need for care or contact relating to any specified intervention on the checklist was based on a health visitor's assessment / judgement and on the patients' recall of having had these checks since their cardiovascular event. However, the authors argued that a validation exercise looking at the recording of this information at the practice compared patients' recall with data held on the

practice computer system. This was done by taking a random sample of 10 patients from the group reporting having had a check and a sample of equal size from the group reporting not having had a check. The computer records were then reviewed for evidence that the relevant checks had been undertaken in the month after the cardiovascular event. This validation process revealed apparent disparity between patients' recall and practice records.

Rabinowitz et al. (2005) reported similar findings from another small study conducted in Israel. They introduced cyclic screening and monitoring of patients at increased risk of cardiovascular diseases, with associated individualised interventions. In this one-practice study, there was significant improvement in risk factor levels and use of medication in accordance with indications. The authors suggested that cardiovascular disease prevention deserves a prescheduled and funded weekly hour with much of the work delegated to non-physician staff e.g. practice nurses. The study may not be representative of overall practice in Israel, and may not apply to the UK environment.

From a cross sectional survey of secondary prevention measures in patients with peripheral arterial disease (PAD) in primary care Dunkley et al. (2007) suggested that standards of secondary prevention measures in patients with symptomatic PAD recently discharged from secondary care following a vascular procedure were suboptimal and that the standards of secondary prevention in patients with PAD without a diagnosis of CHD were much poorer than for patients with both

diagnoses, despite the fact that PAD is an independent risk factor for fatal and non-fatal myocardial infarction.

The authors concluded that in spite of the UK and international recommendations and the strong evidence of an increased risk of death due to cardiovascular disease, the treatment received by some patients with established PAD was substandard, leaving significant room for considerable potential improvement in secondary prevention of CHD in patients with PAD, using appropriate evidence based management particularly in primary care settings.

This study considered secondary preventive measures in two patient groups; it not only assessed current standards of secondary prevention and health monitoring in patients with CHD, but compared care in PAD patients with and without diagnosed CHD. However, it did not consider primary prevention and care in patients with neither PAD nor CHD who might otherwise be at increased risk of CHD (e.g. people with SMI). It has some strength in terms of its external validity, in that; it involved 42 GP practices from three PCTs. However, the three PCTs were likely to have been a select group because six PCTs were approached and only three agreed to participate in the multi-practice survey. The study also recruited a relatively small number of patients (103) from these GP practices thus the external validity is arguably still limited.

The evidence from these three studies suggests that the implementation of the

policies and strategies channelled towards improved cardiovascular health promotion for people with a history of CVD and those at high risk of developing CVD can be improved using simple but systematic structured methods of identification and associated appropriate interventions.

These approaches can be smoothly introduced and integrated into primary care settings and can be facilitated by non-physician healthcare professionals at reasonable costs. It is anticipated that such comprehensive approaches are likely to translate into reductions in morbidity and mortality particularly in high risk populations, of which people with SMI constitute a particularly vulnerable group. To date there appear to be no studies that specifically address primary cardiovascular disease prevention in people with SMI.

3.4 Studies on mental illness and physical health

Serious mental illness is associated with a number of physical disorders for a number of reasons including those relating to the mental illness and associated treatment, those relating to the physical illness and associated treatment and those that are seemingly independent, hospitalization, institutionalization, lifestyle and medication side effects to name a few.

Cardiovascular disorders are one of the most common preventable health conditions in people with SMI. Despite increasing awareness among health care practitioners, the prevention and management of physical health problems in people with mental illness remain challenging and barrier-laden.

Studies examining mental illness and physical health are summarized in chronological order in Table 3.2; the relevant findings are then discussed.

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Table 3.2: Studies on Mental Illness and Physical Health.

Author	Setting	Design	Main finding
Le Fevre 2001	Global (UK), 2001	Discussion paper	There is currently no evidence to suggest that any particular strategy is effective in reducing physical health-related mortality in people with schizophrenia. However, the identification and modification of risk factors is an important initial step in reducing long term morbidity
Mirza et al. 2002	Global, 2002	Narrative Review	People with severe mental illness are a priority group for health promotion and education. However, management of physical illness in this population presents a challenge to the hospital doctor. This challenge can be overcome by involving patients, their GPs and care coordinators
Leucht et al. 2006	Global (Germany) 2006	Narrative review	All major psychiatric disorders seem to be affected with physical co-morbidities, but the issue has attracted attention only recently.
Mitchell et al. 2006	Global (UK), 2006	Narrative review	The majority of patients with schizophrenia have at least one chronic co-morbid medical condition. In the absence of systematic screening this may or may not be brought to the attention of health professionals
Druss et al. 2007	USA, 2007	Discussion paper	It identifies four system-level barriers to improving the physical health of persons with serious mental illness, namely geographic, financial, organizational and cultural, and suggests a range of models for improvement which integrates mental and physical healthcare
Lumby 2007	North America, 2007	Narrative review	Studies involving people with schizophrenia who are in contact with psychiatrists indicate death from causes such as cardiovascular diseases(CVD), type-2 diabetes mellitus and epilepsy occur at twice the rate of the general population, accounting for two thirds of excess mortality
Robson et al. 2007	Global (UK) 2006	Discussion (Review)	Physical health can be enhanced by improved monitoring and lifestyle interventions initiated at the start of treatment
Thornicroft et al. 2007	Global (UK) 2007	Discussion paper	'Diagnostic overshadowing' is the meaning the misattribution of physical illness signs and symptoms to comorbid mental disorders, leading to under-diagnosis & under treatment of the physical conditions.

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3.4.1 The need to reduce the excess prevalence of physical disorders in people with SMI.

People with serious mental illness have a higher than average prevalence of preventable physical health problems (Leucht et al. 2006; Mitchell & Malone 2006; Lumby 2007) which result in a shortened life expectancy (Mitchell & Malone 2006; Lumby 2007). Although the excess rates of medical co-morbidities in people with mental disorders have been known for years, concrete steps to fight this unsatisfactory situation have not been undertaken yet (Leucht et al. 2006; Mitchell & Malone 2006). Reasons for the excess rates of physical co-morbidities in mental illnesses are diverse. They are, in part, inherent in psychiatric disorders, are related to the problems of the health system and have to do with stigma (Leucht et al. 2006) and the insufficient training of healthcare professionals. People with SMI are therefore less likely to receive routine screening and treatment than the average person (Lumby 2007).

Interdisciplinary teams working collaboratively to provide broad medical and psychiatric expertise could increase access to comprehensive primary healthcare for people with SMI and minimize the negative impact of mental health problems on physical health and lifespan (Lumby 2007). Clinicians should routinely assess and monitor the physical health needs of patients with serious mental illness (Mitchell and Malone 2006); the importance of such holistic approach cannot be overemphasized, given the current level of awareness and understanding of the physical health issues faced by people with SMI.

3.4.2 Strategies for reducing physical health-related morbidity and mortality in people with SMI.

A review conducted in 2001 (Le Fevre et al. 2001) acknowledged that patients with SMI die earlier than non-affected individuals, and that the reason for relatively increased mortality is the higher prevalence of physical disease in this population. There was no evidence to suggest that any particular strategy was effective in reducing this health related mortality, but the authors advised that the identification and modification of risk factors is an important initial step in reducing long term morbidity and was a sensible strategy for the future (Le Fevre et al. 2001). Patients in dual contact with psychiatric and general medical services may be at a particularly disadvantaged position as there appears to be an inadvertent confusion over which service is responsible for their overall medical care, as such opportunities for early detection and treatment of physical illness may be missed (Le Fevre et al. 2001).

In 2007, another review (Robson et al. 2007) agreed with the finding by Le Fevre et al. (2001) that there is no consensus about the type and frequency of physical health assessment and monitoring in people with SMI. However, it acknowledged that a number of guidelines exist that may inform practice (Marder et al. 2004; NICE 2002). It recommended that essential routine monitoring should include weight, body mass index (BMI) and waist circumference, blood pressure, lipid profiles, screening for insulin resistance and diabetes, dental checks and eye health checks, as well as, systematically and proactively enquiring about the

quality of people's dietary intake, level of physical activity, smoking behaviour and sexual health (Robson et al. 2007).

Other recommendations were that education on the management of weight through healthy eating, regular exercising, and minimizing the use of substances, such as tobacco, should be integrated into routine care, and should begin when the service user first comes into contact with mental health services. Mental health nurses could actively collaborate with healthcare professionals and other agencies to design specialist health promotion programmes for people with SMI. This is because mental health nurses have an opportunity to improve the physical and mental health of people with SMI through systematic monitoring and collaborative health promotion interventions initiated at the onset of people's illness (Robson et al. 2007).

The review highlighted the importance of ensuring that the service user and their families / carers understand why these checks are being done and the significance and meaning of any results. It also identified generally poor levels of knowledge and skills about physical health monitoring in the workforce as a potential contributor to the poor physical health of people with SMI. However, despite the contributions from these two important reviews, there still appears to be a lack of clarity as to who should be responsible for physical health screening and monitoring in people with SMI.

3.4.3 Barriers and challenges.

A critical step in addressing excessive medical morbidity and mortality in persons with serious mental illness is to better understand and see to improve the medical care they receive. The origins of poor quality care for people with SMI are rooted in interrelated contributory factors from patients, providers and the medical and mental health care systems (Druss 2007). At system level, at least four types of separation between mental and physical health care may exacerbate the problem for people with SMI; these include: geographic (lack of co-located mental and physical health services), financial (separated funding streams for physical and mental health care and the skewed nature of funding for these services), organizational (difficulty in sharing information and expertise across these systems), and cultural (providers' focus on particular symptoms or disorders rather than the person with those symptoms) (Druss 2007).

'Diagnostic overshadowing' which means the misattribution of physical illness signs and symptoms to concurrent mental disorders, leading to under-diagnosis and mistreatment of the physical conditions appears to be common in general health care settings (Thornicroft et al. 2007) as is 'role-attitude dissonance' which means the conflict that exists between the role of a healthcare professional as a promoter of healthy lifestyles and his/her inherent beliefs and attitudes (Griffith-Noble et al. 2008).

Managing physical illness in people with SMI is a challenging task; it requires skills,

patience and experience (Mirza & Phelan 2002) It will be important to develop, test, and implement a range of models for improving the medical care of people with SMI that are tailored to patients' needs, mental health system capacities, and local resources (Druss 2007). All clinicians need to be aware of the special needs of people with SMI as effective treatment primarily depends on good communication with the patient, and liaison with other professionals and agencies (Mirza & Phelan 2002).

3.5 Studies on attitudes of GPs and psychiatrists.

There is a complex relationship / interaction between attitudes of healthcare professionals and their delivery of services to patients; for generations doctors have been guided by a number of ethical principles dating back to the hypocritical oath. The Good Medical Practice (2006) published by the General Medical Council provides the current guidance for doctors working in the UK. Despite the comprehensive nature of such guidance and individual doctor's honest, determined and well meaning efforts to stick to them, there are considerable variations in the delivery of services to patients within and between medical disciplines. It is thought that these practice variations are at least partially and probably significantly influenced by the varying attitudes of individual practitioners. Studies examining the attitudes of GPs and psychiatrist are summarized in chronological order in Table 3.3; the salient findings are then discussed.

Table 3.3: Studies on Attitudes of GPs and Psychiatrists.

Author	Setting	Design	Main findings
Buchanan et al. 1992	Global (UK) 1991	Discussion paper and narrative review	The attitude of the medical profession to psychiatry carries important implications for the quality of personnel attracted into the specialty and for the treatment, in general medical setting, of patients with mental disorders. A doctor's attitude to psychiatry is composed of several elements; it involves an impression of the psychiatrist him- / herself, the doctor's perception of psychiatric patients and the doctor's impression of psychiatry as a vocation. The authors argued that to a degree, these elements are independent in that a doctor can hold a low opinion of psychiatric patients while maintaining a high regard for professional colleagues.
Miller et al. 2001	North America, 2001	Discussion paper and narrative review	Most primary care physicians do not feel competent to treat alcohol- and drug-related disorders. Physicians generally do not like to work with patients with these disorders and do not find treating them rewarding. Despite large numbers of such patients, the diagnosis and treatment of alcohol- and drug-related disorders are generally considered peripheral to or outside medical matters and ultimately outside medical education. There is substantial evidence that physicians fail even to identify a large percentage of patients with these disorders. The authors review the findings of the literature on these problems, discuss the barriers to educational reform, and propose recommendations for developing an effective medical school curriculum about alcohol- and drug-related disorders.
Tracy et al. 2003	Canada 2002	Cross sectional survey	Canadian family physicians report positive attitudes toward EBM, believe that EBM improves patient care, and agree that research findings are useful in the day-to-day management of patients. The scenario study showed that physicians were strongly influenced by a patient demanding/requesting either a mammogram; or a diagnostic test for lumbar spine x-ray. This relationship did not hold for the treatment scenario (prescribing antibiotics for acute bronchitis) where practice hours and type were significant. Teaching breast self-examination was twice as likely when the physician was female as male.

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Table 3.3: (continued) Studies on Attitudes of GPs and Psychiatrists.

Brotons et al. 2005	Europe, 2000	Cross sectional survey (multinational postal survey), 2000	Eleven European countries participated in the study, giving a total of 2082 GPs. Although GPs believe they should advise preventive and health promotion activities, in practice, they are less likely to do so. About 56.02% of the GPs answered that carrying-out prevention and health promotion activities are difficult. The two most important barriers reported were heavy workload/lack of time and no reimbursement. Associations between personal health behaviour and attitudes to health promotion or activities in prevention were found. GPs who smoked felt less effective in helping patients to reduce tobacco consumption than non-smoking GPs (39.34% versus 48.18%, P b 0.01). GPs who exercised felt that they were more effective in helping patients to practice regular physical exercise than sedentary GPs (59.14%versus 49.70%, P b 0.01).
Vogt et al. 2005	Global (UK) 2004-2005	Systematic review	Across 19 studies, eight negative beliefs and attitudes were identified. While the majority of GPs and FPs do not have negative beliefs and attitudes towards discussing smoking with their patients, a sizeable minority do. The most common negative beliefs were that such discussions were too time-consuming (weighted proportion: 42%) and were ineffective (38%), Just over a quarter (22%) of physicians reported lacking confidence in their ability to discuss smoking with their patients, 18% felt such discussions were unpleasant, 16% lacked confidence in their knowledge, and relatively few considered discussing smoking outside of their professional duty (5%), or that this intruded upon patients' privacy (5%), or that such discussion were inappropriate (3%).

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Attitude is a fluid and dynamic entity, it constantly modifies with exposure, information and experience. The attitude of a doctor to people with SMI continually adjusts through the course of the doctor's career. Buchanan et al. found that people with SMI are regarded by medical students as 'not easy to like' and that doctors not only share the same view, but also consider people with mental illness as presenting interesting problems, but being unsatisfying to treat, as well as, eliciting less sympathy than other patients.

Although attitudes may be positively affected by experience of psychiatric clerkship the effect was seen as largely temporary (Buchanan et al. 1992). More permanent and positive effect seems to occur in doctors who continue to pursue a life-long career in psychiatry. However, some would argue that recruitment into psychiatry as a profession is largely influenced by attitudes (Buchanan et al. 1992), which tend to have many and varied contributors including opinions and beliefs formed in childhood, at school and at university and the influence of pre-clinical and clinical training (Hill 1960).

Buchanan et al. (1992) contend that a doctor's attitude to psychiatry is made up of several elements. Those attitudes involve an impression of the psychiatrist him / herself, the doctor's perception of psychiatric patients and the doctor's impression of psychiatry as a vocation. They suggest that to a degree, these elements are independent in that a doctor can hold a low opinion of psychiatric patients while maintaining a high regard for his professional colleagues.

The importance of doctors' attitudes to psychiatry and to patients utilising psychiatric services is epitomized in the common belief that these attitudes influence not only recruitment into psychiatry but the ability of other doctors (non-psychiatrists) to identify, treat and refer patients with mental disorders (Neilsen et al. 1981). The attitude of the medical profession to psychiatry carries important implications for the quality of personnel attracted into the specialty and for the treatment, in general medical setting, of patients with mental disorders (Buchanan et al. 1992). The provision of physical health care to people with SMI is likely to be significantly influenced by the attitudes of GPs and psychiatrists, particularly in health promotional services which many may see as falling between professional boundaries.

In addition to attitudes to psychiatry, attitudes to certain disorders are also significant. For example, doctors' attitudes to excessive use of alcohol and other psychoactive recreational substances. Miller et al. (2001) argue that the lack of acceptance of the medical model for addictive disorders and the lack of parity with other medical disorders as well as the low priority given to reimbursement and education for addiction disorders act as barriers to progress on medical research and education in this area. Physicians may be more likely to detect addiction and intervene in the management of addicted patients if they understand the physical effects of, and medical approaches to, addictive disorders in addition to being aware of effective interventions (Miller et al. 2001). They suggest that a medical school curriculum covering alcohol- and drug-related disorders taught

incrementally within a given year and integrated with other courses and rotations throughout all years of medical school will facilitate medical students' adoption of the disease concept of addiction (Miller et al. 2001).

Physicians generally do not like to work with patients with addiction to alcohol and other substances, and do not find treating them rewarding thus essential role models are lacking for future physicians to develop the attitudes and training they need to adequately approach addiction as a treatable medical illness (Miller et al. 2001). They highlighted the need for continuing professional development programmes in addictive disorders in order to overcome the stigma, poor attitudes, and deficient skills among physicians who provide education and leadership for medical students and trainee doctors in various specialties.

Tracey et al. explored the attitudes of Canadian family physicians to Evidence Based Medicine (EBM); they found that the great majority of Canadian primary care physicians hold positive attitudes toward EBM and its application in family medicine. At the same time, however, there was evidence that a sizeable proportion of these physicians made clinical decisions that could be regarded as contrary to evidence and that such decisions were influenced by patient expectations and practice characteristics. They concluded that Canadian family physicians earnestly believe in the value of research evidence and are extremely receptive to the promotion of EBM in primary care, but are equally significantly influenced by the clinical context and patient expectations, underscoring the

complexity of the doctor-patient relationship and the intricate interaction between physician attitudes and day-to-day clinical practice (Tracy et al. 2003). The study provides empirical support to the revisions to the EBM model of clinical decision-making that places increased emphasis on patient preferences and the clinical context. It is in the context of this complex and intricate balancing process of clinical decision-making that the attitudes of medical clinicians become most important.

Brotons et al. (2005) found that, while GPs believe they should advise preventive and health promotion activities, in practice, they are less likely to do so. This tendency is not so clear for activities that involve requesting investigations such as total cholesterol, blood pressure or glucose, perhaps reflecting that ordering tests is preferred to giving verbal advice. Over half of GPs reported that carrying-out prevention and health promotion activities are difficult. The two most important barriers reported were heavy workload / lack of time and no reimbursement.

Associations between personal health behaviour and attitudes to health promotion or activities in prevention were found. GPs who smoked felt less effective in helping patients to reduce tobacco consumption than non-smoking GPs, and GPs who exercised felt that they were more effective in helping patients to practice regular physical exercise than sedentary GPs (Brotons et al. 2005). This conflict that exists between the role of a healthcare professional as a promoter of healthy lifestyles and his / her inherent beliefs and attitudes has been referred to as 'role-

attitude dissonance' (Griffith-Noble et al. 2008).

The majority of GPs and Family Practitioners (FPs) do not hold negative beliefs or attitudes towards discussing smoking cessation with their patients. However, a significant minority hold negative beliefs and attitudes that may be contributing to the low rates of discussions about smoking in primary care consultations (Vogt et al. 2005). The three most prevalent negative beliefs concerned the time needed to discuss smoking, a perceived lack of effectiveness of such discussions and a perceived lack of skill in conducting such discussions. A smaller proportion felt that discussing smoking cessation was unpleasant and reported lacking the knowledge to do so. An even smaller minority were concerned about patient privacy, whether such discussions were their professional duty, and the appropriateness of discussing smoking cessation with their patients (Vogt et al. 2005).

The fact that a substantial proportion of physicians indicated that they felt they did not have the necessary skills or knowledge to discuss smoking with their patients suggests the need for more effective training as does the perceived lack of effectiveness of such interventions by a significant proportion of GPs. Attempts to increase such discussions may be more effective if they address the source of these negative beliefs and attitudes (Vogt et al. 2005) through training initiated at a fairly early stage in the careers of medical professionals, such training and updates could then be carried through the rest of individual practitioner's careers via Continuing Professional Development (CPD).

3.6 Studies on mental illness in primary care

In the UK most individuals are registered with a GP, over 90% of patients have been in some form of contact with their GP over the previous 12 months (Kendrick et al. 1994). Primary care is the setting where most mental disorders are treated (Goldberg & Huxley 1990; King 1992). In the UK up to 40% of patients presenting to general practice are psychologically distressed (Stirling et al. 2001).

The proportion of patients with schizophrenia who are out of contact with their local psychiatric services ranges from 33% to 50% (Kendrick et al. 1994; Lang et al. 1997). Many of the patients with SMI who disengage from their local psychiatric services maintain some contact with their GPs, however, it has been argued that such contact may be less frequent than that by people without mental illness (Le Fevre et al. 2001).

Although there have been many studies in this area, there were three systematic reviews which took account of the relevant primary studies. The studies examining mental illness in primary care are summarized in chronological order in Table 3.4. The relevant findings are then discussed.

Table 3.4: Studies on Mental Illness in Primary Care.

Author	Setting	Design	Main finding
Druss et al. 2006	North America (USA), 2005	Systematic review	Six randomized trials met the pre-established search criteria. Interventions considered were on-site medical consultation, team-based approaches, and facilitated referrals to primary care. The studies demonstrated a substantial positive impact on linkage to and quality of medical care; there was evidence of health improvement and improved abstinence rates in patients with greater medical co-morbidity. The three studies that assessed expenditures found the programs to be cost-neutral from a health-plan perspective.
Huibers et al. 2007	Global (UK), 2005	Systematic Review	Ten studies were included in this review of psychosocial interventions for five distinct disorders or health complaints. Problem-solving treatment by GPs for major depression was effective. The evidence concerning the remaining interventions for other health complaints (somatization, unexplained fatigue, counselling for smoking cessation and behavioural therapy intervention to reduce alcohol consumption) was less clear. There was also a lack of evidence about who should deliver interventions, for example, whether GPs or nurse were better at delivering certain kinds of intervention for alcohol reduction. There was also uncertainty about the content of some of the interventions Furthermore, there was limited evidence that a behavioural change programme was any more effective than brief advice, assessment of drinking behaviour alone, or follow-up measurement alone for alcohol-related problems.
Hutton et al. 2007	Global (Australia 2006)	Systematic review	29 papers met the inclusion criteria. Consultations with a recorded diagnosis of a psychological problem were reported to be longer than those with no recorded psychological diagnosis. It is not clear if this is related to the extra time or the consultation style. GPs reported that time pressure is a major barrier to treating depression. There was some evidence that increased consultation length is associated with more accurate diagnosis of psychological problems.

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3.6.1 Improving the physical health of people with SMI within primary care.

Individuals with SMI mental are at elevated risk for a wide range of physical health problems. Thus increased morbidity is associated with increased mortality in this population, as the availability, access and uptake of health improving interventions is this vulnerable population is low. The studies covered in the review by Druss et al. (2006) suggest the potential for improving linkage to, and quality of, primary medical care, in persons with mental and addictive disorders, at a relatively modest cost; there was evidence of health improvement and improved abstinence rates in patients with greater medical co-morbidity. The three studies that assessed expenditures found the programmes to be cost-neutral from a health-plan perspective. At the same time, the paucity of studies on the topic suggests a need for greater research in this area of health care (Druss et al. 2006)

3.6.2 Management of psychological problems in general practice and length of consultation.

In the UK, psychological problems in the community population present a huge burden of illness and take up a significant proportion of any GP's time, in that, up to 40% of patients presenting to general practice are psychologically distressed as measured by screening tools, such as the *General Health Questionnaire* (King 1992). Hutton and Gunn's (2007) systematic literature review explored whether the management of psychological problems in general practice is associated with an

increase in length of consultations and whether longer consultations are associated with better health outcomes for patients with psychological problems. They found that consultations with a recorded diagnosis of a psychological problem were reported to be longer than those with no recorded psychological diagnosis, however, it was not clear if this was related to the extra time needed or to consultation style of GPs.

The evidence suggests that GPs reported lack of time, rather than lack of knowledge as the factor preventing them from achieving better outcomes for psychological problems. There was some evidence that increased consultation length was associated with more accurate diagnosis of psychological problems (Hutton et al. 2007). Admittedly, the articles identified by their systematic search were mainly observational, cross-sectional studies, with only two intervention studies, thus the overall evidence was weak.

3.6.3 Effectiveness of psychological interventions by GPs.

In a Cochrane Systematic Review Huibers et al. (2007) explored whether structured psychological interventions delivered by GPs (rather than any other healthcare professional) in primary care were any more effective than usual care. They concluded there is some evidence that problem-solving treatment by a GP is effective in the treatment of major depression (good evidence that problem-solving treatment is no less effective than antidepressant treatment, and limited evidence

that problem-solving treatment is more effective than placebo treatment and no less effective than problem-solving treatment by a nurse practitioner or combination therapy).

The authors suggested that these findings should be interpreted with caution as the two studies on problem-solving treatment were conducted by the same research team and treatment groups consisted of only 30 to 40 patients who were treated by a small number of experienced and highly trained GPs which limits the translation to routine general practice.

Although the results of problem-solving treatment for depression seem promising, the same cannot be said for other psychological treatments considered. None of the interventions considered were targeted on people with SMI. The evidence for the remaining four interventions in the review (reattribution or cognitive behavioural group therapy for somatisation, counselling for smoking cessation, behavioural intervention to reduce alcohol use, and cognitive behavioural therapy for unexplained fatigue) was inconclusive due to the heterogeneity of the interventions and small numbers.

3.7 Studies on communication / collaboration between GPs and psychiatrists.

For most people with a treated mental illness, that treatment will have been initiated in primary care. Effective collaboration between primary and secondary care for those who need specialist psychiatric care is the single most important strategy for optimizing holistic care for people with serious mental illness, and effective communication between GPs and secondary mental health services is a necessary ingredient for effective collaboration.

Studies examining communication and collaboration between GPs and psychiatrists are summarized in chronological order in Table 3.5. The relevant findings are then discussed.

Table 3.5: Studies on Communication / Collaboration Between GPs and Psychiatrists.

Author	Setting	Design	Main finding
Killaspy et al. 1999	UK, 1996–1997	Mixed methods prospective cohort study	There was no difference in the quality of referral letter for attenders and non-attenders. Psychiatrists were less likely to write to GPs about follow-up patients' appointments than new patients' appointments; communication was least likely when a follow-up patient missed their appointment. GPs considered follow-up non-attenders were more likely to need a further appointment than new patient non-attenders, but did not identify a role for themselves in engaging with follow-up non-attenders.
Lucena 2002	Canada 1998–1999	Qualitative: in-depth interviews and focus groups.	Three strategies of collaboration were identified: communication, continuing medical education (CME) for Family Physicians (FPs), and access to consulting psychiatrists. The first two were seen as feasible for implementation by FPs and psychiatrists together, but psychiatrists thought the last one was not feasible due to lack of both time and remuneration for such activity in Canadian setting.
Byng et al. 2004	UK	Qualitative : focus groups, questionnaires and interviews	The model for shared care includes the core components of improved communication together with the development of a register and database with systems for review and recall. Local needs assessment, audit, training and guidelines are complimentary components. The intervention, Mental Health Link is a facilitated quality improvement programme which aims to expedite the development of services by bringing the teams together to agree on a model of shared care suited to local needs, skills and interests, and by supporting the development of practice systems.
Younes et al. 2005	France, 2000	Cross sectional (retrospective) survey of consultations in the 15 years to 2000	A majority of GPs rated People with SMI as requiring more care (83.4%), more time (92.3%), more frequent consultations (64.0%) and as being more difficult to refer (87.7%) than other patients. 53.9% of GPs had a poorer relationship with Mental Health Professionals than with other physicians. GPs had satisfactory relationship with private psychiatrists (49.5%), public psychiatrists (35%) and social workers (27.8%). The need for collaborative working was strongest for psychiatric patients who were young, unemployed, with SMI > one year durations, a history of psychiatric hospitalization, and who had poor engagement.

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3.7.1 Strategies for effective collaboration between GPs and secondary mental health services.

Younes et al. (2005) evaluated GPs' opinions on their day-to-day care of patients with SMI and their relationships with mental health professionals. They found that a majority of GPs rated people with SMI as requiring more care (83.4%), more time (92.3%), more frequent consultations (64.0%) and as being more difficult to refer (87.7%) than other patients, and that just over half of GPs had a less satisfactory relationship with mental health professionals than with other physicians (Younes et al. 2005).

Needs for collaboration with a mental health professional were more often felt in caring for people with SMI who were young, not in employment, with SMI lasting for more than one year, with a history of psychiatric hospitalisation, and showing reluctance to engage. Needs for collaboration was more often met among PMHP with past psychiatric consultation or hospitalisation and when the patient was not reluctant to engage (Younes et al. 2005).

A qualitative study conducted in the UK (multi-method iterative design including focus groups, questionnaires and interviews) identified that good shared care the model should include the core components of improved communication together with the development of a register and database with systems for review and recall, adapted to local needs and facilitated through training and guidelines (Byng et al. 2004). Similarly Lucena et al. (2002) identified three strategies of

collaboration: communication, continuing medical education (CME) for family physicians (FPs), and access to consulting psychiatrists. The first two were seen as feasible for implementation by FPs and psychiatrists together, but psychiatrists thought the last one was not feasible due to lack of both time and remuneration for such activity in a Canadian setting.

3.7.2 Standards of communication between GPs and psychiatrists.

Killaspy et al. (1999) investigated communication between GPs, patients, and psychiatrists at referral and following attendance or non-attendance at outpatient appointments; they found there was no difference in the quality of referral letter for attenders and non-attenders.

Psychiatrists were less likely to write to GPs about follow-up patients' 'ppointments than new patients' appointments; communication was least likely when a follow-up patient missed their appointment. GPs considered follow-up non-attenders were more likely to need a further appointment than new patient non-attenders, but did not identify a role for themselves in engaging with follow-up non-attenders.

Killaspy et al. (1999) concluded that, in general, communication between GPs and psychiatrists about new patients seemed adequate. However, there were important deficits in communication from psychiatrists to GPs about follow-up patients, especially non-attenders who are often more severely ill and difficult to engage.

They suggested that effective response for this group is likely to require cooperative health and social service action rather than rigid guidelines concerning clinical responsibility (Killaspy et al. 2005).

3.8 Current service arrangements in England.

The *NHS Plan* (DoH 2000) was a ten year vision / reform published in July 2000. It highlighted the founding principles of the NHS, including access to care for all on the basis of need, not ability to pay, and emphasizes the need to foster partnership across the NHS, to optimize health living across all societies and minimize variations in care. In line with this plan, the NSF for CHD (DoH 2000) became the key strategy for cardiovascular health promotion and prevention of CHD in high risk populations across all health care settings.

The Primary Care, General Practice and the NHS Plan (DoH 2001) and the evolving new GP contracts, as detailed in QOF (and its point system), is meant, in part, to ensure appropriate implementation of the strategies outlined in the *NSF for CHD* within primary care. under QOF, GPs are offered performance-rated remuneration as an incentive for optimal delivery of services, including health promotion and lifestyle counselling to the population. Currently, there are no such contractual performance-rated incentives specifically targeting cardiovascular health promotion and lifestyle counselling in secondary health care settings. There are also no specific policy-driven incentives for health promotion and lifestyle

counselling for people with SMI in primary, secondary or tertiary healthcare settings.

It is likely that with the ongoing NHS reforms in England, health professionals working across all healthcare settings will need to collaborate and liaise even more effectively in order to provide the expected, fully integrated seamless service of health promotion, lifestyle counselling and prevention of cardiovascular disorders in people with SMI.

It will be important to gain a clear understanding of the factors that affect provision of these services for people with SMI, and in particular, it will be important to understand the complex interaction of various aspects of attitudes of health professionals, including the association between own personal health behaviours and involvement in cardiovascular health promotion for people with SMI.

3.9 Gaps in the current evidence base.

Medical professionals working within primary, secondary and tertiary health care settings are expected to all subscribe to the principles set out in the *NSF for Coronary Heart Disease* (DoH 2000), including the need for partnership across the NHS to ensure the best possible care and promotion of healthy living across all societies. GPs and psychiatrists (as well as other secondary health care providers) must work together if the reduction of death from CHD and stroke by 40% by the year 2010 (The NSF for CHD, DoH 2000) is to be achieved. This appears to be a particular challenge in relation to people with SMI. Specific challenges include:

- How do GPs compare with psychiatrists in their involvement in cardiovascular health promotion for people with SMI?
- Is there a difference between the attitudes of GPs to cardiovascular health promotion for people with SMI compared with the attitudes of psychiatrists to these services?

Bearing in mind that the attitudes of health professionals are crucial to the implementation of prevention strategies it is appropriate to ask
And given that there are various aspects to attitudes:

- Do positive attitudes to cardiovascular health promotion and lifestyle counselling for people with SMI (to the exclusion of own health behaviours)

dictate involvement in these activities?

- Are there factors that predict increased involvement in cardiovascular health promotion for people with SMI amongst medical professionals working within primary care or within secondary or tertiary mental health services?

- How do GPs compare with psychiatrists with regards to own health behaviours?

- How do GPs' and psychiatrists' personal health behaviours affect their attitudes to cardiovascular health promotion for people with SMI?

- How do GPs' and psychiatrists' personal health behaviours affect their involvements in cardiovascular health promotion for people with SMI?

- Do own health behaviours influence GPs and psychiatrists differently in relation to their attitudes to, and involvement in, cardiovascular health promotion for people with SMI?

3.10 Summary of literature review.

Cardiovascular disease is rapidly becoming the leading cause of death in the developing world (WHO, 2005), and by 2010, it will be the leading cause of death in the developed world (WHO, 2003). Although some risk factors of CVD, e.g. age, sex and family history cannot be modified, others can, including smoking, poor diet, level of exercise and alcohol consumption (Robson & Gray 2007). Some of these risk factors act in combination to produce other risk factors and health conditions including obesity, hypertension, diabetes and hyperlipidemia, which in turn contribute to CVD. Many of these health conditions and health behaviours are common in people with SMI and can be prevented or minimized (Harris & Barrowclough 1998; Brown et al. 2000). The NSF for CHD is a key UK government strategy for reducing cardiovascular morbidity and mortality.

Health promotion and lifestyle counselling is delivered to patients at different settings involving complex multidisciplinary working and multi-agency liaison. There is a particular challenge with the delivery of these services to people with SMI, and in particular, people with serious mental illness (SMI). *The National Service Framework for Coronary Heart Disease*, along with other policies, form the main strategy for the delivery of health promotion and lifestyle counselling to people with SMI. However, it would seem that although the NSF for CHD identifies people at higher than average risk of developing cardiovascular disorders as a special group requiring closer attention, people with SMI are only implicitly (rather

than explicitly) recognised under this more vulnerable category. Although the GP contract, as detailed in QOF, appears to provide further incentives for GPs to engage in health promotion and lifestyle counselling for the entire population, exception reporting within the contract may inadvertently compromise the delivery of these services to people with SMI. This is because under exception reporting, the contract acknowledges that not all patients are willing to accept interventions offered by GP practices, and suggests that in order to avoid GPs losing points on account of circumstances that are outside their control they can exclude those patients from counting towards their achievement by exception reporting them. Some of the patient groups for whom exception reporting is allowed include those refusing investigation or treatment and those with supervening conditions. Some people with SMI may effectively and inadvertently be exception reported.

Previous studies have demonstrated a number of effective health promotion strategies including provision of information and advice, screening and monitoring, and the identification and modification of risk factors. There are system level and other barriers that make health promotion and lifestyle counselling for people with mental health problems particularly challenging.

In line with the NSF for CHD, GPs and psychiatrists are involved in complex multidisciplinary and multi-agency working in the provision of health promotion and lifestyle counselling for people with SMI.

It is important to understand the attitudes of these medical professionals not just to cardiovascular health promotion for people with SMI but in terms of their own personal health behaviours.

We need to know how these two aspects of health professionals' attitudes influence the health professionals' involvement in cardiovascular health promotion for people with SMI.

Clearer understanding of these complex interactions between various aspects of attitude, own health practices and involvement in health promotion and lifestyle counselling will help shape future strategies and policies channelled towards improving the health and welfare of people with SMI.

4 Rationale for study.

4.1 Aims of the study.

1   To investigate GPs' and psychiatrists' attitudes to cardiovascular health promotion for people with SMI.

2   To assess whether GPs and psychiatrists report similar levels of involvement in cardiovascular health promotion for people with SMI.

3   To investigate the association between GPs' and psychiatrists' own health behaviours and their attitudes to, and involvement in, cardiovascular health promotion for people with SMI.

4.2 Objectives of the study.

1   To conduct a cross sectional survey of GPs and psychiatrists.

2   To compare GPs' and psychiatrists' attitudes to cardiovascular health promotion for people with SMI.

3   To compare GPs' and psychiatrists' reported involvement in cardiovascular health promotion for people with SMT.

4   To compare GPs and psychiatrists own life style behaviours.

5   To compare GPs and psychiatrists in terms of their attitudes to, and reported involvement in, cardiovascular health promotion for people with SMI, in the context of their respective reported own lifestyle behaviours.

4.3 Hypotheses.

4.3.1 Primary hypothesis.

Hypothesis One: GPs are more likely than psychiatrists to report a positive attitude to cardiovascular health promotion for people with SMI.

4.3.2 Secondary hypotheses.

Hypothesis Two: GPs are more likely than psychiatrists to report involvement in cardiovascular health promotion for people with SMI.

Hypothesis Three: There is no relationship between GPs and psychiatrists own health behaviours and their attitudes to health promotion for people with SMI.

Hypothesis Four: There is no relationship between GPs and psychiatrists own health behaviours and their reported involvement in health promotion for people with SMI.

4.4 Power and sample size.

A detailed justification of sample size and power is provided in section 5.

The primary hypotheses compare proportions between two groups. Subjects were divided into two groups by the dependent variable for each of the hypotheses;

1   Whether they reported positive or less positive (negative) attitudes to

cardiovascular health promotion for people with SMI.

2 Whether they reported high or low levels of involvement in cardiovascular health promotion for people with SMI.

The proportions of independent variables (GPs and psychiatrists) between these two groups were then tested for statistical significance for each of the primary hypotheses. It was calculated that in order to address the primary hypotheses, the minimum sample size for each group n= 97, with a minimum total of n= 194.

4.5 Strategy.

The principal methodology was a cross-sectional survey.

4.5.1 Cross-sectional survey.

The design of the study that tested both the primary and secondary hypotheses was a cross-sectional survey. As the hypotheses relate to associations between attitudes and reported behaviours rather than to outcomes, a cross-sectional design was selected.

A 27-item questionnaire was distributed to GPs and psychiatrists. The questionnaire was divided into 3 main aspects:

1 aspects relating to attitudes to cardiovascular health promotion for people

with SMI.

2   aspects exploring reported involvement in cardiovascular health promotion for people with SMI;

3   aspects documenting the individual practitioners' reports of personal lifestyle practices.

For some analyses new variables were derived to summarize attitudes and behaviours, and to simplify the data. Analysis of data using the chi-square test, unpaired t-tests, logistic regression and linear regression enabled the hypotheses to be tested.

5. Methods.

5.1 Ethical approval.

The study respondents were GPs and psychiatrists from across Wales so ethical approval was sought from NRES the NHS research ethics service. The NRES decision was that, under NHS research governance arrangements, ethical approval was not required, for this category of study (*Appendix A*).

The study was sponsored by the Swansea University NHS Trust which was also the data collection centre so approval was sought and a similar confirmation was received from the Swansea University NHS Trust Local Ethics Committee *(Appendix B)*. Approval was also sought and obtained from the Research and Development (R&D) Department of Swansea University NHS Trust, now Abertawe Bro Morgannwg University Health Board, who were the sponsors of the study *(Appendix C)*.

5.2 Study setting.

Wales has a total population of approximately 3 million people based on the 1991 census data (Office for National Statistics 1991). It had 22 Local Health Boards (LHBs) with about 2000 GPs; and 9 NHS trusts with approximately 300 Consultant psychiatrists. However, in September 2008, the Welsh Assembly Government

decided to reduce the number of NHS organizations in Wales from 9 Trusts and 22

Local Health Boards to 7 Local Health Boards plus Velindre NHS Trust and the

Wales Ambulance Services Trust.

5.3 Subjects.

Subjects were General Practitioners (GPs) and consultant psychiatrists (referred to

as psychiatrists in this study) working in Wales in the ten months between 1st

October 2007 and 31st July 2008. Based on pilot works subjects were recruited

from among conference delegates. Potential shortcomings of sampling frame

process including the potential for selection and response bias are discussed in

Chapter 7.

A 'conference' was defined as any meeting involving two or more healthcare

professionals (including GPs, psychiatrists, or both) that was not aimed at an

individual patient's care. They included educational, continuing professional, and

service development meetings. The 'conferences' targeted were Continuing

Professional Development (CPD) meetings, Medical Advisory Committee (MAC)

meetings, Welsh Psychiatric Society, and General Practice Committee meetings.

Questionnaires were distributed at a total of 17 conferences (six GPs' CPD

meetings, four psychiatrists' CPD meetings, four psychiatrists' MAC meetings, two

General Practice Committee meetings, and one Welsh Psychiatric Society

meeting). To minimize selection bias, attempts were made to target all consecutive

healthcare conferences by contacting regional CPD coordinators, Medical Advisory Committee Chairs, General Practice Committee Chairs, and the organizer of the Welsh Psychiatric Society meetings. Consecutive meetings, as identified by these respective meeting coordinators, were then targeted. Almost all meeting were largely attended by GPs or psychiatrists.

There were a few attendees at meetings / conferences who were neither GPs nor consultant psychiatrists. These individuals were not offered, and did not complete, the 'conference' questionnaires. They include a non-GP Local Health Board representatives at one of the two GP Committee meetings, a secretarial staff at two of the psychiatrists' MAC meeting, and some non-consultant grade psychiatrists and non-medical clinicians at the Welsh Psychiatric Society meeting. A total of three respondents failed to indicate their professional status, and were excluded from the study.

5.4 Sample size and power calculations.

In this cross sectional study, several factors were considered in the calculation of sample size. Following the schedule advocated by Rothman (1986) those factors were:

1   The level of statistical significance desired; the alpha error (α). This specifies the chances of a type one error or false positive result occurring when the null hypothesis is true but wrongly rejected.

2   The chance of missing a true difference; the beta error (β). This specifies the chance of a type two error occurring when the null hypothesis is false but wrongly accepted.

3   The power of the study which is the chance of a true positive finding, and can be expressed as $1-\beta$.

4   The magnitude of the effect being investigated which can be defined as the smallest meaningful effect size acceptable.

5   The disease rate in the absence of the exposure of interest.

Using standard formulae, α and β errors are set using conventional values. Most commonly the sample size (n) is calculated for a given value of $\alpha = 0.05$, $1-\beta = 0.80$ and effect size as estimated from other studies.

In this study the objective was to compare two groups of subjects; GPs and psychiatrists. The proportion of subjects in each group that scored on specific independent variables was to be compared. For example, were subjects with a positive attitude to cardiovascular health promotion for people with SMI (e.g. those who feel it is effective) more or less likely to be GPs than psychiatrists?

The following is a formula provided by Kirkwood (1988) and Rosner (2006) for calculating the minimum required sample size for each group in order to enable the comparison of two proportions

$$N = \frac{\{u\sqrt{[\pi_1(1-\pi_1) + \pi_2(1-\pi_2)]} + v\sqrt{[2\pi(1-\pi)]}\}^2}{(\pi_2 - \pi_1)^2}$$

Where:

N   = required minimum sample size of each group

π_1 = the proportion of the event of interest in the unexposed group

π_2 = the proportion of the event of interest in the exposed group

π = the average between the two proportions

u   = the one sided percentage point of the normal distribution for (100% - power)

v   = the percentage of normal distribution corresponding to the two sided significance level

For this study, the level of statistical significance (α error) was set at 0.05 and the power (1- β) at 0.8. To obtain estimates for effect size in relation to the main hypotheses, data from published studies were used.

In a previously published study Steptoe et al. (1999) conducted an assessment of the attitudes to cardiovascular health promotion, opinions about efficacy and perceptions of skills in lifestyle counselling in GPs and practice nurses from the same practices. They found a median percentage difference in attitudes to cardiovascular health promotion in GPs and practice nurses to be approximately 30% between the proportions. Applying the formula for sample size estimation provided by Kirkwood (1988) and Rosner (2006) to the findings by Steptoe et al. (1999) would give a minimum sample size for each group n= 42, with a minimum

sample total of n= 84. This allows for a two-sided significance test with a study power of 80% and a confidence level of 95% (α error being set at 0.05).

In the current study a smaller median difference of 20% between GPs and psychiatrists was considered more appropriate for two main reasons:

1   There are likely to be greater similarities (less differences) between GPs and psychiatrists in that GPs and psychiatrists are both medical doctors and underwent similar training, as opposed to GPs and practice nurses who have different basic professional backgrounds.

2   Caution was considered necessary in order to avoid under-powering the study as this has the potential of culminating in a type 2 error (erroneously failing to detect a difference where one exists).

Applying the same formula with the assumption of 20% median difference between the proportions for GPs and psychiatrists would result in a minimum sample size for each group n= 97, with a minimum sample total of n= 194. This again allows for a two-sided significance test with a study power of 80% and a confidence level of 95% (α error being set at 0.05).

5.5 Inclusion and exclusion criteria.

5.5.1 Inclusion criteria.

All consultant psychiatrists and GPs working in Wales between September 2007 and August 2008 were eligible to take part in the study if they attended a conference meeting the definition in section 5.3.

5.5.2 Exclusion criteria.

Consultant psychiatrists or GPs not working in Wales were excluded. Non consultant grade psychiatrists and GP trainees were also excluded.

5.6 Instruments and measures used; the questionnaire.

The instrument used for all measures was a 27-item questionnaire. The items in the questionnaire were based on a measure originally validated in surveys of GPs' attitudes and behaviours in Australia by Sherman et al. (1993), and later modified by Steptoe et al. (1999) for a survey of the attitudes, opinions about efficacy, and perception of skills in lifestyle counselling between GPs and practice nurses. No other instruments were identified that could fulfil the needs of this study and it was considered preferable to use a previously validated instrument rather than to develop one.

The questionnaire explores three main areas, namely: attitudes of healthcare professionals to cardiovascular health promotion and lifestyle interventions for people with SMI, involvement of healthcare professionals in cardiovascular health

promotion and lifestyle interventions for people with SMI, and the health practitioners' own health practices and lifestyles. The data from these areas were necessary to test the primary and secondary hypotheses.

For the purposes of analyses, the questionnaire was functionally divided into three parts. The first part is made up of 14 items which explores GPs' and psychiatrists' attitudes to health promotion and lifestyle interventions for people with SMI. The second part contains 5 items and explores GPs' and psychiatrists' reported involvement in cardiovascular health promotion and lifestyle interventions for people with SMI. The third part contains 8 items and explores GPs' and psychiatrists' reported own health practices and also provides demographic indices. The questionnaire is presented in *Appendix D.*

5.6.1 Items exploring attitudes to cardiovascular health promotion and lifestyle intervention for people with SMI.

The items exploring attitudes to cardiovascular health promotion and lifestyle intervention for people with SMI were:

- GPs are the most appropriate to carry out health promotion.

- My job is not only to treat disease, but act as health educator.

- My job is to treat disease and leave health promotion to others.

- I have no time to spend on preventive medicine.

- I feel properly trained to give lifestyle counselling advice.

- It is not very difficult to counsel patients about an alternative lifestyle.

- Health professionals are very influential in persuading patients to change their lifestyles.

- I can offer my patients a great deal in the way of lifestyle counselling.

- Lifestyle counselling is very effective.

- It is possible to persuade patients to modify their lifestyles to reduce hypertension.

- It is possible to persuade patients to modify their lifestyles to reduce high cholesterol.

- It is possible to persuade patients to modify their lifestyles to reduce cigarette smoking.

- It is possible to persuade patients to modify their lifestyles to reduce obesity.

- It is possible to persuade patients to modify their lifestyles to reduce physical inactivity.

Responders were asked to mark their preferred option to each of the above statements on a scale ranging from "1" for "Agree" to "3" for "Disagree".

5.6.2 Items exploring reported involvement in cardiovascular health promotion and lifestyle interventions for people with SMI.

The items exploring reported involvement in cardiovascular health promotion and lifestyle interventions for people with SMI were:

- I am significantly involved in the identification of hypertension in my day-to-day work.

- I am significantly involved in the identification of high cholesterol in my day-to-day work.

- I am significantly involved in the identification of cigarette smoking in my day-to-day work.

- I am significantly involved in the identification of obesity in my day-to-day work.

- I am significantly involved in the identification of physical inactivity in my day-to-day work.

Responders were also asked to mark their preferred option to each of the above statements on a scale ranging from "1" for "Agree" to "3" for "Disagree".

5.6.3 Items exploring GPs and psychiatrists demographics and health behaviours.

Demographic information requested included age, sex and professional status.

The statements exploring GPs and psychiatrists own health behaviours were:

- I am currently a smoker.

- I am an ex-smoker.

- I exercise regularly.

- I consider myself a healthy eater.

- I currently drink alcohol.

Responders were asked to indicate "Yes" or "No" responses to the items under this category and were also invited to provide details of how many cigarettes they smoked per week and how many years had elapsed since stopping smoking. Responders were also asked to report the frequency of their exercise regime including daily, weekly, monthly or yearly, as well as, the number of units of alcohol consumed per week.

5.7 Data collection process.

Conference questionnaires were distributed (handed out) at GPs' and psychiatrists' conferences, completed and collected on the same day (before the end of the conference), with only a few participants returning their 'conference' questionnaires by post subsequently to the research base at Swansea University. Study participants were blind to the study hypotheses. Questionnaires were not offered to, or received from, trainee GPs or psychiatrists or from non-consultant grade psychiatrists. These could either be handed in at the time of mailed back. A total of 294 questionnaires were handed out at 'conferences' and 280 were returned. This strategy yielded 95.2% (280/294) response rate within a period of 10 months, and as such was instrumental in achieving the target numbers to power the study as identified by the power calculations based on Steptoe et al. (1999).

GPs and psychiatrists individually completed a 27-item questionnaire which was received at healthcare conferences. The questionnaire explored individual practitioner's attitudes to, and reported involvement in, cardiovascular health promotion for people with SMI, as well as the individual practitioners' reports of personal health lifestyle practices. The content of the questionnaire was the same in both study populations. The questionnaire is described in section 5.6.

The data from the questionnaires were collated by a non-medically trained member of administrative staff who was blind to the study hypotheses, and thus ensured the avoidance of potential bias during data extraction from the questionnaires.

5.8 Data entry.

Data were collected from GPs and psychiatrists using paper format questionnaires. Data were then entered into Microsoft Office Excel 2003 and imported into SPSS.

5.8.1 Data editing and data reduction.

Data entry was performed using Microsoft Office Excel 2003. All questions in the questionnaire were coded in numerical order from question 1 to question 27 (Q1 to Q27). All answers from responders were converted to nominal data; in questions dealing with attitudes and reported involvement (Questions 1 to 19) "Agree", "Neutral" and "Disagree" were coded as "1", "2" and "3" respectively. The remaining questions (Question 20 to 27) i.e. those relating to individual practitioners' reported own health practices "Yes" and "No" were coded as "1" and "2" respectively. Age range 20 to 29 years was coded as "2", 30 to 39 years as "3", and 40 to 49 years as "4", while the remainder were coded in the same order; "5" for age range 50 to 59 years, "6" for age range 60 to 69 years, "7" for age range 70 to 79 years, "8" for age range 80 to 89 years and "9" for age range 90 to 99 years. GPs and psychiatrists were also converted to nominal data ("1" for GPs and "2" for psychiatrist, while "male" and "female" were coded as "1" and "2" respectively).

5.8.2 Variables used in the analyses.

All 27 questions on the questionnaire including demographic data and data on

individual practitioners' reported own personal health practices were used as variables. New variables were derived to simplify univariate analyses by combining existing variables following the methods used by Steptoe et al. (1999). This is described in section 5.8.

5.9 Analysis Plan.

5.9.1 Descriptive and univariate analyses.

This is a cross sectional study comparing associations between exposures and outcomes of interest using the Statistical Package for Social Sciences (SPSS) version 13.0. Descriptive statistics were used to compare demographic characteristics of the sample. Means, Standard deviations and confidence intervals were calculated for normally distributed continuous variables. Univariate analyses to examine associations between variables of interest were conducted using Pearson Chi-square (x^2) for 2 by n tables whilst student's t-tests were used to compare means between groups.

To simplify the data, and to explore further the univariate associations, new variables were derived by combining existing variables as shown in Table 5.1. This was done using the method described by Steptoe et al. (1999). As well as reducing complexity this also created dependent variables scored 1–10 or 1–12 (depending on the number of items they contained) which could be treated as continuous and

used in the multivariate analysis and tests of hypotheses.

Cronenbach's alpha was calculated to assess internal consistency of these two new variables and their distribution was examined to check the assumption of normality variable (Katz 2006).

The derived or summary variable 'it is possible to persuade patients to modify their lifestyle' was selected by Steptoe et al. (1999) as an index of attitudes towards the effectiveness of lifestyle modification and will be used in the same way in the present analysis.

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Table 5.1: Derived Summary Variables Created by Combining Questionnaire Items.

New variables	Taking responsibility for health promotion	Belief in own lifestyle counselling skills	Attitude towards effectiveness of lifestyle interventions	Day-to-day involvement in health promotion
Old variables combined into new variable	1. GPs are the most appropriate to carry out health promotion	5. I feel properly trained to give lifestyle counselling advice	It's possible to persuade patients to modify their lifestyles to reduce:	15. Hypertension
	2. My job is not only to treat disease but act as a health educator	6. It is not very difficult to counsel patients about lifestyle	10.Hypertension	16. High cholesterol
	3. My job is to treat disease and leave health promotion to others	7.Health professionals are very influential in persuading patients to change their lifestyle	11.High cholesterol	17.Cigarette smoking
	4. I have no time to spend on preventive medicine	8.I can offer my patients a great deal on the way of lifestyle counselling	12.Cigarette smoking	18. Obesity
			13.Obesity	19. Physical inactivity
			14.Physical inactivity	

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5.9.2 Multivariate analyses.

Where the dependent variable could be treated as continuous, linear regression was used for multivariate analyses. Where the dependent variable was dichotomous, logistic regression was used to explore associations between the dependent variable, the explanatory variable of interest and to adjust for potential confounders (Katz 2006).

Independent variables were selected for inclusion in the analysis according to a number of criteria. In line with the primary hypothesis, professional status was included together with potential confounders such as age, gender and other factors based on theory, prior research and outcomes of the univariate analyses.

Linear regression was performed using the index of attitudes to the effectiveness of lifestyle interventions as the outcome measure. The significance of the model was assessed using the F and the associated p value, along with the adjusted R square, which indicates the strength of the model by assessing the percentage variation explained (Brace N et al. 2009). Co-linearity statistics were examined to check that no two or more variables were so closely related to one another that the model may not be able to assess reliably the independent contribution each makes to the model (Katz 2006).

5.10 The Tests of hypotheses.

5.10.1 Testing the primary hypothesis.

The primary hypothesis is that 'GPs are more likely than psychiatrists to report a positive attitude to cardiovascular health promotion for people with SMI'. The analyses are set out on section 6.3.

The question was initially examined by comparing GP and psychiatrist responses to the attitudinal questions in the survey using chi-square tests. To further examine GP and psychiatrist attitudes, their responses to questions about their perceptions of their own skills at giving life style advice were examined using chi-square tests. These attitudinal items were then combined as shown in Table 5.1 to produce summary variables. GPs and psychiatrists were then compared on the summary variable using t-tests.

Cronenbach's alpha was calculated to assess the internal consistency of these two new variables. It would be anticipated that each respondent would demonstrate internal consistency and score each item similarly or in a consistent manner. Values between 0.7 and 0.9 generally indicate good internal consistency (Peacock & Peacock 2011).

Standard deviations and confidence intervals were also calculated as measures of dispersion. The summary variables were used in a linear regression to test whether

professional status was a significant explanatory variable after adjusting for potential confounders.

5.10.2 Tests of Secondary Hypotheses.

Hypothesis two is that GPs are more likely than psychiatrists to report involvement in cardiovascular health promotion for people with SMI. This hypothesis was tested in the same way as hypothesis one. GP and psychiatrist reported day-to-day involvement in health promotion was compared for individual items using chi-square tests. This was then repeated for the summary variable 'reported day-to-day involvement in health promotion' using student's t-test. Regression analysis was then used to adjust for potential confounders.

Hypotheses three and four were respectively was that there would be no relationship between GPs and psychiatrists own health behaviours and (3) attitudes to health promotion for people with SMI; (4) reported involvement in health promotion for people with SMI.

First, GP and psychiatrist individual health behaviours were compared using chi-square tests, odds ratios and confidence intervals for two by two tables. The dichotomous variables smoking 'I am current smoker' and 'I currently drink alcohol' were used as dependent variables in logistic regression models to explore relationships between professional status, heath behaviours, age and sex and to adjust for potential confounders.

Hypotheses three and four were then tested using the same approach adopted for the primary hypothesis in section 5.8.3. Briefly, univariate analyses were conducted using chi-square tests. These were then repeated for the summary variables of interest using student's t-test. Regression analysis was then used to adjust for potential confounders and to model the data.

6. Results.

This section contains results on the response rate, respondent characteristics and lifestyle behaviours reported by the GPs and psychiatrists who answered the survey.

6.1 Sample size.

Two hundred eighty three out of 294 distributed questionnaires, were received giving a response rate of 95.2%. Three respondents did not indicate whether they were GPs or psychiatrists giving an effective sample size of 280 for most analyses. One hundred nineteen (42.5%) of respondents were GPs and 158 (56.4%) (158/280) were psychiatrists.

6.2 Respondent characteristics.

The demographic characteristic of the respondents are summarised in Table 6.1. There were no significant differences between GPs and psychiatrists in terms of age or gender mix. Of the 115 GPs who indicated their ages, the age range was 20s to 70s with a mean age of 43.6 years and a median age in the forties. Welsh Government figures for 2009 give the average age of a GP in Wales as 46 years. Of the 158 psychiatrists, the age range was 20s to 80s with a mean age of 43 years and a median age of 40s.

Table 6.1: Demographic Characteristics of Survey Respondents.

		GP n (%)	Psychiatrist n (%)
Sample size		119 (43.5)	158 (56.5)
Gender	Male	70 (58.8)	107 (67.7)
	Female	46 (38.7)	51 (32.3)
	Not known	3 (2.5)	0 (0)
Age Group	20s	1 (0.9)	1 (0.6%)
	30s	17 (14.8)	33 (20.9%)
	40s	49 (42.6)	66 (41.8%)
	50s	37 (32.2)	41 (25.9%)
	60s	10 (8.7)	12 (7.6%)
	70s	1 (0.9)	2 (1.3%)
	80s	0 (0)	3 (1.9%)

6.3 Hypothesis one: are GPs more likely than psychiatrists to report a positive attitude to cardiovascular health promotion for people with SMI?

In this section, I report the tests of the primary hypotheses. First, I compare the attitudes of GPs and psychiatrists to cardiovascular health promotion for people with SMI. The hypothesis is that GPs are more likely than psychiatrists to report a positive attitude to cardiovascular health promotion for people with SMI.

6.3.1 Professional responsibility for health promotion to people with SMI.

Table 6.2 shows cross tabulations of respondents' answers to the questions addressing attitudes to personal involvement in health promotion for people with severe mental illness.

In summary, GPs were significantly less likely than psychiatrists to agree with the statements that:

- 'GPs are the most appropriate person to carry out health promotion.'
- 'My job is not only to treat disease, but to act as a health educator.'

Conversely, GPs were significantly more likely than psychiatrists to agree with the statement that:

- 'My job is to treat disease and leave health promotion to others.'

Table 6.2: GP and Psychiatrist Responses About Professional Responsibility for Health Promotion Among People with SMI.

Question	Group	Agree n(%)	Neutral n(%)	Disagree n(%)	X^2 (df=2)	p
GPs are the most appropriate to carry out health promotion.	GPs	48 (40.4)	41 (35.0)	29 (24.6)		
	psychiatrists	88 (56.4)	55 (35.3)	13 (8.3)	14.92	0.001
	Total	136 (49.6)	96 (35.0)	42 (15.4)		
My job is not only to treat disease, but act as health educator.	GPs	88 (74.6)	23 (19.5)	7 (5.9)		
	psychiatrists	133 (84.2)	14 (8.8)	11 (7.0)	6.58	0.037
	Total	221 (80.1)	37 (13.4)	18 (6.5)		
My job is to treat disease and leave health promotion to others.	GPs	12 (10.2)	31 (26.3)	75 (63.5)		
	psychiatrists	5 (3.8)	16 (10.1)	136 (86.1)	20.18	0.0005
	Total	18 (5.1)	47 (17.0)	211 (76.4)		
I have no time to spend on preventive medicine.	GPs	14 (12.0)	35 (29.9)	68 (58.1)		
	psychiatrists	22 (13.9)	51 (32.3)	85 (53.8)	0.54	ns
	Total	36 (13.1)	86 (31.3)	153 (55.6)		

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6.3.2 GP and psychiatrist responses about the possibility of lifestyle modification in people with severe mental illness.

Table 6.3 summarises respondents' answers to questions about the feasibility of delivering lifestyle interventions to people with severe mental illness. These items formed the index of attitudes to the effectiveness of lifestyle interventions for people used in later analyses.

GPs were significantly less likely than psychiatrists to agree with the statements that 'it is possible to persuade patients to modify their lifestyles to reduce':

- Hypertension

- High cholesterol

- Cigarette smoking

- Obesity

- Physical inactivity

Both GPs and psychiatrists were more positive about the feasibility of modifying these individual risk factors than they were about the global statement that 'lifestyle counselling is very effective'.

Table 6.3: GPs and Psychiatrists Responses to the Questions that Make Up the Index of Attitudes to the Effectiveness of Lifestyle Interventions in People with SMI.

It is possible to persuade patients to modify their lifestyles to reduce:	Group	Agree n(%)	Neutral n(%)	Disagree n(%)	X^2 (df=2)	p
Hypertension	GPs	72 (60.5)	40 (33.6)	7 (5.9%)	14.26	<0.001
	psychiatrists	128 (81.0)	26 (16.5)	4 (2.5)		
High cholesterol	GPs	74 (62.2)	38 (31.9)	7 (5.9)	10.43	<0.01
	psychiatrists	126 (79.7)	27 (17.1)	5 (3.2)		
Cigarette smoking	GPs	64 (53.8)	47 (39.5)	8 (6.7)	9.03	<0.01
	psychiatrists	112 (70.9)	37 (23.4)	9 (5.7)		
Obesity	GPs	61 (51.3)	49 (41.2)	9 (7.6)	12.04	<0.01
	psychiatrists	111 (70.3)	35 (22.2)	12 (7.6)		
Physical inactivity	GPs	65 (54.6)	44 (37.0)	10 (8.4)	9.93	<0.01
	psychiatrists	115 (72.8)	34 (21.5)	9 (5.7)		

6.3.3 GP and psychiatrist belief in their own effectiveness at giving lifestyle advice to people with SMI.

Table 6.4 summarises GP and psychiatrist responses to statements designed to assess beliefs about their own skill at delivering life style advice and interventions to people with severe mental illness. There were no differences between GPs and psychiatrists in their responses to the questions summarised in Table 6.4.

Notably, only 35.5% (n=98) of respondents felt adequately trained to give lifestyle counselling advice. Fewer still (29.8%, n= 81) responded positively to the statement that 'lifestyle counselling is very effective'. Most were neutral.

In summary, both GPs and psychiatrists were neutral or disagreed with the following statements:

- 'I feel properly trained to give lifestyle counselling advice.'
- 'It is not very difficult to counsel patients about an alternative lifestyle.'
- 'Health professionals are very influential in persuading patients to change their lifestyles.'
- 'I can offer my patients a great deal in the way of lifestyle counselling.'
- 'Lifestyle counselling is very effective.'

Table 6.4: Respondents' Belief in Their Own Skills at Giving Lifestyle Advice to People with SMI.

Statement:	Group	Agree n(%)	Neutral n(%)	Disagree n(%)	X^2 (df=2)	p
I feel properly trained to give lifestyle counselling advice	GPs	44 (37.0)	52 (43.7)	23 (19.3)	0.83	ns
	psychiatrists	54 (34.4)	77 (49.0)	26 (16.6)		
It is not very difficult to counsel patients about alternative lifestyles	GPs	39 (33.1)	42 (35.6)	37 (31.4)	0.48	ns
	psychiatrists	58 (36.9)	54 (34.4)	45 (28.7)		
Health professionals are very influential in persuading patients to change their lifestyles	GPs	65 (55.1)	37 (31.4)	16 (13.6)	0.38	ns
	psychiatrists	82 (51.9)	51 (32.3)	25 (15.8)		
I can offer my patients a great deal in the way of lifestyle counselling	GPs	43 (36.4)	51 (43.2)	24 (20.3)	0.97	ns
	psychiatrists	58 (36.9)	74 (47.1)	25 (15.9)		
Lifestyle counselling is very effective	GPs	38 (33.1)	62 (53.9)	15(13.0)	1.69	ns
	psychiatrists	43 (27.4)	97 (61.8)	17 (10.8)		

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6.3.4 Summarising attitudes to the effectiveness of lifestyle interventions for people with severe mental illness.

As described in section 5.8.1, an index of respondents' attitudes towards the effectiveness of lifestyle interventions was developed to simplify and summarise the data. The items that make up each summary variable are shown in Table 5.1.

Table 6.5 below shows the mean score for GPs and psychiatrists on these summary attitudinal variables together with means and confidence intervals.

For the summary variable 'taking responsibility for health promotion' psychiatrists scored significantly higher than GPs. A higher score indicates greater willingness to take on responsibility for health promotion.

For the summary variable 'index of attitudes to effectiveness of health promotion' psychiatrists scored higher than GPs. A higher score indicates more positive attitudes towards the possibility of persuading patients to modify their life style.

There was no difference between GPs and psychiatrists in their attitudes to their own lifestyle counselling skills.

Table 6.5: GP and Psychiatrist Scores on Derived Summary Variables about Lifestyle Interventions for People with Severe Mental Illness.

Summary variable	Group	N	Mean	SD	CI	t	p	Cronbach's alpha
Taking Responsibility for Health Promotion	GP	117	9.87	1.80	9.55 to 10.20	-2.913	0.004	0.61
	psychiatrist	158	10.46	1.39	10.24 to 10.67			
Index of attitudes to effectiveness of life style modification	GP	119	7.98	2.29	7.57 to 8.39	-2.49	0.016	0.92
	psychiatrist	158	8.63	2.07	8.29 to 8.96			
Belief in own lifestyle counselling skills	GP	117	8.78	2.21	8.38 to 9.18	-0.185	0.853	0.69
	psychiatrist	158	8.83	1.91	8.53 to 9.13			

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Cronbach's alpha scores were calculated to assess the internal consistency of the summary variables reported in Table 6.5. Values between 0.7 and 0.9 generally indicate good internal consistency. The internal consistency of 'responsibility for health promotion' was thus rather lower than was desirable. The internal consistency of the other two items was acceptable. Standard deviations (SD) have also been reported in Table 6.5 as an indication of the spread of the distributions.

6.3.5 Multiple regression analysis to see if GPs are more likely than psychiatrists to report a positive attitude to cardiovascular health promotion for people with SMI.

Following Steptoe et al. (1999), the variable 'it is possible to persuade patients to modify their lifestyle' was selected as an index of attitudes towards the effectiveness of lifestyle modification. It is used here for the same purpose. Correlations between this and other variables of interest considered to be potentially associated with attitudes to cardiovascular health promotion were examined and are presented in table 6.6. The 'index of attitudes' is not highly correlated with the other variables which will be used in the regression analysis.

Consistent with the other analyses, there were significant correlations between the index of attitudes towards the effectiveness of lifestyle interventions and, in order of strength of correlation, with:

- belief in own lifestyle counselling skills,
- taking responsibility for health promotion and,
- being a psychiatrist rather than a GP.

Table 6.6: Correlations with the Index of Attitudes Towards Effectiveness of Lifestyle Interventions.

		Index of attitudes to effectiveness of life style interventions	Taking Responsibility for health promotion	Own lifestyle counselling skills	Gender	Age	GP or psychiatrist
Index of attitudes to effectiveness of life style interventions	Pearson Correlation	1	.214**	.223**	-.076	.050	.146*
	Sig. (2-tailed)		.000	.000	.208	.413	.015
Taking Responsibility for health promotion	Pearson Correlation	.214**	1	.288**	-.017	.038	.180**
	Sig. (2-tailed)	.000		.000	.780	.532	.003
Own lifestyle counselling skills	Pearson Correlation	.223**	.288**	1	.065	-.022	.011
	Sig. (2-tailed)	.000	.000		.283	.723	.850
Gender	Pearson Correlation	-.076	-.017	.065	1	.087	.076
	Sig. (2-tailed)	.208	.780	.283		.153	.209
Age	Pearson Correlation	.050	.038	-.022	.087	1	-.051
	Sig. (2-tailed)	.413	.532	.723	.153		.402
GP or psychiatrist	Pearson Correlation	.146*	.180**	.011	.076	-.051	1
	Sig. (2-tailed)	.015	.003	.850	.209	.402	

** Correlation is significant at the 0.01 level (2 sided)

* Correlation is significant at the 0.05 level (2 sided).

Multiple linear regression was performed with the 'index of attitudes' as the dependent variable firstly with just demographic predictor variables and then with demographic, and other attitudinal variables (Table 6.7).

Using the enter method, a model emerged for the first analysis which just failed to reach statistical significance (F= 2.43, significance=0.066). The adjusted R square was 0.016 meaning the model explained 1.6% of the variance in the index of attitudes. All variables were entered in the model. There was no evidence of strong relationship between predictor variable as collinearity tolerance values were all greater than 0.80.

- In this model being a psychiatrist rather than a GP was a predictor of a positive attitude to life style interventions for people with SMI.

Using the enter method, a significant model also emerged for the second analysis which contained the additional predictor variables 'responsibility for health promotion' and perception of 'own lifestyle counselling skills' (F=5.21, significance <0.001).

There was no evidence of a strong relationship between predictor variable as collinearity tolerance values were again all greater than 0.80.

Using the enter method, a significant result also emerged for the third model. The adjusted R square for model three was 0.073. The model thus explained 7.3% of the variance in the index of attitudes.

Model three indicates that three independent variables were weakly predictive of a positive attitude to life style interventions for people with SMI. In order of contribution to the model these were:

- Own life style counselling skills.
- Taking Responsibility for health promotion.
- Being a psychiatrist rather than a GP.

Table 6.7: Linear Regression Analysis with Index of Attitudes to Lifestyle Interventions as the Outcome.

Model one	Predictor variables in model	Beta	t	Sig.
F= 2.43,	GP or psychiatrist	0.14	2.35	0.02
Sig. =0.066.	Gender	-0.08	-1.33	0.19
Adjusted R^2= 0.016	Age	0.06	0.96	0.38
Model two	Own lifestyle counselling skills	0.18	2.97	0.003
F=5.21	Taking responsibility for health promotion	0.14	2.20	0.03
Sig. <0.001	GP or psychiatrist	0.10	1.68	0.09
Adjusted R^2=0.073	Gender	-0.09	-1.57	0.12
	Age	0.06	0.99	0.32

Sig. = significanc

6.4. Hypothesis two: GP and psychiatrist reported involvement in cardiovascular health promotion.

Hypothesis two is that GPs are more likely than psychiatrists to report involvement in cardiovascular health promotion for people with SMI.

In this section I present a comparison of GPs and psychiatrists in terms of their reported involvement in cardiovascular health promotion for people with SMI; the hypothesis is that GPs are more likely than psychiatrists to report involvement in cardiovascular health promotion for people with SMI.

6.4.1 Univariate analyses of GP and psychiatrist reported involvement in cardiovascular health promotion.

Table 6.8 contains a summary of the self-reported involvement of GPs and psychiatrists in cardiovascular health promotion for people with SMI.

GPs were significantly more likely than psychiatrists to report involvement in the day-to-day identification of cardiovascular risk factors related to hypertension, high cholesterol and cigarette smoking.

There were no differences between GPs and psychiatrists in terms of reporting of regular involvement in identification of obesity and physical inactivity.

Table 6.8: GP and Psychiatrist Responses to the Statement 'I am significantly involved in the identification of the following risk factors in my daily work'.

Risk factor	Group	Agree n(%)	Neutral n(%)	Disagree n(%)	Chi^2 (df=2)	p
Hypertension	GP	84 (71.2)	22 (18.6)	12 (10.2)	22.55	<0.001
	psychiatrist	73 (46.5)	32 (20.4)	52 (33.1)		
High cholesterol	GP	83 (70.3)	27 (22.9)	8 (6.8)	18.94	<0.001
	psychiatrist	86 (54.8)	28 (17.8)	43 (27.4)		
Cigarette smoking	GP	85 (71.4)	27 (22.7)	7 (5.9)	11.90	<0.01
	psychiatrist	92 (58.6)	33 (21.0)	32 (20.4)		
Obesity	GP	73 (61.3)	31 (26.1)	15 (12.6)	1.44	ns
	psychiatrist	85 (54.1)	48 (30.6)	24 (15.3)		
Physical Inactivity	GP	65 (54.6)	37 (31.1)	17 (14.3)	0.7	ns
	psychiatrist	93 (59.2)	42 (26.8)	22 (14.0)		

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As described in section 5 and Table 5.1, a summary variable for involvement in the identification of cardiovascular risk factors was created and the results are shown in Table 6.9.

GPs were significantly more likely than psychiatrists to report day-to-day involvement in the identification of cardiovascular risk factors. The internal consistency of the summary variable was satisfactory with a Cronbach's alpha of 0.91.

Table 6.9: Summary Variable Showing Scores for GP and Psychiatrist Reported Involvement in Day-to-Day Identification of Cardiovascular Risk Factors.

Group	n	Mean	SD	95% CI	t	p	Cronbach's Alpha
GP	118	8.78	2.99	8.25–9.33	3.019	0.003	0.91
psychiatrist	157	7.63	3.35	7.11–8.15			

6.5 Test of Hypothesis two: multivariate analysis of GP and psychiatrist reported involvement in cardiovascular health promotion.

Hypothesis two is that GPs are more likely than psychiatrists to report involvement in cardiovascular health promotion for people with SMI.

Table 6.10 shows correlations between reported day-to-day in involvement in health promotion and other variables of interest. In order of the strength of the correlation the variables of interest were:

- being a GP rather than a psychiatrist;
- a positive attitude to the effectiveness of lifestyle interventions;
- taking responsibility for health promotion;
- belief in one's own lifestyle counselling skills.

The summary variable 'day-to-day involvement in health promotion' is not highly correlated with the other variables used in the regression analysis. There was no evidence of a strong relationship between predictor variable as collinearity tolerance values were all greater than 0.80 for all three models.

Table 6.10: Correlations with Summary Variable 'day-to-day involvement in health promotion'.

		Day-to-day involvement in health promotion	Age	GP or psychiatrist	Gender	Responsibility for health promotion	Own Lifestyle counselling skills	Index of attitudes to effectiveness of lifestyle interventions
Day-to-day Involvement in health promotion	Pearson Correlation	1	-.002	-.177**	.080	.152*	.137*	.151*
	Sig. (2-tailed)		.971	.003	.185	.012	.024	.012
Age	Pearson Correlation	-.002	1	-.051	.087	.038	-.022	.050
	Sig. (2-tailed)	.971		.402	.153	.532	.723	.413
GP / psychiatrist	Pearson Correlation	-.177**	-.051	1	.076	.180**	.011	.146*
	Sig. (2-tailed)	.003	.402		.209	.003	.850	.015
Gender	Pearson Correlation	.080	.087	.076	1	-.017	.065	-.076
	Sig. (2-tailed)	.185	.153	.209		.780	.283	.208
Responsibility for health promotion	Pearson Correlation	.152*	.038	.180**	-.017	1	.288**	.214**
	Sig. (2-tailed)	.012	.532	.003	.780		.000	.000
Own Lifestyle counselling skills	Pearson Correlation	.137*	-.022	.011	.065	.288**	1	.223**
	Sig. (2-tailed)	.024	.723	.850	.283	.000		.000
Index of attitudes to effectiveness of lifestyle interventions	Pearson Correlation	.151*	.050	.146*	-.076	.214**	.223**	1
	Sig. (2-tailed)	.012	.413	.015	.208	.000	.000	

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

Multiple linear regression was performed with 'day-to-day involvement' as the dependent variable, firstly with just demographic predictor variables and then with demographic and other attitudinal variables (Table 6.11).

Using the enter method, a model emerged for the first analysis that reached just failed to reach statistical significance at the 0.05 level (F= 3.65 and significance = 0.066). The adjusted R square was 0.03 meaning the model explained only 3% of the variance in 'day-to-day involvement in cardiovascular risk factor identification'. The standardized beta coefficients, which give a measure of the contribution each variable makes to the model, indicate that:

- being a GP rather than a psychiatrist

was the only variable significantly associated with the index of attitudes in the first model (Standardised Beta coefficient = -0.18, t= -3.02, Significance = 0.003).

Using the enter method, a model also emerged for the second analysis (Table 6.11) which contained the additional predictor variables 'index of attitudes to health promotion', 'responsibility for health promotion' and perception of 'own lifestyle counselling skills'. This time F=4.30, significance = 0.006 and adjusted R square = 0.04. The model thus explained 4% of the variance in 'day-to-day involvement in cardiovascular risk factor identification'. The standardized beta coefficients, indicate that the independent variables:

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- 'positive attitudes to lifestyle interventions' and

- 'responsibility for health promotion'

were both predictive of 'day-to-day involvement in cardiovascular risk factor identification' (Table 6.11).

In the third model GP / psychiatrist status, 'attitudes to lifestyle interventions' and 'responsibility for health promotion' were entered. For this model F=6.70, significance = 0.001 and adjusted R square = 0.08. The model thus explained 4% of the variance in 'day-to-day involvement in cardiovascular risk factor identification'.

In summary, day-to-day involvement in health promotion for people with SMI was weakly predicted by the following independent variables shown in order of significance:

- 'Being a GP rather than a psychiatrist.'

- 'Positive attitudes to lifestyle interventions.'

- 'Responsibility for health promotion.'

Table 6.11: Linear Regression Analysis with Summary Variable 'reported day-to-day involvement in cardiovascular risk factor identification' as the Outcome.

Model one	Predictor variables in model	Beta	t	Sig.
F= 3.65,	GP or psychiatrist	-0.18	-3.02	0.003
Sig. = 0.066.	Gender	0.09	1.58	0.12
Adjusted R^2= 0.03	Age	-0.02	-.30	0.77
Model two	Index of attitudes to lifestyle interventions	-0.15	-2.41	0.02
F= 4.30 Sig. = 0.006	Responsibility for health promotion	0.14	2.16	0.03
Adjusted R^2= 0.04	Own lifestyle counselling skills	0.06	1.02	0.31
Model three	GP or psychiatrist	-0.27	-3.77	0.001
F = 6.70 Sig. = 0.001	Index of attitudes to effectiveness of lifestyle interventions	-0.15	-2.41	0.02
Adjusted R^2= 0.08	Responsibility for health promotion	0.14	2.16	0.03

6.6 GPs' and psychiatrists' own lifestyle behaviours.

6.6.1 Univariate analyses of lifestyle behaviours.

Out of the 280 completed questionnaires received, 96.4% (270/280) answered the question on whether or not they were currently a smoker. Of the completed questionnaires 86.4% (242/280) provided answers to the question on previous smoking; 97.1% (272/280) responded to the question on regular exercise; 94.6% (265/280) and 92.1% (258/280) answered the questions on healthy eating and current alcohol use. Table 6.12 summarises the reported own health behaviours of GPs and psychiatrists. Of GPs 17 (15.2%) compared to 10 (6.3%) of psychiatrists were current smokers. This difference was statistically significant. Chi-square and P values are reported in the table. The odds ratio for this difference was 2.65 and the 95% confidence intervals (C.I) were from 1.16 to 6.03. GPs were also significantly more likely to report an unspecified level of recreational alcohol consumption (odds ratio 2.27, 95 % CI from 1.33 to 3.87). There were no other significant differences between groups.

In summary, GPs were significantly more likely than psychiatrists to respond yes to the statements:

- I am a current smoker.
- I currently drink alcohol.

Table 6.12: GP and Psychiatrist Self Reported Lifestyle Behaviours.

Reported health behaviour	Profession	Yes n(%)	No n(%)	X^2	p	OR (95% CI)
I am a current smoker.	GP	17 (15.2)	95 (84.8)	5.70	0.02	2.65 (1.16 to 6.03)
	psychiatrist	10 (6.3)	148 (93.7)			
	Total	27 (10)	243 (90)			
I am an ex-smoker.	GP	20 (21.5)	73 (78.5)	0.82	ns	0.72 (0.39 to 1.33)
	psychiatrist	41 (27.5)	108 (72.5)			
	Total	61 (25.2)	181 (74.8)			
I exercise regularly.	GP	85 (74.6)	29 (25.4)	0.96	ns	1.36 (0.79 to 2.33)
	psychiatrist	108 (68.4)	50 (31.6)			
	Total	193 (71.0)	79 (29.0)			
I consider myself a healthy eater.	GP	89 (78.8)	24 (21.2)	0.01	ns	1.19 (0.67 to 2.14)
	psychiatrist	115 (75.7)	37(24.3)			
	Total	204 (76.7)	61(23.3)			
I currently drink alcohol.	GP	75 (72.1)	29 27.9)	8.50	0.003	2.27 (1.33 to 3.87)
	psychiatrist	82 (53.2)	72 (46.8)			
	Total	157 (60.9)	101 (39.1)			

6.6.2 Multivariate analyses of self reported health behaviours.

The variables 'I am a current smoker' and 'I currently drink alcohol' were used as dependent variables in logistic regression analyses to further explore associations between professional status and lifestyle behaviours, and to adjust for potential confounders hypothesized to be relevant such as age and sex (Table 6.13).

GPs were significantly more likely than psychiatrists (both before and after adjusting for gender, age both separately and together) to answer yes to the statements:

- I am a current smoker.

- I currently drink alcohol.

Adjusting for age and sex non significantly strengthened the relationship between being a GP and being a current smoker. Adjusting for age and sex made no difference to the association between professional status and current alcohol use.

Table 6.13: Logistic Regression Analysis of Self Reported Health Behaviours.

Self reported health behaviour	Odds ratio and (95% confidence intervals)			
	GPs compared to psychiatrists	Adjusted for Gender	Adjusted for Age	Adjusted for Gender and age
I am a current smoker	2.65 (1.16 to 6.03)	2.58 (1.18 to 5.94)	2.82 (1.23 to 6.46)	2.84 (1.25 to 6.63)
I currently drink alcohol	2.27 (1.33 to 3.87)	2.24 (1.31 to 3.83)	2.30 (1.34 to 3.94)	2.27 (1.32 to 3.90)

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6.7 Hypothesis three: relationship between GPs and psychiatrists own lifestyle behaviours and their attitudes to cardiovascular health promotion for people with SMI.

Table 6.14 shows correlations between the derived summary variable 'index of attitudes to life style interventions' and other variables of interest. The only significant association with 'attitudes to lifestyle interventions' was with being a psychiatrist rather than a GP.

There was no correlation between being a current smoker or using alcohol and attitudes to cardiovascular health promotion for people with SMI. Age and gender were omitted from Table 6.14, as they were not significantly correlated with any of the other variable under consideration.

Multiple linear regression was performed with 'index of attitudes to lifestyle interventions' as the dependent variable and professional status, age, gender, smoking and alcohol use as predictor variables. Using the enter method resulted in a non significant model (F= 1.8 , Significance = 0.13 , model R^2 = 0.01).

- No relationship was found between GPs' and psychiatrists' own lifestyle behaviours and their 'attitudes to lifestyle interventions'.

Table 6.14: GP's and Psychiatrists' Own Lifestyle Behaviours and Their Attitudes to Health Promotion for People with SMI.

		Index of attitudes to lifestyle interventions	Current smoker	Currently uses alcohol	GP or psychiatrist
Index of attitudes to lifestyle interventions	Pearson Correlation	1	.011	-.017	-.146*
	Sig. (2-tailed)		.859	.790	.015
Current smoker	Pearson Correlation	.011	1	.114	.145*
	Sig. (2-tailed)	.859		.067	.017
Currently uses alcohol	Pearson Correlation	-.017	.114	1	.190**
	Sig. (2-tailed)	.790	.067		.002
GP / psychiatrist	Pearson Correlation	-.146*	.145*	.190**	1
	Sig. (2-tailed)	.015	.017	.002	

*. Correlation is significant at the 0.05 level (2-tailed).

**. Correlation is significant at the 0.01 level (2-tailed).

6.8 Hypothesis four: Relationships between GPs' and psychiatrists' own lifestyle behaviours and their reported involvement in cardiovascular health promotion for people with SMI.

Hypothesis four was that would be no relationship between GPs and psychiatrists own health behaviours and their reported involvement in health promotion for people with SMI.

Table 6.15 shows correlations between the summary variable 'day-to-day involvement in health promotion' and other variables of interest which were in order of decreasing strength:

- being a GP rather than a psychiatrist and
- no current alcohol use.

Age and gender were omitted from Table 6.15 as they were not significantly correlated with any of the other variable under consideration.

Table 6.15: Correlations between GPs' and Psychiatrists' Own lifestyle Behaviours and Their Reported Involvement in Cardiovascular Health Promotion for People with SMI.

Correlations		Day-to-day involvement in health promotion	Current smoker	Currently uses alcohol	GP or psychiatrist
Day-to-day involvement in health promotion	Pearson Correlation	1	.023	.159*	-.177**
	Sig. (2-tailed)		.703	.010	.003
Current smoker	Pearson Correlation	.023	1	.114	.145*
	Sig. (2-tailed)	.703		.067	.017
Currently uses alcohol	Pearson Correlation	.159*	.114	1	.190**
	Sig. (2-tailed)	.010	.067		.002
GP or psychiatrist	Pearson Correlation	-.177**	.145*	.190**	1
	Sig. (2-tailed)	.003	.017	.002	

*. Correlation is significant at the 0.05 level (2-tailed).

**. Correlation is significant at the 0.01 level (2-tailed).

Linear regression was performed with 'day-to-day involvement' as the dependent variable with GP / psychiatrist status and current alcohol used as the predictor variables first each on their own and then together (Table 6.16).

In model one there was a relationship between day-to-day involvement in health promotion and being a GP rather than a psychiatrist (F= 8.83, significance =0.003, Adjusted R^2 = 0.03). The standardized beta coefficients, which give a measure of the contribution each variable makes to the model, indicate that GP or psychiatrist status was significantly associated with the index of attitudes in the first model (Standardised Beta coefficient = -0.18, t= -15.50, Significance = 0.003).

In model two there was a relationship between day-to-day involvement in health promotion and not currently using alcohol (F= 6.69, significance =0.01, Adjusted R^2 = 0.025). The standardized beta coefficients, which give a measure of the contribution each variable makes to the model, indicate that not drinking was significantly associated with the index of attitudes in the first model (Standardised Beta coefficient = -0.16, t= -10.81, Significance = 0.01).

In model three there was a relationship between day-to-day involvement in health promotion and being a GP rather than a psychiatrist and no current alcohol consumption (F= 5.76, significance =0.01, Adjusted R^2 = 0.05).

Table 6.16: Linear Regression Analysis with Summary Variable 'reported day-to-day involvement in cardiovascular risk factor identification' as the Outcome.

Model one	Predictor variables in model	Beta	t	Sig.
F= 8.83, Significance = 0.003. Adjusted R^2= 0.03	Being a GP rather than a psychiatrist	-0.18	15.50	0.003
Model two	No Current alcohol use	0.16	10.81	0.01
F= 6.69 Significance = 0.01 Adjusted R^2= 0.025				
Model three	Being a GP rather than a psychiatrist	-0.21	-3.35	0.001
F = 5.76 Significance = 0.01 Adjusted R^2= 0.05	No Current alcohol use	0.19	3.04	0.003

For model three, the standardized beta coefficients, which give a measure of the contribution, each variable makes to the model, indicate that both variables were associated with 'day-to-day involvement in health promotion'. Being a GP having a slightly larger effect than 'no current alcohol use'.

Neither predictor variable alone or in combination accounted for more than 5% of the variance. In summary:

- There was a weak relationship between GPs' and psychiatrists' not using alcohol and their reported involvement in health promotion for people with SMI.

- This had less effect than whether they were a GP or a psychiatrist.

- GPs were more likely than psychiatrists to be actually involved in cardiovascular health promotion.

7. Discussion.

7.1 Summary of main findings.

7.1.1 Response rate and sample characteristics.

The response rate was 95.2% with 280 of 294 completed questionnaires being returned. One hundred nineteen were from GPs, and 158 were from psychiatrists. Both groups were similar in terms of age and sex profile. Similar data was not available for psychiatrists. The majority of GP and psychiatrist respondents were male (60% of GPs and 68% of psychiatrists). There was no difference in gender distribution between GPs and psychiatrists. The mean age of respondents was 43 and the median age was 40s. There was no difference in age distribution between GPs and psychiatrists. The GPs sample was similar to the age sex profile of all GPs in Wales.

7.1.2 Are GPs more likely than psychiatrists to report positive attitudes to health promotion for people with SMI?

The short answer is that GPs are *less* likely than psychiatrists to report positive attitudes to health promotion for people with SMI. However, other factors play a greater part in determining attitudes than professional role.

In univariate analyses GPs were more negative than psychiatrists about the 'effectiveness of lifestyle interventions' (t=-2.49, p=0.016) and scored lower than

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psychiatrists on 'taking responsibility for health promotion' (t=-2.913, p=0.004). From linear regression analysis a slightly different picture emerged which accounted for 7.3% of the variance. The following independent variables, in order of descending effect, were predictive of being positive about the 'effectiveness of lifestyle interventions':

- belief in own life style counselling skills;

- taking responsibility for delivering lifestyle interventions;

- being a psychiatrist rather than a GP.

7.1.3 Are GPs are more likely than psychiatrists to report involvement in cardiovascular health promotion for people with SMI?

GPs were significantly more likely than psychiatrists to report day-to-day involvement in cardiovascular health promotion for people with SMI in both univariate and multivariate analyses (hypothesis two). The other predictor variables in the linear regression models were, in order of significance, having a positive attitude to lifestyle interventions and taking responsibility for health promotion. The model accounted for 8% of the variance.

7.1.4 Are there any differences between GPs and psychiatrists in terms of the effects of their own health behaviours on their attitudes to cardiovascular health promotion for people with SMI?

No relationships were found between GPs' and psychiatrists' own lifestyle behaviours and their attitudes to cardiovascular health promotion. GPs were significantly more likely than psychiatrists, before and after adjusting for age and sex, to report being current smokers (Odds ratio 2.65, 95% C.I from 1.16 to 6.03)

and to report an unspecified level of recreational alcohol consumption (odds ratio 2.27, 95 % CI from 1.33 to 3.87).

7.1.5 Are there any differences between GPs and psychiatrists in terms of the effects of the practitioners' own health behaviours on their involvement in cardiovascular health promotion for people with SMI?

A weak relationship was found between alcohol consumption and reported involvement in health promotion for people with SMI. This had less effect than whether respondents were GPs or psychiatrists. GPs were significantly more likely than psychiatrists to be involved in day-to-day cardiovascular health promotion for people with SMI. GPs were significantly more likely than psychiatrists to report they were current smokers and that they drank alcohol.

7.2 The Tests of Hypotheses.

7.2.1 Hypothesis One – GPs are more likely than psychiatrists to report positive attitudes to health promotion for people with SMI.

Simplistically the hypothesis can be rejected – psychiatrists expressed more positive attitudes. But that is not a full explanation of the findings for three reasons. Firstly, professional status was a less important determinant of attitude to health promotion than a belief in one's own lifestyle counselling skills, and being positive about taking responsibility for delivering lifestyle interventions. Secondly, the model only explained a small percentage of the variance – implying other unidentified factors may have a larger role to play in determining attitudes. Thirdly, this finding

also requires consideration in the context of the next hypothesis.

7.2.2 Hypothesis Two – GPs are more likely than psychiatrists to report involvement in cardiovascular health promotion for people with SMI.

This hypothesis was accepted. GPs did indeed report greater day-to-day involvement in cardiovascular health promotion for people with SMI. Again the model explained less than 10% of the variance. But professional status contributed most to the model. Also, again taking responsibility for health promotion and one's own lifestyle counselling skills were important. It is noteworthy that GPs were the group with the most involvement in health promotion yet, at the same time were less convinced than psychiatrists of its effectiveness.

7.2.3 Hypothesis Three – There are no differences between GPs and psychiatrists in terms of the effects of their own health behaviours on attitudes to cardiovascular health promotion for people with SMI.

No differences were found in terms of health behaviours and attitudes so this hypothesis was accepted. An incidental finding was that GPs were more likely than psychiatrists to be current smokers and drinkers.

7.2.4 Hypothesis Four – There are no differences between GPs and psychiatrists in terms of the effects of the practitioners' own health behaviours and their involvement in cardiovascular health promotion for people with SMI.

Strictly speaking the hypothesis should be rejected as a weak relationship was found between 'no current alcohol use' and being involved in health promotion. This explained 2.5% of the variance. Professional status, which had the greatest impact on day-to-day involvement in health promotion, explained 3% of the variance. GPs were significantly more likely to be involved in health promotion than psychiatrists.

7.3 Limitations of the study.

7.3.1 Study design.

The study was a cross-sectional study comparing GPs and psychiatrists in terms of their attitudes to and involvement in cardiovascular health promotion for people with SMI. The study also compared these health practitioners' own health practices / lifestyles and the impact of their lifestyles on their attitudes to and involvement in cardiovascular health promotion for people with SMI. This type of study has been used in psychiatric settings to investigate attitudes (Tracy et al. 2003; Younes et al. 2005; Brotons et al. 2005), as well as reported practices (Brotons et al. 2005). Therefore, it is argued that this was an appropriate design to explore whether health professionals working in different service settings agreed or differed on attitudes and levels of involvement in health promotion.

Cross-sectional studies have advantages in terms of expense and time involved, as well as in service planning. On the other hand, the design has a number of potential drawbacks. These include susceptibility to bias and confounding, proneness to chance association and the impossibility evaluating timing of exposure. For example exposure to aspects of training that might determine any differences in attitudes or levels of involvement in cardiovascular health promotion between GPs and psychiatrists.

This study was conducted as part of academic and research special interest during postgraduate training and as such, data collection needed to be completed over a limited time period and with extremely limited resources. A pilot study using only postal questionnaires revealed a response rate of only 27.5% (11/40); this necessitated a change of strategy from postal to 'conference questionnaires'. Therefore, questionnaires were distributed at GP and psychiatrist conferences, completed and collected on the same day (before the end of the conference), with only a few participants returning their 'conference' questionnaires by post subsequently. This strategy yielded 95.2% (280/294) response rate within a period of 10 months, and as such was instrumental in achieving the target numbers to power the study as identified by the power calculations.

7.3.2 Tests of statistical significance – the role of chance.

Cross-sectional studies are a form of epidemiological study. In such studies,

inferences are drawn about an entire population based on analyses of a sample of that population. A good cross sectional study should have acceptable internal validity (capacity to measure what it purports to measure) and acceptable external validity (capacity to generalize / apply to the entire population). In order to be externally valid, the sample on which the analyses and inferences were based must be representative of the entire population. However, random variations are bound to occur and tests of statistical significance are a way of addressing these random variations. In this study, the P value (the probability P that any identified difference might have occurred by chance) was chosen as the statistical test of significance, and by convention, the cut off for statistical significance was set at $p \leq 0.05$ (i.e. reported differences will be accepted as statistically significant, if the probability P that the observed difference could have occurred by chance is less than or equal to 5% (0.05)). The role of chance in producing type I errors was further reduced by limiting analyses to those required to test the hypotheses.

7.3.3 Statistical power and sample size.

The total sample size and the size of the observed difference between groups are factors that have a major influence on the results of statistical tests of significance of effect size. While the observed difference between groups cannot be controlled for, the sample size can be calculated to ensure that the study is powered correctly. This is done through power calculation and sample size estimation. In large studies, small differences between groups can seem statistically significant,

while in small studies even large differences can seem statistically insignificant unless the study is powered correctly.

In this study, the consideration was that if the sample size were too small, a large effect may fail to reach statistical significance and then remain undetected, resulting in a type II error (where an effect is not found because the sample is too small to detect a true difference). In order to avoid this error, the sample size needs to be powered correctly via appropriate power calculation and sample size estimation. Power calculation requires certain assumptions including the magnitude of the effect (effect size) being investigated (the smallest meaningful effect size acceptable).

In this study, the primary hypothesis was to detect true differences between GPs and psychiatrists with regard to their attitudes to and reported involvement in cardiovascular health promotion for people with SMI. Power calculation and sample size estimation was done using the best available published data on attitudes, opinions about efficacy and perception of skills in lifestyle counselling between GPs and practice nurses (Steptoe et al. 1999). This study found a median percentage difference in attitudes to lifestyle counselling between these health professionals to be 30%. It was calculated that a minimum sample total of 84 (with 42 in each group) would give a study power of 80% and a confidence level of 95%.This sample size was achieved.

To reduce further the chance of an underpowered study a smaller median

difference in attitudes of 20% was assumed. It was calculated that a minimum sample size total of 194 (with 97 in each group) would give a study power of 80%, and a confidence level of 95% for a two-sided significance test. This sample size was achieved.

7.3.4 The role of bias and confounding.

Any process at any stage of inference which tends to produce results or conclusions that differ (systematically) from the truth is termed bias (Sackett 1979). These include processes in the design and conduct of a study leading to a systematic error. The two major forms of bias are selection (recruitment) bias and observation (measurement) bias. It is important for studies to be designed and conducted with the issue of bias in mind because, unlike chance and confounding, bias cannot be evaluated statistically. The multivariate analyses used allowed for the effect of potential confounders to be measured.

7.3.5 Selection (recruitment) bias.

Selection or recruitment bias arises through the identification and / or recruitment of an unrepresentative study population (Lawrie et al. 2000). In this study, all GPs or psychiatrists attending a target conference were invited to complete the questionnaire. By attempting to target all consecutive healthcare conferences in Wales, and including all conference participants who are GPs or consultant

psychiatrists, selection bias should have been minimized. Selection bias cannot be excluded completely as to be eligible, respondents had to have attended an educational event. However, the very high response rate of over 90% from amongst delegates will minimize selection bias amongst attendees. Data on GPs in Wales suggests that the sample was at least representative in terms of age and sex. Also if there is self selection amongst conference delegates then this would apply to both groups in the study a similarly motivated group was identified in both arms of the study (GPs and psychiatrists) and such motivated health practitioners are likely to significantly influence the less motivated groups. On balance it is argued that the internal and external validity of this study are not significantly compromised.

7.3.6 Observation (measurement of information) bias.

Observation (measurement or information) bias arises through the systematic and differential misclassification of disease or exposure or both, by researchers (instruments) or subjects (Lawrie et al. 2000)

In this study, participants (GPs and psychiatrists) were blind to the study hypotheses. Participants were aware of the study's interest in health promotion and lifestyle counselling for people with SMI, and that the aim of the study was to optimize the physical health of people with SMI. But they were not aware of any comparison between GPs and psychiatrists. The content of the questionnaire was

the same for both groups.

Although, it could be argued that the presence of the researcher at conferences may have influenced the responses to the questionnaire, this would have been the same for both the GP and psychiatrist groups, and simple attention bias (the Hawthorne effect) would not have been introduced to only one group by this action. The researcher was present on equal number of occasions at GPs' and psychiatrists' conferences.

The research tool was a 27-item questionnaire; this is a highly structured and objective method of data collection which further reduces the potential for bias.

The data from the questionnaires were collated by a non-medically trained administrative staff that was blind to the study hypotheses and thus ensured the avoidance of potential bias during data extraction from the questionnaires.

7.3.7 Confounding.

Confounding is the mixing of effects between an exposure, a disease (or other outcome) and a third factor associated with both, which produces a false association (positive confounding), or obscures a true association (negative confounding) (Lawrie et al. 2000). It occurs when there are important differences between the groups being compared that are also related to the variable of

interest, and as such could act as alternative explanation(s) for any differences found between the groups being compared.

Confounding can be controlled for in the design of a study using the technique of matching, and unlike bias, it can be statistically controlled for using multivariate techniques.

In this study, GPs were 'matched' with consultant psychiatrists rather than trainee psychiatrists. In effect, the two groups were matched according to level of training. Participants in both groups had completed their formal trainings in their respective professions. Multivariate analysis was also conducted.

7.3.8 How well the models account for the outcomes.

In multiple linear regression, the value of R^2 gives a quantitative measure of how well the independent variables account for the outcome of interest. When multiplied by a hundred it can be thought of as the percentage of the variance in the dependent variable explained by the independent variables (Katz 2006). In the present study, none of the models accounted for more than 10% of the variance. This means a lot of the variation in the outcomes of interest was unexplained by the models. Although the models explained a relatively small proportion of the variance, their significant F test scores indicate that they account for the outcomes better than chance alone.

7.4 Discussion of findings.

This section provides a detailed discussion of the main findings, including relationship to other studies, implications for clinical practice and policy, and for further research.

7.4.1 Relationship to other studies.

The sample of GPs identified in this study were similar in demographic characteristics and described similar personal health behaviours to other published studies on attitudes to health promotion (Steptoe et al. 1999; Chambers & Belcher 1993), with most GPs reporting no current smoking, and about a quarter of GPs reporting previous smoking. Reports of regular exercise habit were also similar to previous studies (Steptoe et al. 1999) with over half of GPs reporting regular exercising. However, in this study, more than a half of GPs reported regular alcohol consumption compared to only about 9% of GPs reporting consumption of up to 22 units of alcohol per week in a previous published study (Chambers & Belcher 1993). The GPs in this study did not report on how much alcohol they drank, merely whether or not they drank alcohol. It may be that GPs and psychiatrists in this study gave more reliable estimates of their drinking habits as they were unaware of the study hypotheses and did not know that they were being compared with another professional group, unlike the study by Chambers et al. where GPs were aware that they were being compared with teachers.

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There were no studies available to compare the personal health practices of GPs and psychiatrists. However, the current study highlights two import potential differences in the personal lifestyles of GPs compared to psychiatrists; It found that among healthcare practitioners, current smokers were two and a half times more likely to be GPs than psychiatrists, and that a health professional who currently drinks alcohol is two and a quarter times more likely to be a GP than a psychiatrist. Further studies are needed to verify / confirm these initial findings, as they are likely to be of some significance not just in the campaign to promote health and healthy lifestyles in people with SMI, but in the sustenance of a healthy healthcare workforce.

7.4.2 Attitudes to involvement in health promotion.

Previous published review / discussion papers have identified people with SMI as a priority group for health education and promotion (Mirza et al. 2002; Le Fevre 2001; Campion 2008). They have also been identified as a group for whom promotion of physical health presents a particular challenge for the hospital doctor (Mirza et al. 2002; Lawn & Campion 2010). In the current study, the majority of psychiatrists believe that GPs are the most appropriate to carry out cardiovascular health promotion for people with SMI. However, less than half of GPs felt GPs were most appropriate to carry out these clinical activities, and GPs' attitude to cardiovascular health promotion for this patient group. Furthermore GPs' attitudes to health promotion were found to be less positive than those of psychiatrists. More psychiatrists than GPs agreed that their job is not only to treat diseases, but act as

health educators, and disagreed that their job is to treat diseases and leave health promotion to others. Also, more psychiatrists than GPs agreed that it is possible to persuade patient to modify their lifestyles to reduce hypertension, high cholesterol, cigarette smoking, obesity and physical inactivity.

This said, other factors were more important than professional status in determining attitudes to health promotion for people with SMI. Those most likely to report a positive attitude were those, who believed in their own ability to carry out lifestyle interventions, and those who saw it as part of their role to take responsibility for lifestyle interventions. These findings are in line with previous published findings that over half (56%) of GPs believe that carrying out prevention and health promotion activities is difficult (Brotons et al. 2005). A sizeable minority of GPs and family practitioners (FPs) have negative beliefs and attitudes towards discussing smoking with their patients. These negative beliefs include lack of confidence in their ability to discuss smoking, that such discussions are 'unpleasant', 'time-consuming', 'inappropriate', 'intrusive' and 'outside their professional duty' (Brotons et al. 2005). Miller at al (2001) also reported that most primary care physicians feeling 'incompetent' to offer such a service.

Brotons et al. (2005) found that although GPs believe they should advise preventive and health promotion activities, in practice, they are less likely to do so. The two most important barriers are heavy workload and lack of time (Brotons et al. 2005).

7.4.3 Reported involvement in health promotion.

The current study found that GPs were much more likely than psychiatrists to report significant involvement in the identification of the following cardiovascular risk factors in their day-to-day work: hypertension, high cholesterol and cigarette smoking. This may reflect the alleged deskilling of psychiatrists in the management of physical disorders (Craddock et al. 2008). More probably, it reflects the role of performance-linked financial remuneration for those carrying out this work in primary care under *Quality and Outcome Framework*. The inverse relationship between involvement and attitude is of interest and would merit further exploration.

A number of studies have examined the beliefs, attitudes to and involvement of health professionals in health promotion and lifestyle counselling. Very few have explored the impact of beliefs and attitudes on involvement, and none have specifically addressed these interactions in relation to cardiovascular health promotion for people with SMI.

Steptoe et al. (1999) found that beliefs in the effectiveness of lifestyle counselling were associated with positive attitudes towards health promotion, and greater confidence in training. However, they found no association between personal health behaviour and attitudes towards health promotion.

Also, despite expressing more positive attitudes to these activities than GPs, most psychiatrists believed that GPs were most appropriate to carry out health promotion and lifestyle counselling for people with SMI, and although GPs reported greater involvement than psychiatrists, less GPs than psychiatrists believed that GPs were most appropriate to carry out these important activities for people with SMI.

7.4.4 Relationships between own health behaviours and attitudes and reported involvement in health promotion for people with SMI.

The findings of the current study suggest that health practitioners' personal health behaviour have only a limited impact on influence attitudes to and involvement in cardiovascular health promotion for people with SMI. Previous researchers have reported otherwise.

Brotons et al. (2005) reported associations between personal health behaviour and attitudes to health promotion or activities in prevention. GPs who smoked felt less effective in helping patients to reduce tobacco consumption, than non-smoking GPs (39.34% versus 48.18%, P b 0.01). GPs who exercised felt that they were more effective in helping patients to practice regular physical exercise than sedentary GPs (59.14%versus 49.70%, P b 0.01) (Brotons et al. 2005).

Others have reported that, although GPs have endorsed lifestyle counselling as part of their role, they are cautious about its effectiveness in achieving change in patient behaviour (Adams et al. 1997; Bruce & Burnett 1991; Wechsler et al. 1983)

Also, that they have encountered difficulties in developing this approach in practice (McAvoy et al. 1999). It has been reported that information and training for GPs results in significant differences between current and potential effectiveness in helping patients change their lifestyle behaviours (McAvoy et al. 1999). The greatest reported difference related to reducing alcohol consumption (McAvoy et al. 1999).

It has been suggested that lack of knowledge regarding cardiovascular risk factor screening and difficulties in interpreting screening results and implementing appropriate interventions exist in secondary care (Wright et al. 2006). It could, therefore, be speculated that education and training may be helpful in narrowing the mismatch between GPs and psychiatrists with regard to the association between own health behaviours and attitudes, and level of involvement in cardiovascular health promotion for people with SMI. Such moves may lead to improvements in the care of this vulnerable patient population.

8. Conclusions & implications.

8.1 Conclusions.

In this questionnaire based survey, GPs and psychiatrists differed in their attitudes to and reported involvement in cardiovascular health promotion for people with SMI. Factors other than professional status were also important.

The first hypothesis was rejected – GPs were more negative than psychiatrists. However, respondents' profession was less important than their beliefs in their own counselling skills, and whether or not they felt responsible for lifestyle interventions. Given that the final model only accounted for 7.3% of the variance, other factors must also be important.

Hypothesis two was accepted as, conversely, GPs were significantly more likely than psychiatrists actually to be involved in delivering cardiovascular health promotion to people with SMI.

Hypothesis three was rejected. GPs were more like then psychiatrists to be current smokers and to report alcohol use.

When testing hypothesis four, a weak relationship was found between 'no current alcohol use' and being involved in health promotion although this effect was less significant than being a GP rather than a psychiatrist.

The main limitations of the study are the sampling frame and the self report nature of the data. The former may have led to selection bias. The latter may have led to reporting bias. These are mitigated by the high response rate and the demographic similarity of the sample to the general population of GPs.

8.2 Implications for clinical practice.

This study suggest problems with the current provision of cardiovascular health promotion and lifestyle counselling for people with SMI. Although GPs are specifically remunerated for these services, many GPs do not believe they are the most appropriate to carry out the activities. Some psychiatrists share this view. Although psychiatrists say they think this area is important, they are far less likely than GPs to be involved in the delivery of health promotion to people with SMI. Increased collaborative working between GPs and psychiatrists and between healthcare and other agencies in the delivery of these services is likely to improve the current level of provision. This is in line with government strategies in both England and Wales.

8.3 Implications for training.

There is some preliminary evidence from this study of a need to consider reviewing current training in cardiovascular health promotion and lifestyle counselling at undergraduate and post-graduate levels, as some GPs and psychiatrists do not feel properly trained to offer lifestyle counselling and some doubt its effectiveness. Although, the current curriculum for basic medical training within university medical schools is largely comprehensive, further review to include specific modules on health promotion and lifestyle counselling is likely to improve practice. Such training should cut across undergraduate and postgraduate levels as health promotion and lifestyle counselling should be a responsibility of every doctor irrespective of his or her specialty / subspecialty. Refresher and update courses throughout a practitioner's career may be of some benefits.

In this study, some GPs and psychiatrists expressed a belief that they have no time to spend on preventive medicine. Although this may reflect a general negative attitude to preventive medicine in some health professionals, it is probable that a significant minority of these health professionals entertain this belief based on the limited time resource during consultations. It is likely that a review of consultation times, particularly within general practice, to include flexible time slots and accommodate extended episodes of consultation may help in facilitating delivery of cardiovascular health promotion and lifestyle counselling for people with SMI, by reducing the time pressure on practitioners and their patients.

There is evidence from this study to suggest that the attitudes of some healthcare professionals, as manifest in their personal health behaviours / lifestyles, significantly affect the current level of provision of cardiovascular health promotion and lifestyle counselling for people with SMI. The incorporation of cardiovascular health promotion and lifestyle counselling as an aspect of health education in the formative and developmental stage of the population may decrease the likelihood of GPs taking up unhealthy lifestyles, and thus improve their attitude to and involvement in, cardiovascular health promotion for people with SMI.

8.4 Policy Implications.

People with SMI are a high risk group for cardiovascular problems. GPs report greater involvement than psychiatrists in health promotion for people with SMI. It may reflect patterns of health service use by people with SMI. It may reflect GPs and psychiatrists perceptions of what their roles are. It may reflect training and competencies. Most relevantly, it may reflect the current formal inclusion of health promotion under QOF in the GPs' contract.

If QOF is seen as a meaningful driver of primary care activity, then consideration could be given to similar moves in secondary care. A possible point of intervention is available in England through CQUIN (Commissioning for Quality and Innovation). If appropriate targets could be designed, then there could be scope to improve the current level of specialist mental health care involvement in the

physical health care and health promotion for people with SMI. Ensuring equitable distribution of QOF incentives among GPs' principals, and salaried GPs may further improve involvement.

Although QOF appear to improve practice, it does not in its current form, specifically target people with SMI for cardiovascular health promotion and lifestyle counselling. This study has demonstrated that there is an ongoing need for cardiovascular health promotion and lifestyle counselling for people with SMI as this patient group is at higher than average risk of developing cardiovascular disorders.

8.5 Implications for research.

This study identified differences in attitudes to, and levels of involvement in, cardiovascular health promotion and lifestyle counselling among medical practitioners in general practice and Mental Health Teams. Further research is needed to clarify the duties and responsibilities of each agency and each professional group within specific agencies. To do this, it might be helpful to map the current pathways of cardiovascular health promotion for people with SMI within primary and secondary health care services, and detail the involvement of individual professional groups within these service settings. Further qualitative work could then be carried out to understand the implications of this data and to inform the development of interventions. A trial of a cardiovascular health

promotional intervention that cuts across these services and agencies may then follow.

Finally, the findings of the present study suggest a highly complex relationship between attitudes, behaviour and involvement in health promotion. Further research is needed to clarify and understand this complex relationship in order to improve health and healthy lifestyles in people with SMI.

Appendix A

The following reply has been provided by Hilary Tulloch, Business Support Coordinator.

Thank you for your query.

Our leaflet 'Defining Research', which explains how we differentiate research from other activities, is published at:

http://www.nres.npsa.nhs.uk/applicants/help/guidance.htm#audit

Based on the information you provided, our advice is that the project is not considered to be research according to this guidance. Therefore it does not require ethical review by a NHS Research Ethics Committee.

If you are undertaking the project within the NHS, you should check with the relevant NHS care organisation(s) what other review arrangements or sources of advice apply to projects of this type. Guidance may be available from the clinical governance office.

Although ethical review by a NHS REC is not necessary in this case, all types of study involving human participants should be conducted in accordance with basic ethical principles such as informed consent and respect for the confidentiality of participants. When processing identifiable data there are also legal requirements under the Data Protection Act 2000. When undertaking an audit or service/therapy evaluation, the investigator and his / her team are responsible for considering the ethics of their project with advice from within their organisation. University projects may require approval by the university ethics committee.

This response should not be interpreted as giving a form of ethical approval or any endorsement of the project, but it may be provided to a journal or other body as evidence that ethical approval is not required under NHS research governance arrangements.

However, if you, your sponsor / funder or any NHS organisation feel that the project should be managed as research and/or that ethical review by a NHS REC is essential, please write setting out your reasons and we will be pleased to consider further.

Where NHS organisations have clarified that a project is not to be managed as research, the Research Governance Framework states that it should not be presented as research within the NHS.

I hope this helps.

Regards

Queries Line

National Research Ethics Service (NRES)

National Patient Safety Agency

2nd Floor, Block A

50 Eastbourne Terrace

London W2 6LG

Website: www.nres.npsa.nhs.uk

Email: Queries@nationalres.org.uk

Ref: 041/01

**

This reply may have been sourced in consultation with other members of the NRES team.

***

This email and any files transmitted with it are confidential. If you are not the intended recipient, any reading, printing, storage, disclosure, copying or any other action taken in respect of this email is prohibited and may be unlawful. If you are not the intended recipient, please notify the sender immediately by using the reply function and then permanently delete what you have received.

From: Chukwuma J. [mailto:J.Chukwuma@swansea.ac.uk]

Sent: 19 September 2007 20:15

To: Queries

Subject: Re: General practitioners' (GPs') and psychiatrists' attitudes to and reported involvement in cardiovascular health promotion for people with SMI

Hi

I would like to carry out the above titled comparative survey, using a questionnaire as the research tool (as part of an M.Phil research degree)
I would like to know if I do need ethics approval for it, and if so, to which ethics committee should the application go?
The Questionnaires will be sent to GPs and psychiatrists **ONLY** (but **NOT** to patients)
I am a Specialist registrar in Psychiatry in Swansea NHS trust, and I have recently received an offer of admission for an M.Phil research degree in Swansea

University.

Thank you for your help, and prompt response

Kind regards

Jude Chukwuma

——

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Appendix B

Swansea University NHS Trust Local Ethics Committee approval

Hi Jude,

The chairman will be getting back to me shortly, however, I am more than happy to go along with the nres advice. If the Chair has any further comments to add, I will let you know.

best wishes

Penny Beresford

Co-ordinator

South West Wales REC

NHS Business Services Centre

36 Orchard Street

Swansea   SA1 5AQ

WHTN: 1780 200 tel: 01792 607416

fax: 01792 607533

email: penny.beresford@bsc.wales.nhs.uk

Website: www.nres.npsa.nhs.uk

From: Chukwuma J. [mailto:J.Chukwuma@swansea.ac.uk]

Sent: 26 September 2007 18:47

To: Penny Beresford

Cc: Jemma hughes; Lloyd K.R.

Subject:

Dear Penny,

Since my last email to you on 20/09/07 I have received the attached

correspondence from the National Research Ethics Service (NRES).

Please let me know if you have been able to discuss it with the chair of LREC, or if

the response from NRES will suffice

Kind Regards

Jude (Dr Chukwuma)

Appendix C *Swansea University NHS Trust R&D approval*

Research & Development Consortium ![NHS]

Please reply to:

R&D Consortium Support Office
Swansea NHS Trust
Morriston Hospital
SWANSEA
SA6 6NL

Telephone.   01792 704066
Fax:
E-mail: jemma.hughes@swansea-tr.wales.nhs.uk

Dr Jude Nnamdi Chukwuma,   19 November 2007
Researcher, C/o Professor K Lloyd
School of Medicine
Grove Building
University of Wales Swansea
Swansea
SA2 8PP

Dear Dr Chukwuma,

ID: 807Psyc739   GPs' and Psychiatrists' attitudes to and reported involvement in cardiovascular health promotion for people with mental health problems

I am pleased to inform you that the above research study, which you recently submitted for review, has been approved by Swansea NHS Trust.

Sponsorship
Swansea NHS Trust is Sponsor for this study, as required under the Research Governance Framework.

As a requirement of the Research Governance Framework, all research studies registered as active within the Trust will be subject to a randomised audit procedure to ensure appropriate standards of Research Governance (RG) are being applied throughout the conduct of the research. Research Active Personnel must therefore ensure they familiarise themselves with the standards of RG.

Researchers employed by the Trust, including those holding Honorary Contract status are indemnified against actions for negligent harm via standard arrangements with Welsh Risk Pool (WRP). Provision for 'no-fault' compensation is limited under the scheme and is only available on an ex gratia, discretionary basis.

The Trust reserves the right to suspend approval of any research study where deviation from appropriate RG standards is uncovered.

May I take this opportunity to wish you well in undertaking the research. We will write to you in the future to request updates on the progress of the research and look forward to receiving outcomes of the study.

Yours sincerely

Sm Hughes

Professor Stephen Bain
Director of R&D
Swansea NHS Trust

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Appendix D: *Instruments used*

Questionnaire cover note to GPs

Ref: Conf

Dear GP,

Re: Health Promotion for people with Serious mental illness (SMI)

We would be most grateful if you could PLEASE complete the attached short Questionnaire on the reverse side of this letter **(One Page Only)**.

The project is aimed at optimizing the physical health of people with serious mental illness

Thank you for your kind assistance

If not completed today please fax to **01792513430**

Yours sincerely

Dr. Jude Chukwuma
Honorary Clinical Research Fellow

Telephone:
Mobile Phone:
E-mail:

Questionnaire cover note to psychiatrists

Ref: Conf/P

Dear Consultant psychiatrist,

Re: Health Promotion for people with Serious mental illness (SMI)

We would be most grateful if you could PLEASE complete the attached short
Questionnaire on the reverse side of this letter (**One Page Only**).

The project is aimed at optimizing the physical health of people with serious mental illness

Thank you for your kind assistance

If not completed today please fax to **01792513430**

Yours sincerely

Dr. Jude Chukwuma
Honorary Clinical Research Fellow

Telephone:
Mobile Phone:
E-mail:

Health Promotion Questionnaire

We are interested in heath promotion and lifestyle counselling for people with SMI

Please answer the following questions with respect to your care for people with SMI
(please circle as appropriate)

Agree, Neutral, Disagree

●GPs are the most appropriate to carry out health promotion:	1	2	3
●My job is not only to treat disease, but act as health educator:	1	2	3
●My job is to treat disease and leave health promotion to others:	1	2	3
●I have no time to spend on preventive medicine:	1	2	3
●I feel properly trained to give lifestyle counselling advice:	1	2	3
●It is not very difficult to counsel patients about an alternative lifestyle:	1	2	3
●Health professionals are very influential in persuading patients to change their lifestyles:	1	2	3
●I can offer my patients a great deal in the way of lifestyle counselling:	1	2	3
●Lifestyle counselling is very effective:	1	2	3

●It is possible to persuade patients to modify their lifestyles to reduce:

▪Hypertension	1	2	3
▪High cholesterol	1	2	3
▪Cigarette smoking	1	2	3
▪Obesity	1	2	3
▪Physical inactivity	1	2	3

●I am significantly involved in the identification of the following risk factors in my day-to-day work:

▪Hypertension	1	2	3
▪High cholesterol	1	2	3
▪Cigarette smoking	1	2	3
▪Obesity	1	2	3
▪Physical inactivity	1	2	3

Now, please tell us about yourself
●I am currently a smoker   Yes / No (Number of cigarettes per week..........)
●I am an ex-smoker   Yes / No (Years since stopping.....................)
●I exercise regularly   Yes / No (Daily / weekly / monthly / yearly)
●I consider myself a healthy eater   Yes / No
●I currently drink alcohol   Yes / No (Number of units per week...............)

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●I am in my 20s / 30s / 40s / 50s / 60s / 70s / 80s / 90s
●I am a   GP   / psychiatrist (year of qualification.....................................)
●I am   Female / Male

Thank you for your assistance

Please return to: Alison Lewis. CHIRAL, School of Medicine (Grove Building) Swansea
University, Singleton Park, Swansea SA2 8PP. **Fax: 01792513430**

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