Equity in mental health and mental health care in Britain

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Declaration

All the work presented in this thesis was carried out solely by me under the guidance of my supervisor Professor Martin Knapp.

Some of the material that I present in chapters 3 and 4 has been published in *Epidemiologia Psichiatria Sociale*, 2006, 15 (4): 260-266; only my own material from that jointly authored paper is included here. Some of the findings reported in chapter 6 will be published in the July 2007 issue of *Psychological Medicine,* 37 (7): 1037-1046; again, what I present here is my own work. The analyses in chapter 9 were published in *Applied Economics* 2006, 38: 605-617.

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Abstract

This thesis explores equity issues in the mental health field in Britain by initially developing a conceptual structure to define equity in mental health and then analysing data from three national psychiatric morbidity surveys to measure inequalities and inequities in both mental health and in the use of services.

Standard methods are used for measuring income-related and social class-related inequalities with reference to many indicators of mental health which represent 'normative' or 'felt' needs for services. Inequity in the use of mental health services is also examined by relating use of services to needs. Analyses of income-related inequalities and equity are carried out with reference to the general population using data from the Psychiatric Morbidity Survey 2000 and with reference to the minority ethnic groups in Britain using data from the survey of Ethnic Minority Psychiatric Illness Rates in the Community 2000.

Changes in social class-related inequalities and equity for the general population between 1993 and 2000 are examined using data from the Psychiatric Morbidity Surveys for those two years, in order to see if the policy and practice changes that took place since the beginning of the 1990s in the health and social care sectors had exerted any impact on equity in mental health.

The three mental health surveys being cross-sectional do not permit the study of causal pathways between income and mental health. Therefore, in order to understand the links between living standards, health and health care utilisation patterns further, data from a longitudinal study, the British Household Panel Survey on general health are examined using robust theoretical and empirical models. The assumption is that many of the factors associated with general health are also associated with mental health and much of the model that links income, health and health care utilisation behaviour is likely to be relevant for mental health as well.

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CHAPTER 1

Introduction

1.1 Importance of equity in the domain of mental health

Since 1990, the United Nations Development Programme (UNDP) has regularly produced Human Development Reports which rank countries by the Human Development Index (HDI). This measures the average achievements in a country in three basic dimensions of human development: a long and healthy life, knowledge and a decent standard of living. Human development is defined as the creation of an environment in which people can develop their full potential and lead productive and creative lives in accord with their needs and interests (UNDP 2006, p263). There is no doubt that mental health is an essential part of a long and healthy life.

Indeed, there have many developments globally that have demonstrated the importance attached to health in general, and mental health in particular. It has long been recognised that human capital formation is fundamental to economic and social growth, but attention is now increasingly focussed on attempts at widening the definitions of growth and development by using social indicators which include health status indicators along with income. An immediate corollary is the question of whether good health – and good mental health – are fairly distributed.

Although the importance of equity in mental health and in the distribution of mental health care services is widely accepted as an essential part of many countries' policy frameworks, research on various aspects of equity in the mental health domain has been limited in comparison to parallel research with respect to general health.

Equity is about justice or fairness. It is not the same as equality. There is, however, a close association between the two concepts – 'equity' and equality'. It is not possible to study 'equity' without reference to 'inequality' in some sense. For example, there can be inequalities in mental health and in the use of services among different population groups for many reasons. However, not all of them may be inequitable. The sub-set of inequalities that are judged as unjust or unfair constitute health inequities. The aim of equity research is to unearth those inequalities which we may term 'unfair'. Such inequalities will be considered unfair because they are potentially avoidable or remediable and they affect certain populations in a systematic way. Inequalities in mental health and in the use of mental health care services will be deemed unacceptable if they are systematically related to factors such as income or social class, gender, race or place of residence.

It is important to understand that mental health problems occur in the social, political, cultural and economic contexts. Although mental health of an individual is likely to be influenced by many factors, some potentially amenable to influence by the individual or society (e.g. material standard of living, housing, job) and others not (e.g. age, genetic make-up), mental health care can address many mental health problems. However, utilisation of these essential services can be related to income and social class. In addition, factors such as awareness, stigma and lack of empowerment may also affect access to and utilisation of mental health services. Thus help-seeking behaviour among those suffering from mental health problems is likely to be conditioned by material contexts and social constraints. Since many of the factors influencing mental health are, directly or indirectly, related to income, it would be both relevant and useful to see if there is income-related inequality in the prevalence of mental health problems and in the use of mental health services and, to gauge the extent of such inequality when it exists. Another important consideration in the present day is ethnicity. Since income and ethnicity are often argued to be highly correlated, there is a general interest from the social policy perspective in understanding how mental health of an individual may be influenced by or linked to ethnicity. While causal relationships are difficult to establish with cross-sectional data, comparisons of inequalities across income and ethnic groups would be illuminating.

Empirical evidence of the wide-ranging consequences of mental disorders from earlier studies also calls attention to the need to study equity issues in relation to mental health. Literature in the field suggests that psychiatric disorders and suicide attempts are more likely to occur among people facing socio-economic disadvantage: that is people with unskilled occupations or who are unemployed, who lack formal qualifications, who are renting accommodation from a local authority or housing association or who are living alone (e.g., Singleton *et al* 2001). Literature also draws attention to the wide-ranging impacts of mental health problems such as premature mortality, increased disability, unemployment and absenteeism, poor educational opportunities for children impacting on later life opportunities, poverty, deprivation and social exclusion in general.

The externalities associated with poor mental health such as lost employment costs for family members who provide informal care to those who suffer from mental health problems can also be huge. Other costs such as those to the criminal justice system, social security system and intangible costs of pain and suffering in personal relationships and due to social exclusion and human rights abuse can also be enormous. The societal costs of schizophrenia, for example, was recently estimated to be £6.7 billion in England compared to health and social care costs of only £2 billion (Mangalore & Knapp 2007). With such huge societal costs mental health surely should be near the top of health policy agenda. If, in addition, these huge costs are unequally distributed among different populations, that should generate even greater cause for concern. Hence the potential importance of a study of equity in this field is considerable.

1.2 Mental health in Britain today

The Office for National Statistics (ONS) reports that in 2000 one in six adults in Britain had a neurotic disorder (such as anxiety and depression), while one in 200 had a psychotic disorder such as psychosis and schizophrenia. It was also found that at least one in seven had considered suicide at some point in their lives. The most common mental disorders among the adult population were: mixed anxiety and depression (7% for men, 11% for women), anxiety (4 % for men, 5% for women) and depression (2% for men, 3% for women). Neurotic disorders were more common among women than among men, except for panic disorder which was equally common in both genders.

The results of psychiatric morbidity surveys showed that rates of psychiatric disorders in 1993 and 2000 were quite similar, but the proportion of people receiving treatment had increased considerably over the period. In 2000, overall 24% of people received treatment compared with 14% in 1993. The rise was a result of a doubling in the proportion receiving medication, from 9% in 1993 to 19% in 2000. The proportion receiving psychological treatment, however, had not changed significantly, which was 9% in 2000 compared to 8% in 1993 (Meltzer *et al* 1995; Singleton *et al* 2001).

Psychotic disorders were less frequent than neurotic disorders but were more likely to be treated because of the nature and severity of the condition. In 2000, 85% of people with psychosis were receiving some kind of treatment; 83% medication and 40% psychological treatment. Services on offer in the community and in hospitals were also used more frequently by people with a psychotic disorder than those with a neurotic disorder. It was found that in 2000, two in five people with a psychotic disorder had used at least one community care service (consulting a psychiatrist / psychiatric nurse, seeing a social worker) in the preceding three months, while the corresponding figure for those with a neurotic disorder was less than one in ten (National Statistics Online 2006).

A follow up survey in 2001 (Singleton and Lewis 2003) showed that recovery was generally slow for those with neurotic disorders. Almost half of all people with neurotic disorders had not recovered 18 months later. Many of the socio-economic factors associated with the prevalence of neurotic disorders were also associated with a reduced chance of clinical recovery. Psychotic disorders were observed to have a more prolonged course, with relapses followed by periods of remission over many years. People who had received treatment were twice as likely to have recovered as those who had not received any kind of treatment.

1.3 Purpose and scope of the study

Any normative issue of equity in mental health would need to build on a positive analysis of the inequalities in mental health and the use of services that exist in society, the determinants of mental health and also the links between individual income, health care utilisation behaviour and mental health.

The aims of this study are therefore to investigate the following questions:

- Are there income or social-class related inequalities in mental health and in the use of mental health care services in Britain?
- If there are inequalities, are they inequitable?
- What is the magnitude of these inequalities or inequities, if they exist?
- What are the determinants of such inequities?

A sound basis for the study of equity issues is developed in the early chapters of this thesis with a thorough exposition of the literature on inequalities in mental health and on distributive justice and equity in health in general. A theory of equity in the mental health field is developed based on Sen's capability approach (Sen 1982; 1997) linking three basic concepts – positive mental health, capability and needs – which are the essential ingredients of equity analysis in this context. The aim is not to provide an exhaustive, all-encompassing theoretical framework, but to provide a conceptual structure that is sufficient to set the ground for the empirical analyses of equity issues using nationally available survey data.

In the empirical analysis, to identify the existence (or not) of inequalities and inequities, standardised methods for the measurement of inequalities are used. Data from three nationally representative surveys of psychiatric morbidity among the general household population of Britain are used. The psychiatric morbidity surveys for 1993 and 2000 are analysed and summary measures of income and social class-related inequalities and inequities are estimated using the concentration index approach and the determinants of observed inequities are examined using multivariate techniques and decomposition analyses of the concentration indices. Estimates of income-related inequalities using the year 2000 survey provide the most recent information on inequalities and inequities in mental health and in the use of services in Britain. A comparison of the situation in 1993 and 2000 is also attempted. As the 1993 survey did not include information on income for a large proportion of the sample, this comparative analysis is based on social class-related inequalities. Methods of analysis for studying inequalities are the same, however. Data from a further national survey of ethnic minority populations are analysed to study income-related inequalities in mental health within and across various ethnic groups. These three mental health surveys being cross-sectional do not permit the study of causal pathways between income and mental health. Therefore, a slight digression is made by including an empirical model that studies the causal pathways between *general* health, income and health care utilisation behaviour using the British Household Panel Survey data for three years, in order to understand the dynamics of the health problem generating social and economic conditions. The assumption is that a lot of the factors associated with general health are also associated with mental health and much of the model that links income, health and health care utilisation behaviour is likely to be relevant for mental health as well. There are, of course, some factors such as stigma which are unique to mental health, the effects of which may not be easily evidenced or captured by a model of *general* health. However, since stigma is an element of the intangible cost associated with mental health and since it would be hard to find a reliable proxy that can represent stigma (unless some are developed in future research), for the purposes of this thesis it is assumed that the effect of this intangible cost will be absorbed by an individual's decision-making behaviour in relation to the use of services. That is, when an individual weighs the costs and benefits of using the services, the intangible cost of stigma will also enter into the cost formula. In the final part of the thesis, implications for policy are derived from the knowledge gained from the empirical analyses conducted.

1.4 Structure and contents of the thesis

The thesis consists of three main parts. Part I (chapters 1 and 2) provides background to the study, with a review of the literature relating to inequalities in mental health in chapters 2. Part II (chapters 3 and 4) deals with the normative specification for the study, covering the wide literature on equity in relation to general health and development of the conceptual basis for the study of equity in mental health. Chapter 3 covers the review of literature on distributive justice, deriving their implications for application in a health context. Chapter 4 presents the discussion on the relevance of these theories to mental health and develops the theoretical basis that guides the empirical analysis of equity issues in relation to mental health. Part III (chapters 5 to 9) covers the empirical side of the study. The methods used in the empirical estimations are discussed in chapter 5. Chapter 6 presents the empirical analysis of income-related inequalities in mental health and the use of services among the general household population of Britain, using data from the Psychiatric Morbidity Survey 2000. The comparison of social-class related inequalities between 1993 and 2000, using data from the Psychiatric Morbidity Surveys 1993 and 2000, is discussed in Chapter 7. Chapter 8 extends the analysis by concentrating on ethnic minorities in the UK, using data from the survey of Ethnic Minority Psychiatric Illness Rates 2000. The links between general health, income and health care utilisation behaviour are explored in Chapter 9, using British Household Panel Survey data for three years. Chapter 10 concludes, drawing together results of the theoretical and empirical analyses and discussing the limitations and strengths of the study. Implications for policy are also discussed.

CHAPTER 2

Overview of literature on equity in the mental health context

2.1 Introduction

Equity studies in the health domain generally focus on four topics – analysis of inequalities in health status, analysis of need for health services, analysis of use of services and unmet needs, and principles and theories of distributive justice that should help determine what is considered as equity in this field. In this chapter a review of the literature on these themes with respect to mental health care is presented. The focus is primarily on the UK and other countries with fairly similar levels of organised mental health care systems.

Systematic search criteria were used to identify relevant studies. Electronic searches of Medline, PsychINFO, IBSS, Econlit databases were made. In addition recent issues of relevant journals, citation lists from useful papers and grey literature were searched to identify relevant literature. Results of all these searches showed that literature on theoretical or empirical developments of equity principles specific to the mental health field is rather limited. There is, however, a growing literature on the related topics of inequalities in mental health status and use of mental health services. Assessment of 'need' is an essential part of the mental health equity analysis and some studies in the UK have attempted to develop standardised instruments for its measurement while some others have analysed the extent of unmet needs.

The organisation of this chapter is as follows. Literature on inequalities in mental health is reviewed in section 2.2. Section 2.3 reviews literature on 'need' for mental health care services and section 2.4 covers literature on inequalities in the use of mental health care services. The few studies that have attempted to prescribe equity principles for the mental health field are reviewed in section 2.5, while section 2.6 summarises the main points emerging from this overview of literature.

2.2 Inequalities in mental health

Literature on inequalities in mental health status, though a fairly new addition in the domain of inequalities in health, is growing in size and importance especially in many developed countries and in some developing countries too. These studies cover wide-ranging aspects of mental health from different parts of the world. There are many differences in the concepts and methods used in assessing mental health and in measuring the severity of mental health problems in such studies. It is beyond the scope of this thesis to review all such studies. Some of the main findings from the literature are highlighted in this section.

As Weich and Lewis (1998) point out, although mental ill-health has been generally found to be most prevalent among those with low material standards of living, there are inconsistencies in the reported associations between common mental disorders and occupational class. During the 1990s there were many studies which demonstrated that mental disorders in society are associated with low material standards of living (e.g., Goldberg and Huxley 1992; Meltzer et al 1995; Blaxter 1990; Dohrenwend 1990; Bruce *et al* 1991; Rogers 1991 and Blazer *et al* 1994). But during the same period and also in the earlier two decades studies also reported that there was no convincing evidence of the often reported association between common mental disorders and occupational class (e.g., Brown and Harris 1978; Bebbington *et al* 1981a; Power and Manor 1992; Stansfeld and Marmot 1992). The trend of inconsistent results appears to have continued even with some of the studies that date to 2003/4 (e.g., Andres 2004; Wildman 2003). Results from some studies discussed below reiterate this point.

In one of the early reviews of studies in this field, Thornicroft (1991) noted that there are strong associations of treated prevalence rates of psychiatric disorder with *social class*, female gender, marital status, black ethnic group and living alone; and moderate associations with living in inner-city areas and a high degree of residential mobility. He also found that the Jarman-8 index of social deprivation was correlated positively with psychiatric admission rates. A few years later, Weich and Lewis (1998), using the British Household Panel Survey (BHPS) data tested whether poor material standard of living is independently associated with prevalence of common mental disorders after adjusting for occupational social class. Prevalence of common mental disorders in their study was assessed using the General Health Questionnaire (GHQ) which is not a standardised instrument for the measurement of psychiatric morbidity. Based on the simple measure of mental illness that the GHQ presents, they found that prevalence is significantly associated with low household income and not saving from income, after adjusting for occupational social class and other potential confounders. Interestingly they also observed independent association with the occupational social class of the head of household among women, but not among men. It is interesting to compare these results with those from two other studies from 2003/4 (Wildman 2003; Andres 2004) that also used the BHPS data and explored the issue of inequalities in mental health in the UK.

Wildman (2003) used the British Household Panel Survey (BHPS) data to estimate the level of income-related inequality in mental health in Britain in 1992 and 1998. A range of measured and subjective income variables were used to control for absolute income and a relative deprivation measure was also included to test the impact of income inequality on health inequality. Using regression techniques, he tried to investigate which socio-demographic factors are important contributors to health differences and found that subjective financial status is a major determinant of ill-health and makes a major contribution to income-related inequalities in health. Relative deprivation was found to be an important contributor for women but not for men. While these results are similar to those reported by Weich and Lewis (1998), the result reported by Andres (2004) is quite the contrary. Examining the determinants of self-reported mental health in the UK, using data from the first eight waves (1991 - 1998) of the British Household Panel Survey (BHPS), he found that mental health scores are significantly related to job status, age, marital status and self-assessed health, but not to *income* or education. Inconsistent results derived form the same data sources are confusing. Use of different methods of analysis may be one of the causes of such inconsistent results.

Another study, Weich *et al* (2001), also using the BHPS data, examined the influence of a slightly different aspect of inequality and deprivation on mental health. Trying to see if differences in income distribution in different regions affect the mental health of individuals living in these regions, the authors tested the hypothesis that individuals in regions of Britain with the highest income inequality have a higher prevalence of the common mental disorders, after adjusting for individual income. The study was based on prevalence of common mental disorders assessed using the General Health Questionnaire in the BHPS, among 8191 adults aged 16-75 living in private households. Results showed that the association between regional income inequality and prevalence of common mental disorders varied with individual income. Among persons with the highest incomes, common mental disorders were more frequent in regions with greater income inequality (as indicated by high Gini coefficient). The opposite was true for those with the lowest incomes. The implication of this result is that absolute levels of income may be less important than social and environmental factors in the context of mental health.

Summarising research on psychiatric morbidity within the general population in western countries, Henderson *et al* (1998), noted that both true prevalence and treated incidence of schizophrenia indicate that low socio-economic status confers a relative risk which is two to threes times greater than for the general population. The study also found that Afro-Caribbean (the term as used in the study, although this term is no longer used in practice) people are more likely to have mental disorders than whites and that the prevalence of neurotic disorders is higher among women compared to men. Interestingly, they draw attention to two theories that are put forward generally to account for these inequalities - social causation and social selection/drift. The former suggests that exposure to social stressors induces onset or relapse of schizophrenia, while the latter proposes a reduction in social status compared to the parental generation and a progressive deterioration in the patient's own socio-economic standing. These explanations of causation are, however, still weak and not fully convincing. For example, the selection hypothesis has been mainly linked to genetic theories in psychiatry, but this ignores the possibility that social selection could occur as a result of early or aggregating psychosocial variables causing mental ill-health, which then culminates in individuals being socially disabled or incompetent, which suggests that vulnerability implies a relationship across times. Thus the debate about social selection and social causation, being unresolved, has brought with it a set of uncertainties about mental health inequalities (Rogers and Pilgrim 2003).

A study that suggested vulnerability relationship across times was by Martikainen *et al* (2002). Using the Whitehall II study of London-based civil servants interviewed during

1997 – 1999, this study showed that the association between personal income and morbidity can be largely accounted for by pre-existing health and other measures of social position. The authors sought to find out whether measures of income and wealth are associated with poor self-rated health and depression. A two-fold age-adjusted difference in morbidity was observed between the top and bottom of the personal income hierarchy for both men and women. For household income and wealth these associations were stronger. After adjusting for health at baseline, the association between personal income and both health outcomes was reduced by about 40%-60%. Adjusting for other socio-demographic factors led to further attenuation of the effects which led to the conclusion that the association between personal income and morbidity can be largely accounted for by pre-existing vulnerability factors.

While the BHPS was the source for many studies, those studies suffered from the deficiency of having to depend on a non-clinical measure of mental health (which is based on the GHQ). Since 1993, the Office of National statistics has provided researchers in the mental health field very rich and useful data in the form of a series of national psychiatric morbidity surveys, which use standardised instruments for the measurement of mental illness; cover nationally representative samples and include useful information on many variables including socio-demographic, socio-economic and service utilisation indicators.

The data from these psychiatric morbidity surveys have been analysed by some to address questions of inequalities in mental health. Jenkins *et al* (2003) analysed data from the household sample of the national survey of psychiatric morbidity 1993 and found that respondents in social class I had notably lower rates of neurotic disorder than the remainder of the sample. There was a notable gender difference in the overall one-week prevalence of neurotic disorder with the rates being 12.3% for males and 19.5% for females. The one-year prevalence of functional psychoses was four per 1000, with no gender difference. Higher rates of disorders were found among the unmarried, the single parents and people living on their own. Unemployment was found to be strongly associated with mental disorders. Those living in urban areas had higher prevalence of mental disorders but there was no evidence of significant variation by region. Black respondents were observed to have higher rates of disorders (odds ratio 1.43 for the prevalence of neurotic disorders compared to whites). These results showed that there were inequalities in the prevalence of mental disorders and these were unfavourable to the lower social classes, the Black ethnic group, women and the unemployed.

A further study, using the same data was by Lewis *et al* (2003). The authors analysed the association between socio-economic status and prevalence of neurotic disorders using the 1993 psychiatric morbidity survey data for 9570 persons living in private households. Measures of standard of living (housing tenure and access to cars) were found to be associated with the prevalence of neurotic disorder (defined using the revised clinical interview schedule (CIS-R)) even after adjustment for other socio-economic and demographic variables. Those people with no access to a car had an odds ratio for neurotic disorder of 1.4, compared to those with two or more cars. People who rented their homes were also found to be at increased risk of having mental health problems. A complex interaction between the Registrar General's measure of social class and gender was observed, and there was no independent association with educational attainment. They conclude that evidence on the association between socio-economic status and prevalence of neurotic disorder is not straightforward as some socio-economic indicators are more clearly associated with mental illness than others.

Analysing data from the same 1993 household survey of psychiatric morbidity in Britain, Melzer *et al* (2003) estimated effect sizes and independence of social position markers as risk factors for common mental disorders with disability. Using logistic regression models they found several specific markers of less privileged status independently associated with raised rates of common mental disorders, with or without disability. In the sample studied, they found that 22% of those with a common mental disorder reported difficulty doing at least one activity of daily living. Having two or more physical illnesses was associated with an odds ratio of 6.42 for common mental disorder with disability, while odds ratios of 3 or more were present for being economically inactive or having had two or more recent adverse life events. Interestingly however, occupational social class was not found to be an independent marker of raised rates of disorder.

From their review of nine published studies, Fryers *et al* (2003) found evidence of association between one or more markers of less privileged social position and higher prevalence of common mental disorders in developed countries. Consistent associations were found with unemployment, less education and low income or material standard of living. Occupational social class was, however, the least consistent marker. They conclude that while common mental disorders are significantly more frequent in socially disadvantaged populations, education, employment and material circumstances are better markers of increased rates than occupational social class.

Boydell *et al* (2004) carried out a retrospective case record study across wards in Camberwell, South London for the period 1988-1997 in order to determine whether electoral wards with greater inequality have a higher incidence of schizophrenia. Using an index of inequality for each ward they found that there was no significant effect of inequality overall. However, it was found that in the group of deprived wards, the incidence of schizophrenia increased as inequality increased, after adjusting for age, gender, absolute deprivation, ethnicity, proportion of ethnic minorities and the interaction between individual ethnicity and proportion of ethnic minorities. The authors conclude that increased inequality is associated with increased incidence of schizophrenia only in the most deprived areas.

Evidence from some international studies also reveals the contradictory nature of results in this field. Meich *et al* (1999) examined low socio-economic status (SES) as both cause and consequence of mental illness by investigating the mutual influence of mental disorders and educational attainment. Using panel data for the US and analysing anxiety, depression, anti-social disorder and attention deficit disorder, they showed that each disorder has a unique relationship with SES. They highlight the need for further theoretical development in the sociology of mental disorders to account for disorder-specific relations with SES. Sturm and Gresenz (2002) analysed the relation between geographical inequalities in income and prevalence of 17 common medical conditions and depressive or anxiety disorder, and also the relation between family income and these health problems, in 60 metropolitan areas of the US. Results showed continuous association between health and education or family income. No relation was found between geographical income inequality and the prevalence of chronic medical problems or mental disorders. They conclude that the study provides no evidence for the hypothesis that income inequality is a major risk factor for common disorders of physical or mental health.

Another US study, Kahn *et al* (2000) examined the association of state income inequality and individual household income with mental and physical health of women with young children using data from a 1991 follow-up survey of a birth cohort of 1988, in the US. State-level income inequality was calculated from the income distribution data from 1990 US census. Nineteen percent of women reported depressive symptoms and 7.5% reported fair or poor health. Compared with women in the highest quintile of income distribution, women in the lowest quintile were more likely to report depressive symptoms (33% v 9%) and fair to poor health (15% v 2%). Women in states with high income inequality had a higher risk of depressive symptoms and fair or poor health. The authors conclude that high income inequality confers an increased risk of poor mental and physical health, particularly among the poorest women.

A meta-analysis of 60 studies was carried out by Lorant *et al* (2003) to evaluate the magnitude, shape and modifiers of the association between socio-economic status (SES) and depression. A random effects model was applied to the odds ratio of the lowest SES groups compared with the highest, and meta-regression was used to assess the dose-response relation and the influence of covariates. Results indicated that low-SES individuals had higher odds of being depressed but the odds of a new episode were lower than the odds of persisting depression. A dose-response relation was observed for education and income. It was also found that socio-economic inequality in depression is heterogeneous and varies according to the way psychiatric disorder is measured, the definition and measurement of SES, and contextual features such as region and time.

A study from Denmark, Byrne *et al* (2004) examined relationships between measures of parental and personal socio-economic status and risk of first admission with schizophrenia in order to identify whether low socio-economic status is a consequence of the illness or a familial risk factor. Using a case-control study based on registers of those admitted to a psychiatric facility in Denmark between 1981 and 1998, they found that the risk of schizophrenia was associated with unemployment, low educational attainment, being single, lower wealth status, low income and being childless, and also with family history of psychiatric disorders, birth in urban areas, birth outside Denmark, and having three of more siblings. They conclude that increased risk of first admission is associated with personal socio-economic disadvantage but not with low parental socio-economic status.

2.3 Need for mental health care

Defining need for health care in the context of health equity has produced a large volume of literature (e.g., Williams 1974; Culyer1991; Culyer and Wagstaff 1991; Sen 2001), with no consensus to date as to the precise definition of the term. Defining need for mental health care may be even more difficult. There have, however, been some attempts to standardise the measurement of need for care which perhaps provide a useful reference point for further developments. In this section I review some of the more commonly used standardised instruments which attempt to measure needs in the community.

It has to be pointed out that very little has been written on defining or measuring need for mental health care from the equity perspective. The only notable exception is the work by Bebbington *et al* (1996; 1997). In two published research papers the authors argue that symptomatic prevalence of mental disorders is an imperfect indication of needs for addressing questions of equitable and proportionate distribution of health service resources. They then develop a community version of the Medical Research Council (MRC) Needs for Care Assessment Schedule (NFCAS-C), a new instrument designed for psychiatric conditions seen in general populations. The NFCAS was developed specifically for those with long-standing mental illness. The NFCAS-C principles were based on the original Needs for Care Assessment and were designed to produce, in an itemised and systematic manner, functioning of well-organised primary care and psychiatric services. The instrument was primarily intended for aiding research relating to the comparison of treatment needs and services in different populations.

The procedures for applying clinical judgement of need to epidemiological samples must be standardised as it is known that there is an undefined relationship between prevalence of mental disorders and treatment needs (e.g., Shapiro *et al* 1985; Lehtinen *et al* 1990). The use of standardised instruments for establishing the prevalence of psychiatric disorders is dependent on agreed procedures whereby cases may be defined on a symptomatic basis. Bebbington *et al* (1996) argued that while finding cases defined in symptomatic terms may suggest that treatment is necessary, clinicians often take into account many factors such as the way the symptoms have evolved, how long they have lasted, the level of distress they cause and their association with impairments of social performance, before making a decision on whether treatment is required. In practice, need for treatment is thus defined by the expert ('normative need' according to Bradshaw 1972). This, in their view, indicates a requirement for a more elaborate procedure for applying clinical judgement of needs to epidemiological samples whereby needs for treatment are evaluated directly and clinically using standardised assessment. The NFCAS-C is one such tool, which requires information on the course of development and extent of symptoms and of social disability.

Bebbington *et al* (1997) present the results of the Camberwell Needs for Care Survey, which used the NFCAS-C for directly evaluating needs for specific psychiatric treatment and the extent to which they have been met. The sample of 760 individuals aged 18-65 was drawn from an area of inner south London with high levels of deprivation. All those scoring >5 in the GHQ-28 and half of the rest (n=408) were invited to take part in the second stage, comprising measures of mental state (SCAN), social role performance (SRPS), life events and difficulties (LEDS) and a treatment inventory. This information was used to rate the community version of the Needs for Care Assessment (NFCAS-C). The weighted 1 month prevalence of hierarchically ordered ICD-10 psychiatric disorders was 9.8%, the 1 year prevalence 12.3%. Equivalent prevalence rates for depressive episode were 3.1% and 5.3% respectively, while those for anxiety states were both 2.8%. Nearly 10% of the population were identified as having need for treatment of a psychiatric condition. It was estimated that less than half of all potentially meetable needs were actually met. They conclude that given more resources and greater public and medical awareness, most of these needs could be met by family doctors.

In another paper (Bebbington *et al* 1999) the authors provide results of further analysis of the Camberwell Needs for Care Survey. Their detailed analyses showed that subjects with psychiatric disorders received good care and treatment while subjects with depression often rejected the idea of treatment. Treatment was mainly pharmacological and needs were often unmet for cognitive or supportive psychotherapy. Subjects with anxiety disorders were less likely to reject treatment but still had a high proportion of needs unmet, as was the case for other disorders.

The community version of the Medical Research Council Needs for Care Assessment Schedule (NFCAS-C) was also used in a study by Boardman *et al* (2004). The authors aimed to make a direct assessment of the need for mental health care in people with non-psychotic disorders consulting their general practitioner, in the UK. General practice attendees aged 17-65 years (n = 360) were interviewed using the Structured Clinical Interview for DSM-IV Axis Disorders. Needs for care were assessed using NFCAS-C. The overall prevalence of need was observed to be 27.3%. More than half of the consulters (59.6%) had unmet needs and a further 6.2% had partially met needs. Six percent of the needs were defined as unmeetable. Only in 28% of the needs were met. The prevalence of unmet need among those with anxiety disorders was 13.9% and among those with depressive disorders was 9.5%. Overall, the study showed that unmet need for mental health treatment in primary care attendees is high.

In a more recent study, Salvi *et al* (2005), investigating the relationship between the items in four measures of outcomes (the Health of the Nation Outcome Scales (HoNOS), the Camberwell Assessment of Need Short Appraisal Schedule (CANSAS), the Threshold Assessment Grid (TAG) and the Global Assessment of Functioning (GAF), found that CANSAS provided better coverage of the patients' problems and about met needs.

The ONS Psychiatric Morbidity Surveys (Meltzer *et al* 1995) have employed the Revised Clinical Interview Schedule (CIS-R) (Lewis and Pelosi 1990) for the presence or absence of psychopathology. This instrument was standardised in a way that allowed lay interviewers to assess minor psychiatric disorder in the community, using rules that replace clinical judgements that would be made by expert psychiatrists. The CIS-R is made up of 14 sections, each covering a particular area of neurotic symptoms. Diagnoses are based on the scores in each section and an algorithm based on ICD-10 diagnostic criteria. For the assessment of psychotic psychopathology Schedules for Clinical Assessment in Neuropsychiatry (SCAN) was used and these were administered by psychiatrists. These instruments have been used in several of the national surveys of psychiatric morbidity and therefore facilitate comparison more readily than other instruments.

A rather different kind of needs assessment tool was developed by Glover *et al* (1998). The authors developed a mental illness needs index to help local managers, district purchasers and national policy makers in allocating resources. Formulae were developed by regression analysis using 1991 census variables with an established association with mental illness rates, to predict the period prevalence of acute psychiatric admission in electoral wards. Data from the North East Thames region (with 7096 admissions in 1991) were analysed for patterns common to wards at hospital catchment area level and patterns common to district health authorities at regional level. In most, but not all, catchment areas reasonable prediction of the pattern of admission prevalence was possible using the variables chosen. However, different population characteristics predicted admission prevalence in rural and urban areas. They found that a Mental Illness Needs Index (MINI) based on social isolation, poverty, unemployment, permanent sickness and temporary and insecure housing predicted differences in admission prevalence between wards at catchment area level better than Jarman's Underprivileged Area (UPA) score, and between districts at regional level better than the UPA score and comparably to the York Psychiatric Index.

It can be seen that the definition of need and its measurement in the context of mental health can be complex.

2.4 Inequalities in the use of mental health services

In section 2.2 inconsistencies that are found in the literature on inequalities in mental health in the UK and other developed countries were highlighted. There are similarly inconsistent results reported with respect to inequalities and the association of socio-economic status and the use of mental health services. Some of these studies are reviewed here.

In the UK, Bebbington *et al* (2003a; 2003b) provide results from the household sample of the Psychiatric Morbidity Survey 1993 which show that access to services and treatment was affected by employment status and age but not by gender or social class. The major determinant of use, however, was symptom severity. In the first study, they analysed access to psychiatric treatment by people with mental disorders. All those classed as having an ICD-10 disorder were questioned about their experience of treatment with antidepressants, hypnotics and counselling or psychotherapy. Less than 14% of people with neurotic disorders reported that they were receiving treatment. Only a third had made contact with their primary care physician for their mental health problem during the previous year. Overall 9% of people with disorders were given medication and 8% counselling or psychotherapy. In the second paper, the authors tested the hypothesis that psychiatric symptoms and attendant dysfunctions would both have an effect on people with neurotic disorders contacting professionals and that key demographic variables would not. They found that while the major determinant of contacting a primary care physician was severity and social dysfunction, there were also significant contributions from gender, marital status, age, employment status and whether the subject had a physical condition as well. The most important finding was that even people suffering from high levels of psychiatric symptoms very often do not contact professionals who might help them.

Examining the predictive relationship between socioeconomic factors and psychiatric admissions in electoral wards of South Glamorgan in the UK (sample n = 11,296), Koppel and McGuffin (1999) found that psychiatric morbidity (reflected in standardised psychiatric admission ratios (SAR)) was inversely related to socio-economic deprivation for both males and females and this applied to all diagnostic groups except organic disorders. The relationship was most marked for schizophrenia, delusional disorders and substance abuse, closely followed by personality disorders, and less for affective and neurotic disorders. The study also found that low rates of car ownership and high unemployment were as good at predicting SAR as any of the compound indices of deprivation such as those developed by Carstairs (1981), Jarman e*t al* (1992) and Townsend and Davidson (1982). It was observed that while socio-economic factors account for almost 50% of the variance in psychiatric admission rates between electoral wards, the degree of association between psychiatric morbidity and deprivation varies between diagnostic groups.

Evidence from international studies with respect to the association of socio-economic status and use of mental health services is also not very consistent. A study (Algeria *et al* 2000) which compared three countries - US, Canada & the Netherlands analysing variations in relationships among income, use of mental health services and sector of care found no significant association between income and probability of any mental health treatment among those with psychiatric disorders. Differential use of mental health treatment was examined in three sectors: the general medical sector, the specialty sector, and the human services sector. Significant differences were, however, observed among countries in the association between income and the sector of mental health care treatment. In the United States, income was positively related to treatment being received in the specialty sector and negatively related to treatment being received in the human services sector. In the Netherlands, patients in the middle-income bracket were less likely to receive specialty care, while those in the high-income bracket were less likely to be seen in the human service sector. Income was unrelated to the sector of care for patients in Ontario.

In Australia, structural barriers to initial help-seeking were found to be relatively unimportant within the Australian health care system (Thompson *et al* 2004). The authors examined barriers to initial help-seeking and factors that facilitate help-seeking for anxiety and depression. Help-seeking history was retrospectively reported by 233 patients at a specialist anxiety clinic, all of whom had delayed seeking professional treatment for at least one month. The most frequently endorsed reasons for delay related to lack of knowledge about mental illness or available treatment. Increasing illness severity or disability was considered to be the primary prompt to seek help and lack of public 'mental health literacy' was identified as a factor that contributes to slow problem recognition.

Evans *et al* (2004) assessed psychiatric problems, needs for psychiatric and social services and service utilisation among clients of a public assistance programme in the US. Sixty-five clients were assessed using a structured clinical interview to determine the presence of a psychiatric disorder, extent of social service need and health-related quality-of-life. Seventy seven percent of the sample was identified as having had at least one current or lifetime psychiatric disorder. Many of these had contact with the mental health services, but few were actually receiving psychiatric treatment which, according to the authors, suggests problems or barriers to the provision of services among this vulnerable population.

Use of services can be due to different perceptions of the need for care by patients and mental health service providers as shown by Gibbons *et al* (2004) in their study of needs for care in Ontario. They compared needs identified by mental health clients and their primary mental health workers and found that mental health workers and clients did not agree on the number of needs. Significant agreement between staff and clients was found for only 1 of the 11 of the need domains studied. The data further revealed that mental health workers and clients disagreed about unmet needs. These findings show how clients and staff can have divergent opinions regarding needs and why it may be important to consult clients regarding their need for services.

While results of these studies are important in their own way, due to the different methods, concepts and unstandardised approaches used in these studies and also due to the different contexts in which assessments were made, it is difficult to compare or draw definitive conclusions from the results of these studies. The overall impression that one can gather from them is that income and social class may have some influence on the utilisation of services by those who suffer from mental health problems but the strength and direction of association is not definitely established.

2.5 Equity principles in mental health

Although the principle of 'equity and fairness' in the distribution of mental health care resources is sometimes mentioned in the literature, there has not been clear analysis of how this principle should be defined in relation to mental health. The rare exceptions are reviewed here.

As Tien (1992) pointed out within the publicly funded mental health service delivery systems, there is often debate over what constitutes a fair and just system for this special population. She proposed a conceptual framework to determine a system's fairness in which two standards of fairness - equality and equity - are applied to three dimensions of a mental health system: utilisation of services, funding for services, and access to services. According to her, an equal system assumes that rates of mental illness and needs for treatment are the same for all subgroups of the general population, and therefore funds should be allocated and services are offered accordingly. An equitable system, on the other hand, assumes that special populations have different rates of mental illness and different treatment needs, and therefore funds should be allocated and programmes designed based on the recognition of these differences. She argued that the publicly funded mental health service system must establish equitable, rather than equal services for special populations.

Among the seven principles for resource allocation in the mental health sector that were reviewed by Rosenheck (1999), 'equity and fairness' was one, the others being: autonomy of individual health care needs; need for client, stakeholder, and provider input into goal setting; cost-effectiveness; client responsibility for making effective use of services; impact of private industry on the development and marketing of new treatments; and, the importance of considering local skill availability and population needs in setting program priorities. He argued that none of these principles take precedence over the others but each provides a frame of reference for approaching the task of priority-setting. While the importance of equity was highlighted, there was no discussion as to how the principle of 'equity and fairness' is to be operationalised in this context.

In the UK, as Lovell and Richards (2000) pointed out, although recent legislation attempts to address the modernisation of mental health services so that they provide evidence-based, accessible and non-discriminatory services for both serious and common mental health problems, very little has been written so far about how these aims are to be realised, especially with regard to the issue of equity in services.

A rare notable effort in this direction was by Thornicroft and Tansella (1999) who argued that it is necessary to select and define a set of ethical principles that can be operationalised and validated as outcome measures in order to provide a wider balance of information for health policy and clinical decisions. They suggested the adoption of a five-stage procedure to translate these ethical principles into outcome measures for mental health services research:

1. Select ethical principles most directly relevant for mental health services and their evaluation at the local level

2. Propose definitions of these principles
3. Validate these definitions
4. Translate the defined principles into operationalised outcome measures
5. Use these outcome measures in mental health services research, within the context of evidence-based medicine.

Equity is one of the nine principles in their set, others being autonomy, continuity, effectiveness, accessibility, comprehensiveness, accountability, coordination and efficiency. They note that, of these nine principles, only two (effectiveness and efficiency) have so far been fully translated into quantitative outcome measures, upon which the evidence-based medicine approach crucially depends. They propose that further concepts also be developed into a more complete multi-dimensional range of fully operationalised outcome measures.

Thornicroft and Tansella define equity as "the fair distribution of resources: the rationale used to prioritise between competing needs, and the methods used to calculate the allocation of resources should be made explicit." (p. 765). The development of an operational outcome measure with this definition would need some careful thought. It is not clear if the 'rationale' referred to would be different from the objective of efficiency in the use of resources and there appears to be no proposition of what is a 'fair distribution of resources'. A clear distinction between the equity and efficiency objectives and some proposition as to how to achieve a balance between the two is needed.

2.6 Emerging points

The following broad observations emerge from the overview of the literature presented in the previous sections:

1. Although there are associations between socio-economic variables and mental health problems, the direction and strength of associations are not fully

established. There are inconsistencies in the reported associations in the UK and also in other countries.

2. There are many differences in the concepts and methods used in assessing mental health and in measuring the severity of mental health problems which may partly explain the inconsistency in results from different studies.

3. Similarly, there are inconsistencies in the reported associations between use of mental health services and socio-economic variables.

4. There have been attempts to develop standardised instruments for assessment of needs for mental health services. However, studies on inequalities in the use of mental health services do not use robust statistical methods that allow analysis of use of services in relation to such needs.

5. In general, there have been no attempts to use standardised and well-validated methods for measuring inequalities or for the quantification of inequalities using currently available methods which facilitate comparison over time and across regions or other relevant classifications of data.

6. Although the importance of 'equity and fairness' in the distribution of mental health care resources is acknowledged in the literature, there has not been clear analysis of how this principle should be defined in relation to mental health.

7. In defining the principle of 'equity and fairness' in relation to the mental health sector, a clear distinction is needed between the equity and efficiency objectives and some proposition as to how to achieve a balance between the two.

CHAPTER 3

Review of literature on theories of distributive justice

3.1. Introduction

Much of recent literature on equity relates to general rather than mental health. It is therefore useful to examine this vast literature before attempting to develop the conceptual basis for studying equity issues in relation to mental health.

Trying to find an acceptable interpretation of equity in the health field Daniels (1985, p. 9) wrote, "A natural place to seek an account of distributive justice for health care is to examine general theories of justice,..... Perhaps the principles we seek for health care are but straight-forward applications of more general principles from such a theory." A number of theories have been put forward by various authors to define what fair or equitable distribution of resources in society is. These various theories focus on individual effort, personal ability, need, usefulness to society or proportionality. Sometimes the concept of justice is expanded to include consideration of previous harms done to others. The debate over which of these theories or principles are to guide the distribution of health care services is still an undecided one. Richardson and McKie (2005) rightly point out that there is a wide range of principles which might be relevant in different circumstances (maximising health, respecting rights, satisfying need and so on). Likewise there are a number of attributes / contexts that are potentially relevant for decision-making (age, severity, emotional context, personal characteristics, past behaviours, future prospects and so on). There is a general ethical ambivalence over a wide range of these, as fulfilling one principle may violate another. Common to most definitions of health equity, however, is the idea that certain differences in health, often called inequalities in health, are unfair or unjust.

This chapter reviews the literature on principles and theories of distributive justice and considers their applicability to the health sector in general. The general definitions of equity in the domain of health are discussed briefly in section 3.2. Sections 3.3 and 3.4

review the dominant principles and theories of distributive justice and reflect on their interpretations and implications if applied to the health sector. Section 3.5 summarises the main points emerging from the review.

3.2 What is equity?

Equity can be conceptualised and defined in several ways. Its principles derive from philosophy, ethics, economics, medicine, public health and other fields (Macinko & Starfield 2002). Common to most definitions of equity in health contexts is the idea that certain differences in health, often called inequalities, are unfair or unjust, although not all such differences need be viewed in that way. As Starfield (2001, p.546) puts it, *equity in health* is "the absence of potentially remediable, systematic differences in one or more aspects of health across socially, economically, demographically or geographically defined population groups." *Equity in health services*, therefore, implies that there are no differences in use of, or access to health services where health needs are equal (what is usually called horizontal equity) or that enhanced health services are provided where greater health needs are present (vertical equity). This distinction between equity in health and in health services is important. Much of earlier literature in the general health field was confusing with its emphasis on access, utilisation and financing of health services and the implicit assumption that ensuring equity in health services was all that mattered (or that it would also result in equity in health). Recent studies have demonstrated the fallacy of such an assumption (e.g., Richardson and Mckie 2005; Nord 2005; Wailoo & Anand 2005). As a result, a much clearer research agenda on equity in health seems to be emerging.

3.3 Principles of distributive justice

Before discussing some of the general theories of distributive justice, it is helpful to examine the main principles upon which such theories are based. A fundamental principle of justice, as Miller (1976) put it, is to "render to each his or her due". Three main principles generally found in literature for deciding what is 'due' to an individual are to render to each their due according to either (i) their rights, (ii) their deserts, or (iii) their needs.

3.3.1 Rights

According to the libertarian school of thought (Nozick 1974) the customary distribution of rights, goods and privileges as well as burdens and pains is natural and just and this should be maintained by law. This notion of justice is derived by interpreting an individual's 'due' as that to which he/she has a customary right or is entitled. Raphael (1964) called this conservative justice, the object of which is to preserve an existing order of rights and possessions or to restore it when any breaches have been made. To put such a conception of justice into practice, it is of course necessary to know what each person's customary or existing rights are. Rights are not ultimate truths that have dawned upon an enlightened society. They are generally derived from publicly acknowledged rules, established practices or past transactions. They take different forms such as 'claim-right', 'liberty', 'power', and 'immunity' , The concept that may be relevant to health and health care (and in fact for social justice) is 'claim-right'. A person is said to have claim-right to do or have something when another person has a duty to let him do or have that thing.

'Claim-right' leads to the deontological approach that many modern welfare states have adopted in recent times. It is, for example, easy to argue that individuals have a 'claim-right' to health and to health care necessary to maintain and restore health, in the context of modern welfare states. Every state (in the sense of the governing body) and the individuals comprising it have the duty to let every other fellow-being enjoy, maintain and restore good health as an essential part of a decent living. Conceived in this sense this claim can equally well be presented as a claim of a basic need. In documents such as the Universal Declaration of Human Rights, we find that the important human rights are actually claims mainly directed towards providing a minimum standard of decent living for each person. Thus besides rights to work and subsistence, food, clothing, housing, medical care and education also find mention.

While it seems quite sensible to speak of right to good health as a requirement of decent living, if one were to speak of right to health care, there arise a number of questions that will have to be answered such as right to what kind of care? how much care? equal or unequal rights to care? Rights as the basis of distributive justice in health care fail to give us satisfactory answers unless we have a more basic theory which determines what these rights are (for which we may have to depend on a theory of needs) and the extent to which it is 'right' to meet the demands on resources which these rights entail.

3.3.2 Desert

In contrast to rights, desert depends upon the actions and personal qualities of the person said to be deserving. A person's deserts may be measured by his/her moral virtues, productive efforts, capabilities and so on. “A desert is a matter of fitting forms of treatment to the specific qualities and actions of individuals, and in particular good desert (i.e., deserving benefit as opposed to punishment) is a matter of fitting desired forms of treatment to qualities and actions which are generally held in high regard” (Miller 1976).

Desert as the basis of distributive justice is weaker than rights or needs, and especially so in the case of health care, unless desert is just a matter of expressing a right or need in a particular way. e.g., statements like (i) A deserves the reward for he reached the peak first, (ii) The sickest person deserves the most urgent attention of the doctor - are actually claims of right and need, respectively, but expressed in the language of desert.

If desert is actually social reward for personal efforts and capabilities the concept has little appeal as the basis for distributive justice in health care. If desert in this sense is made the basis of distributive justice, then those who contribute more to society or economy, like young workers or 'good citizens' (or 'non-smokers'), will have to be considered as deserving more and better health care than the less productive older generation or the unproductive children.

3.3.3 Needs

The concept of 'need' generally has great appeal as the basis of distributive justice. In fact even the claims of rights and deserts can be based on needs. Raphael (1964) suggests that it is the deficiency of an individual and not some favourable attribute (desert) that should decide what his/her due is. Barry (1965) however argued that needs do not provide an independent justification for any policy, since their justificatory force derives from whatever end is being invoked when the concept is used. His argument is a useful guide for distinguishing a 'need' from 'mere desire'. A statement like 'I need a vanity bag' expresses a mere desire and it does not invoke issues of justice or fairness in letting me have it. On the contrary statements like 'I need a glass to drink water' and 'I need medicine to cure my throat infection' are not expressions of mere desires. The need in these sentences is directed towards a certain, specified end. But the 'ends' in the two sentences have different forces of justification. The need for a glass 'to drink water' does not seem to have the same justificatory force as the need to have medicine 'to cure a throat infection'. A glass is not an absolute necessity for the achievement of the end (a cup will do), whereas one cannot cure an infected throat without proper medical intervention. Moreover non-treatment of the infection may leave the person with a deficiency which will affect her normal functioning. Some may agrue that non-medical interventions can and do 'cure' sore throats. While this may be true, not all health problems can be cured via non-medical interventions. Medical intervention may be the only solution in the case of some illnesses while non-medical interventions may also be sufficient in the case of some other minor ailments. The argument here is that if we are talking about the 'need' for medical intervention, that 'need' has a justificatory force which is not found in the case of the 'need' for a vanity bag or a glass to drink water.

Braybrooke's (1968) distinction between 'course of life needs' and 'adventitious needs' provides some relevant basis for distinguishing between 'needs' which have justificatory force and those which do not have that force. He describes course-of-life needs as those needs which people 'have all through their lives or at certain stages of life through which all must pass - these needs include food, shelter, clothing, exercise, rest, companionship and so on'. These needs are not themselves deficiencies but a deficiency with respect to them endangers the normal functioning of the subject of need considered as a member of a natural species. Adventitious needs are things we need because of the particular contingent projects, on which we embark. Needs which invoke claims of justice or fairness in their satisfaction are the 'course of life needs', which Daniels (1985) describes as needs which are necessary to achieve or maintain 'species typical normal functioning'. Personal medical services are not 'course of life needs' in the sense that they are required all through our lives but they do count as 'course of life needs' in the sense that deficiency with respect to them may endanger normal functioning of individuals. Daniel's arguments give us the necessary grounds for considering needs as the basis for distributive justice in health care. His arguments run thus-

“ ...all reasonable persons in society are likely to construct an array of life plans for themselves which may be termed their 'normal opportunity range'. Impairments of normal species functioning reduce the range of opportunity open to them in which they may construct their 'plan of life' or 'conception of the good'. Impairment of normal functioning through disease and disability restricts an individual's opportunity relative to that portion of the normal range his skills and talents would have made available to him were he healthy. If an individual's fair share of the normal range is the array of life plans he may reasonably choose, given his talents and skills, then disease and disability shrinks his share from what is fair” (Daniels, 1985, p.27).

He goes on to suggest that we should use impairment of the normal opportunity range as a fairly crude measure of the relative importance of health care needs. It will be more important to prevent, cure or compensate for those disease conditions which involve a greater curtailment of an individual's share of the normal opportunity range. This would suggest that health care services - preventive, curative or rehabilitative - should be distributed among members of a society in such a way as to counter the disadvantages induced by disease or disability. If normal human functioning is the goal of health care then each would have to receive health care services in accordance with the level of 'need' for health care that would ensure a return to a state of normal functioning.

Feinberg (1970) considered needs as the only real basis of rights when he wrote, "to have an unfulfilled need is to have a kind of claim against the world, even if against no one in particular. ... Such claims, based on need alone, are 'permanent' possibilities of rights, the natural seed from which rights grow."

Of the general principles of distributive justice reviewed here the applicability of 'rights' and 'deserts' in the distribution of health care resources seems less convincing than that of 'need'. 'Need' suitably defined, might form an acceptable basis for distributive justice in health care, although the caveat 'suitably defined' makes it essential to have a theory which prescribes distribution of resources based on the principle of need, and more specifically to determine what is 'need' and what the just response in terms of resources needed and resources distributed is. As discussed in this section, 'need' for health care has a justificatory force which when it results in demand for health care becomes a justified demand. A justified demand can then be interpreted as a 'right' that an individual can claim to be entitled to. The state (or the wider society) then will have the duty to honour this 'claim-right' or 'justified demand' as a matter of distributive justice to all individuals irrespective of their economic position, gender, ethnicity, religion, place of residence or any other individual attribute not related to the need for health care.

3.4 Theories of distributive Justice

Various theories have been put forth by those who advocate one or other of the principles discussed in the previous section as the relevant basis for defining distributive justice. Some of the general theories of distributive justice are reviewed here.

3.4.1 Contractarian theories

The entitlement theory of Nozick (1974) incorporates a notion of justice that derives its force from rights of individuals and represents the best articulated contractarian theory. The gist of the theory is that one is entitled to what one possesses, provided it was acquired justly. The theory does not prescribe any definite pattern of distribution. Whatever distribution results from the independent actions of individuals acting according to their own preferences in the market, is regarded as fair, fair because there has been no unjust appropriation or transfer of goods.

This theory if applied to health care would suggest that no one is entitled to have health care if it cannot be acquired through the market. No consideration for the 'need' for health care is possible under this system of justice. Rights are determined by the process of acquisition of goods and are in no way determined by needs. If rights were to be defined as those which derive their justificatory force from needs, then such rights could be made the basis of distributive justice in health care. But the conservative notion of rights which derive from past or present entitlements, as in this theory, would imply that it is simply a matter of fate that some are born with a healthy constitution while others are plagued with chronic medical problems and also that nothing need be done if some are fortunate enough to be able to afford medical care and some others not. This seems to upset the very notion of distributive justice in health care. Interest in distributive justice in the health sector arises from the recognition that good health is a basic need of individuals and from the ethical consideration that misfortunes of the `natural lottery' in health and also in the means of acquiring health care which may inhibit the use of health care, should be rectified by conscious effort by the state so that each has the opportunity to flourish, whereas, for Nozick, there are simply "hard luck stories", having no moral significance beyond what actions natural sympathies may (voluntarily) elicit.

3.4.2 Rawls' Maximin Theory

A theory of justice which implicitly makes need as its base is John Rawls's (1973) Maximin Theory. He proposes the following general conception of justice: “All social primary goods - liberty and opportunity, income and wealth, and the bases of self-respect - are to be distributed equally unless an unequal distribution of any or all of these goods is to the advantage of the least favoured.” Here the 'least favoured' are recognised as having greater need.

Rawlsian criterion for judging the value of alternative distributions is to compare the minimum level of the arguments of functions of the form Min(U_1, U_2,.....U_n). That distribution is considered best under which the minimum is the maximum. [For example, between two distributions Min(60, 40) and Min(50, 80), the second distribution is preferred to the first, as the minimum value there (50) is greater than the minimum value (40) in the first distribution].

Although Rawls does not mention health or health care as primary social goods, the theory definitely does have some appeal in the context of health. Application of his principle of justice to the distribution of health care would mean that inequality in its distribution could be justified only if such inequality operated to the benefit of the least advantaged. That is, an equitable distribution of health or health care is one that maximises the welfare of those with the lowest level of health. Though some health economists (Le Grand 1987; Mooney 1987; Arrow 1974) are sceptical about the usefulness of this theory in the health field, on the grounds (i) that application of this principle could lead to the impoverishment of a society that poured scarce health care resources into what might in practice be 'hopeless' cases and (ii) that allocation of resources to those whose poor health is the result of their own reckless behaviours or decisions cannot be justified, the theory is useful in that it provides an explanation of justice which seems to agree with common intuitions about what may be considered as fair. It recognises 'needs', in the sense of relative deficiencies, as the proper basis of distributive justice and gives us an intuitively acceptable criterion for ranking alternative distributions. If rational individuals under a 'veil of ignorance' i.e., when they are ignorant of their own positions in society, prefer a distribution which benefits the least well-off (as in Rawls), it has to be that they consider the deficiency (being less well off) as undesirable and worthy of rectification.

3.4.3 Utility based theories

Utilitarianism

One approach widely used in economics for judging the value of alternative systems of distribution is utilitarianism (Bentham 1789) which is concerned with a distribution that results in the 'greatest good of the greatest number'. The theory holds the view that when it is not possible to allocate to everyone everything that they like, then the distribution which maximises aggregate utility or net benefits over costs should be chosen.

Application of this theory to the distribution of health care could have disastrous consequences. If the aggregate net benefits (or welfare gains in terms of health) of improving the health status of a group (or person) which is already well endowed with resources and hence enjoys a better health status and capacity to benefit from health care, is greater compared to that for a less endowed group, the utilitarian principle would favour allocating more resources to the former as that would result in greater benefits over costs. This is an aggregative theory and as Sen (1973) writes, "is supremely unconcerned with the interpersonal distribution of the sum", which is central to questions of equity or distributive justice.

The theory cannot incorporate 'need' for health care as the basis on which to distribute health care resources, for, distribution according to need may result in less than maximum utility or benefit over cost. Health care for the frail elderly, seriously mentally and physically disabled (who can in no way be brought closer to normal functioning) would receive no care if utilitarian principles (above) were to guide health policy. This is more a theory for efficiency in the use of resources than a theory relevant for deciding distributive justice. Distributive justice, in the case of health care involves some ethical considerations which the utilitarian theory ignores.

Envy-Free Allocations

The concept of envy free allocation first advanced by Foley (1967) and developed by others (Varian, 1974; Pazner and Schmeidler,1978; Baumol,1986) purports to define the essential characteristic of an equitable distribution. According to this concept, a person's relative advantage is judged by the standard of whether he/she would have preferred the commodity bundle enjoyed by another person. Individual i with a consumption bundle x_i and utility function $U_i(x_i)$ is said to envy another person j if $U_i(x_j) > U_i(x_i)$. An equitable distribution according to this criterion of envy free allocations would be one where $U_i(x_i) = U_i(x_j)$ for all pairs of individuals i and j.

By concentrating exclusively on individual preferences the concept overlooks the important point that distributive justice or equity tilts heavily towards needs when compared with preferences. As Pereira (1989) has pointed out, a more appropriate comparison for purposes of equity would be whether $U_j(x_j) > U_i(x_i)$ and not as the non-envy approach suggests $U_i(x_j) > U_i(x_i)$. In the case of health care this criterion of non-envy seems unacceptable as the basis for deciding what is equitable distribution, as the very interest in equity in health care is derived from the peculiar characteristic of the good, health care, the consumption of which supposedly reveals behaviour not rational and results in non-optimal allocation of resources. The caring externality model of Culyer (1976), the group interested man of Margolis (1982) and persons who take decisions due to sense of duty (Titmuss 1973) and commitment (Sen 1976-7), all point toward the importance of considerations other than individual utility preferences in the distribution of health care.

3.4.4 Decent Minimum

An alternative view is that there should be a standard below which individuals should not be allowed to fall. Fried (1976) suggests that a 'decent minimum' should reflect some conception of what constitutes tolerable life prospects in general. Application of the concept to the level of health would mean that we specify a certain level of health (however measured) as the minimum standard and seek availability of health care to ensure that no one falls below that standard. The practical difficulty is the definition of this minimum standard of health. Any attempt at defining it would invariably conform to some notion of the 'species typical functioning' of Daniels (1985). But this would mean different minimum standards of health care for different individuals. Generally, however, this decent minimum is not discussed with reference to health but with reference to health care. Enthoven (1980), for example, lists certain services as basic health services which the Health Authority should provide. But such lists can never be exhaustive as health needs differ substantially, and it is difficult to specify what the basic minimum is, as this minimum varies with person, time and contexts.

The concept though difficult in terms of operationality, provides one possible interpretation of the 'need' for health care - the level of health care essential to raise those with poor (lower than the minimum) health to the level of the minimum standard (however defined). But will that be equitable? What should be done in cases of needs of those with the minimum standard? Should equity be achieved by supplementation to those below the minimum standard, coming from, a denial of health care to those above it? The concept could be applied with certain precision in case of preventive health care like immunization against communicable diseases. But personal medical services do not lend themselves to operationality under this concept with precision.

3.4.5 Equity as choice

Le Grand's concept of equity as choice concerns the extent to which an individual's ill-health results from factors within or outside his control. But as he himself has confessed equity considerations of this kind seem to be more appropriately applied to questions of finance of treatment rather than to the actual allocation of treatment at the point of use. That is, in the case of people who are responsible for their poor health by their own negligence, the question might not be whether they should receive treatment (as medical practitioners cannot and do not decide such issues) but it should be whether they should receive treatment at the community's expense or at their own expense (Le Grand 1987). The concept does not give us a practical basis for deciding how health care resources should be allocated equitably, but it may be useful in determining if any injustice is involved if persons who are responsible for their own ill-health do not have an equal chance of enjoying good health or returning to normal health status as others. Le Grand's statement that, "if an individual's ill-health results from factors beyond his or her control then the situation is inequitable; if it results from factors within his or her control then it is equitable" has the effect of holding individuals responsible for their own preferences of indulging in health harming activities and therefore the society justified if it chooses to not honour their 'need' for health care. From an equity angle, one could say that these persons, although have 'need' for health care, their needs do not have the same justificatory force of being 'rights' which the society should honour as do the 'needs' of those whose ill-health is not their own making. But whether they should be denied care and support has been a topic of much debate and there is no consensus of opinion on this matter.

3.4.6 Egalitarian theories of distributive justice

The central issues of distribution are often addressed in terms equality. Sen (1992) himself arguing for equality of basic capabilities, writes, “a common characteristic of virtually all approaches to ethics of social arrangements that have stood the test of time is to want equality of something - something that has an important place in the particular theory" (p.ix). Income egalitarians demand equal income, welfare egalitarians ask for equal weights on the utilities of all, and pure libertarians demand equality with respect to an entire class of rights and liberties. They are all egalitarians in some essential way - arguing resolutely for equality of something which everyone should have and which is quite crucial to their own particular approach.

Egality, generally is taken to mean equalizing individual net benefits (welfares) or opportunities for such benefits. Opportunity or resource egalitarians ('resourcists' as Roemer (1986) calls them) wish to hold people responsible for the choices they make and preferences they have after some initial resource equality has been guaranteed. Outcome or welfare egalitarians ('welfarists') on the other hand wish to hold individuals responsible for nothing about themselves and maintain that the social welfare (or the justness) of a state of the world should be a function only of the welfares of the agents in the state.

Dworkin (1981) argues for equalising resources available to people, not equalising their welfares or 'utilities', for, equalising the utility levels of people with different tastes and needs is not called for, when fairness of a distribution is considered. He gives the example of a person with 'champagne taste' which according to him has no justificatory force in being satisfied whereas equality of welfare or utility level would require that even such tastes and preferences be satisfied. He includes among resources, ones that come with the person and (like Sen) argues that these resources should be equalised. It is recognised by many that among the resources that should be within the jurisdiction of equalisation, however, are certain non-transferable ones like talents and capabilities, which are genetic endowments or beneficial effects of better parenting, nutrition, education, environment etc. Veatch (1982) argues that radical egalitarianism which demands equalisation of resources should, in all likelihood, motivate compensation due to different endowments of non-transferable resources, ones that come with the person, to the extent that these endowments are morally arbitrary.

Application of welfare egalitarian principle in the health field would mean that society should strive for equal health status for all individuals and individuals are not to be held responsible for their poor health status even if it is the result of their own conscious choice. Resource egalitarian principle, on the other hand, would suggest that health care should be distributed in such a way that everyone has an 'equal chance to be healthy' and that once such an opportunity is ensured to all, the actual outcome of individual decisions and preferences is to be considered just. If we define equality in terms of resources unconnected with the welfare they bring, we would be mistaking means for ends and indulging in a fetishistic fascination for what we ought to treat only as instrumental. So when we speak of equality of resources, in the case of health care, the end 'health' status of the individual concerned is what matters. Hence in the distribution of health care resources, the concept of equality and its importance are both ambiguous, for equality in one sense may result in inequality in another sense. e.g., an equal distribution of health care to each may distribute health very unequally (Culyer and Wagstaff 1991). Several different interpretations of resource egalitarianism in the health field are to be found in the health economics literature (Mooney 1983). Some of these are discussed in section 3.4.8.

3.4.7 Sen's capability approach

Sen's capability approach (Sen 1982; 1997) has received much attention in recent years in the literature on distributive justice and not surprisingly researchers in the health sector have been looking at the implications of applying this approach to health equity. In an attempt to overcome the shortcomings of traditional welfare economics, Sen (1982) draws attention to the basic capabilities of people and suggests a shift from the utilitarian principle 'to each according to her utility' over to the principle 'to each according to her need' for functioning as the primary criterion for determining the value of alternative social states. Recommending a focus on 'functionings' and capabilities, he writes, "the valued functionings may vary from such elementary ones as being adequately nourished and being free from avoidable disease, to very complex activities or personal states, such as being able to take part in the life of the community and having self-respect" (Sen 1997). Functioning is something achieved, whereas capability is the ability to achieve something. The latter is closely associated with the freedom a person has to pursue a particular type of life. Sen provides a clarification to the debate on whether resources or welfare should be the object of equitable policy by arguing that it is the capability people have to transform commodities into functionings which matters. Hence the guiding equity principle is 'equality of basic capabilities'.

Sen's approach reiterates the importance of 'needs' in deciding distributive justice and in this sense is an acceptable candidate for consideration in the health sector. However, translating capabilities into the functioning 'good health' is what one would be looking at in this sector and there is no guidance on how this is to be operationalised. In fact, the practicality of Sen's account as a guide to social policy has been questioned by some as the range of possible functionings is very wide and he provides little guidance on how these different functionings are to be weighted in particular contexts. The challenges of applying his approach to health have resulted in calls to develop normative theory with an eye to empirical evidence (Alkire and Black 1997; Anand and Dolan 2005). The argument is that empirical evidence about social objectives is important and that if a theory purports to represent community values then these values must be elicited. Richardson and McKie (2005) argue that 'empirical ethics', an emerging approach in the health sector provides important lessons for overcoming the problems associated with the capability approach. They claim that it is an ethically defensible methodology and yields practical results that can assist policy makers in the allocation of resources. For example, results of several empirical studies (Nord 1993; Nord et al 1999; Pinto-Prades 1997; Menzel *et al* 1999; Ubel *et al* 1998) have shown that survey respondents generally express a strong preference for allocating resources to those with the worst health state and that large number of responses from the public conflict with the notion of health maximisation. One has to accept, however, that there is a wide range of ethical principles which according to members of the general public might be relevant in different circumstances and a number of attributes/contexts that are potentially relevant for decision-making. Fulfilling one principle can violate another and there is often the need for a trade-off.

3.4.8 Health economics approaches

Health economists, especially in the UK, have contributed significantly to the equity debate and have offered a number of definitions of equity. Mooney and McGuire (1987) discuss these various interpretations that have been put forward to account for what might be construed as equity in the domain of health. Most of them have argued for some or other form of equality. Following Le Grand (1987), these various accounts of equality can, however, be summarised into three - 'equal treatment for equal need', 'equality of health' and 'equality of access'. Most other interpretations are variants of these three expressions.

Equal Treatment for Equal Need

The expression 'equal treatment for equal need' obviously refers to curative care. Central to this definition are interpretations of 'equal need' and 'equal treatment'. There were some attempts to apply this definition in empirical studies of the extent of inequity in the finance and delivery of health care (e.g., Le Grand 1978; O'Donnell, Propper and Upward 1991; Wagstaff and Doorslaer 1993). These studies assumed equality of public expenditure to mean equal treatment and tried to assess the equity of the system by comparing expenditures on certain groups (acutely and chronically sick) whom they regarded as being in equal need. Their approach has since been observed as defective for relying on faulty interpretations of what is meant by equal need and equal treatment. More importantly, it has been shown that equal treatment for equal need may not result in equal health outcome (assuming that is the more important concern) when capacities to benefit from health care are different. Culyer and Wagstsff (1991), for example, have shown that equal treatment for equal need might give rise to inequality in health status where there was none, when 'capacities to benefit' from health care are different for different individuals.

Equality of Health

Culyer (1991) discussing the common policy assumptions about equity in health care, points out how different interpretations of equity in the health field - like equality of consumption, equality of expenditure, equality of access, equal treatment for equal need - do not in practice translate into equality of health. Focussing on the health of individuals he defines, "an equitable health care policy will be one that seeks to reduce the inequality in health (e.g., self-reported morbidity, quality of life in terms of personal and social functioning) at each stage of life cycle or, more simply at every age from zero on. Such a policy would meet needs, but in proportion to the distance each was from the population average." He suggests that needs should be met in such a fashion as to reduce the dispersion of health in the community. Although this sounds quite appealing with reference to the distribution of curative care, this principle will surely turn out to be the most difficult to implement. Referring to 'equality of health' as an interpretation of equity in health, Mooney (1986) comments that it is 'simply too expensive'.

Equality of access

Many health economists have interpreted equity in terms of access which may be regarded as a form of resource egalitarianism. Equality of access seems important but its interpretation has varied in the literature. The meaning of access as found in Webster's New International Dictionary is 'freedom and ability to obtain and make use of.' As long as there is no restriction on anyone on the basis of race, religion, income or place of residence, on the freedom of making use of medical care facilities, a part of the definition is fulfilled - i.e., 'the freedom to make use of'. But this freedom can hardly be exercised unless the individuals also have the ability to obtain the good in question, medical care. By ability here is meant not only physical ability of reaching the medical centre and contacting the physician but also the economic ability, i.e., affordability in terms of price to be paid or costs to be incurred in reaching and obtaining medical care.

Le Grand (1982) defined access to medical care with reference to economic ability, in terms of costs of acquiring medical care. According to him access is equal if all are faced with the same costs of acquiring medical care, where costs would include money costs as well as time costs. There are other interpretations of access in the literature, some of which relate access to utilization (Donabedian,1972; Beck,1973), and some others which relate access to the absence of barriers preventing 'need' from being converted into demand (OECD, 1975; Parkin, 1980). These definitions are also closely related to the cost of using services. While utilization takes into account costs as well as benefits, the language of barriers is in essence referring to the cost half of the cost-benefit calculation on the basis of which an individual may use the service. Then there are still others which are cast in real income terms, like e.g., maximum attainable consumption (Olsen and Rodgers, 1991) and foregone utility (Culyer and Wagstaff, 1991). The implications of these interpretations will reduce to that of equality of time costs in the case of publicly provided medical care with no user fees. Where user fees exist there will be the need to think of its impact on maximum attainable consumption or utility foregone. Thus equality of access could mean different things depending on the type of health care system. In whatever way access is defined, it is only a means to receiving health care. Hence equality of access, though an important part of the resource egalitarianism in the health sector, defining this as the equity objective will amount to restricting equity to only a part of the 'means' to the desired end 'health'.

In publicly funded health care systems, as in the UK, all these egalitarian principles are relevant. Equal treatment for equal need and equality of access are both central to the philosophy of publicly funded systems where the aim is to provide 'needed' health care to all without discrimination on any grounds and which is free at the point of use.

3.5 Summary of main points and conclusion

As Elster (1992) puts it, “An acceptable theory of justice must conform with our strong intuitions about what is fair and just in particular cases”. Since there are many principles and attributes which might be relevant in different circumstances, no one theory or principle will provide the basis for making decisions regarding equity in the health field. There is a need to integrate many principles and approaches to inform public policies relating to equitable distribution of health care resources. Although none of the theories or principles discussed here appears to be sufficient on its own to decide issues of distributive justice in health and health care, a few points emerge.

- Need appropriately defined might form the proper basis for deciding distributive justice in the health field. Every need is not to be justified. 'Needs' which can be translated into 'rights' are to be identified.
- 'Need' for health care can often be justified. When a justified need results in demand for health care it becomes a justified demand. A justified demand can

then be interpreted as a 'right' that the state (or the wider society) should honour. This 'claim-right' should be applicable to all individuals irrespective of their economic position, gender, ethnicity, religion, place of residence or any other individual attribute not related to the need for health care.

- The Rawlsian Maximin principle is a reasonably acceptable axiom on which to build the theory, i.e., resources should be so allocated as to benefit the least well-off more in terms of health.
- The concept of decent minimum could be applied to certain preventive measures but not to personal medical services.
- Equity as choice may be used to judge the fairness of specific cases.
- Resource egalitarianism is important but it should be related to the 'end' for which it is a 'means' in such a way that the 'end' itself will have an ethically acceptable distribution.
- Equality of access to health care is important but it deals with only a part of the resource egalitarianism that is essential for equity in health.
- If we wish to equalise resources then personal resources (or capabilities) have to be equalised or compensation for the differences in these resources should be made.
- If we wish to equalise health, even then personal resources should be equalised or compensation made accordingly.
- It may be useful to elicit community views and preferences on specific issues relating to the distribution of health care services. But results of such community consultations should be subject to rigorous ethical evaluations before informing public policies.

Much of the recent literature aimed at incorporating (and developing) Sen's 'capabilities' approach to equity considerations in the health sector (Brouwer *et al* 2005; Richardson and Mckie 2005; Nord 2005; Wailoo and Anand 2005; Williams 1997) shows that equity in the distribution of health care resources cannot be considered separately from equity in health. The new paradigm in the health domain is 'needs', 'capabilities' and their role in attaining the 'functioning' good health. Therefore, new principles would have to slowly replace the utilitarian principles that have dominated decisions for a long time. The International Society for Equity in Health (ISEqH) defines equity in health as “the absence of potentially remediable, systematic differences in one or more aspects of health across socially, economically, demographically or geographically defined population groups.” As Whitehead (1992) writes, differentials due to health-damaging behaviours not based on informed choices, exposure to unhealthy living and working conditions, or inadequate access to health and social services are avoidable and unfair and thus constitute health inequities. Equity in health "is concerned with creating equal opportunities for health, and with bringing health differentials down to the lowest levels possible." It is not hard to see that these views are consistent with Rawls as well as Sen who together have provided the new paradigm for developing bases of distributive justice in the health sector.

CHAPTER 4

Equity in the mental health context

4.1 Introduction

The concept of distributive justice applies to mental health as much as to any other aspect of health, as does the need for gathering evidence on the extent of achievement in reaching this important social goal. However, the principles sought in mental health discussions may differ from those relevant for general health due to the special nature of mental health problems which, for example, often make individuals unaware of their needs or reluctant to use health care services, and because of the stigmatizing attitudes towards mental illness prevalent across most societies.

As discussed in chapter 2, although the principle of ‘equity and fairness’ in the distribution of mental health care resources finds occasionally mention in the mental health literature (e.g, Tien 1992; Rosenheck 1999, Lovell and Richards 2000), there has not been clear analysis of how this principle should be defined in relation to mental health. An exception was found in Thornicroft and Tansella (1999) who defined equity as “the fair distribution of resources” and suggested that “the rationale used to prioritise between competing needs, and the methods used to calculate the allocation of resources should be made explicit.” Quite importantly they also recognised that the principle of ‘equity’ in mental health has so far not been translated into a quantitative outcome measure, upon which evidence-based medicine approach crucially depends. However, there appears to be no proposition of what is ‘fair distribution of resources’. There is definitely a need for better exposition of what equity principle(s) are relevant for mental health and the mental health sector.

4.2 Mental health and the general principles and theories of distributive justice

In evaluating the general principles and theories of distributive justice, the many special features of mental health problems - such as stigma and discrimination, the use of compulsory measures to detain and treat people, the human rights issues involved, growing emphasis on user empowerment – all need to be taken into account. These special features are likely to influence what equity might mean, implicitly or explicitly, in public attitudes and preferences in the context of mental health and therefore it is important that their relevance is also considered in policy philosophy and practical implementations.

Much of the discussion presented in chapter 3 regarding the applicability and suitability of various principles and theories of distributive justice for guiding public policies in relation to general health can be said to be equally applicable to mental health. The observations made with respect to the principles of distributive justice – rights, deserts and needs – have the same connotations when applied to mental health. The principle of ‘needs’ as the basis of distributive justice will be more persuasive than rights or deserts. Similarly the arguments presented in rejecting contractarian and utilitarian theories apply with equal force in the mental health context as well. The relevance of Rawlsian maximin and Sen’s capability approaches in determining the basis of distributive justice apply here too, as they implicitly incorporate the ‘needs’ principle. As noted at the end of the previous chapter, the new paradigm in the health domain is ‘needs’ and ‘capabilities’, and for mental health we should concentrate on establishing their role in attaining the ‘functioning’ of positive mental health.

The concept of ‘decent minimum’ appears to warrant more attention in relation to mental health. One can argue that there should be a standard (of quality of life or mental health, say) below which individuals should not be allowed to fall. That is, society could specify a certain level of mental health as the minimum standard and seek availability of mental health care to ensure that no one falls below that standard. Although there is the practical difficulty of defining this minimum standard of mental health, the concept provides one possible interpretation of the 'need' for mental health care - the level of care essential to raise those with poor (lower than the minimum) health to the level of the minimum standard (however defined).

While considering the egalitarian notions, which are important also for understanding or developing any 'need-based' theory of equity, one may find some difference in how welfare and resource egalitarianism may apply to mental health, mainly because of some of the unique features that distinguish mental health from general health. As discussed earlier, egality is generally taken to mean equalising individual net benefits (welfares) or opportunities for such benefits.

Application of 'welfare egalitarian' principles in relation to mental health would mean that society should strive for equal mental health status for all individuals, and individuals are not to be held responsible for their poor mental health status even if it is the result of their own conscious choice, say, of not seeking care. This point needs special attention in cases where factors such as shame, embarrassment and stigma play a major role in individual choice. However, if due to these considerations welfare egalitarianism is preferred, then there may be a delicate balance that has to achieved, if it is also desired that some other special features such as respect for human rights and user empowerment are not to be compromised.

The 'resource egalitarian' principle, on the other hand, would imply that mental health care (and other societal resources) should be distributed in such a way that everyone potentially has an 'equal chance to be mentally healthy' and once such an opportunity is ensured for all, the actual outcome of individual decisions and preferences is to be considered just. Applying the same reasoning once again, of the possible undesirable consequences that may result from the special features of mental health such as stigma, this principle may turn out to be inequitable if individuals are left to make their own choices with regard to use of useful and essential mental health services. This then presents us with a dilemma. If we accept Sen's capability approach, then resource egalitarianism is what we should aim for but this may not be equitable in the context of the special features of mental health problems.

Two observations made in section 3.5 in the preceding chapter with reference to these egalitarian principles would be relevant here too. That is, if we wish to equalise resources then personal resources (or capabilities) have to be equalised or compensation for the differences in these resources should be made. Another point to be noted here is that equality of access to mental health care is important but it deals with only a part of the resource egalitarianism that is essential for equity in mental health. Defining the role of 'need' and 'capabilities' in attaining positive mental health may be an initial step in developing a proper basis for equity analysis in this field.

4.3 Developing the conceptual basis for equity in mental health

Three concepts appear to be important for developing the basis for equity analysis in mental health – positive mental health, capabilities and needs.

Positive mental health

There is no doubt that interest in equity is primarily generated by a concern to create equal opportunities for positive mental health. Today there are many detailed suggestions of criteria of positive mental health, generally framed in a psychological setting, but a philosophical analysis of positive mental health would fit well with the discussion of equity. The analysis presented by Tengland (2001) appears to be useful in this context. The analysis is based on the holistic theory of general health presented by Nordenfelt (1993) wherein health is defined as the person's general ability to reach vital goals (set by the individual, the family or simply in relation to what majority in the wider society achieve), in acceptable circumstances. The theory has parallels in Daniels 'species typical functioning' and 'normal opportunity range', which was discussed in chapter 3 while defining the basis for 'need for health care' in general. The theory entails that the general ability is made up of several specific abilities, some of which are mental. Based on this theory Tengland derives a formal definition of positive mental health with the following propositions:

1. P is mentally healthy if and only if P has the mental ability necessary for realising P's vital goals, given acceptable circumstances.

Since different individuals may need different abilities in order to reach their individual vital goals, the concepts of 'acceptable health' and 'acceptable mental health' are introduced. Acceptable mental health is the level where the individual can attain a minimally decent life (survival). The goals representing this level are called 'basic vital goals'.

2. P is mentally healthy if and only if P has the mental ability necessary for reaching P's basic vital goals (survival), given acceptable circumstances.

With this theory of positive mental health, instruments for measuring mental health and for measuring psychotherapy outcomes need to take the individual's important basic goals into consideration. Thus 'need' for mental health care will have to be defined more broadly than merely by symptoms recognised in a medical model of mental health.

Capabilities

The central idea of the capability approach is that fairness of social states depends not only on how human beings actually function but on their having the capability, which is a practical choice, to function in important ways if they so wish. Functional capabilities, i.e., 'substantial freedoms', such as the ability to live to old age, engage in economic transactions, or live a healthy life are emphasised. Poverty is considered to be capability-deprivation. Similarly, mental ill-health can be capability-deprivation as this will restrict the freedom one has to achieve and enjoy the 'functioning', positive mental health, which can result in further deprivation such as the ability to engage in economic activities or in active political or social life. In other words, a person suffering from mental disorders may not have the mental ability necessary for reaching basic vital goals (survival), given acceptable circumstances. Such an individual will be unable to attain a minimally decent life (survival).

Equity in mental health therefore implies that when it is possible to remedy such capability-deprivation through appropriate interventions, society has the responsibility to provide such interventions. In the case of mental health, not receiving or seeking remedies for deprivation of such capabilities could be due to many reasons, e.g. ignorance, oppression, stigma, lack of financial resources, or false perceptions regarding the benefits of interventions. Recognising the factors that might cause capability-deprivation and making concerted efforts to equalise capabilities or make necessary compensations when it is not possible to equalise capabilities, should be the aim of equity in public policy. One could say that every individual has a 'claim right' to 'positive mental health' and the state and the society have the duty to honour this 'right' by striving towards equalising capabilities for the achievement of this 'functioning' positive mental health.

Need

The phrase 'health need' is difficult to define (Bhopal 2007). There is a wide variety of definitions of ‘need’ that have been developed in different disciplines. It is useful to review some of these and examine their implications for defining need for mental health care.

The philosophical view of need is that need is something instrumental or fundamental to the achievement of a desirable goal. Baldwin (1998), for example, considered need to arise 'when the goal is not realised and there is a need of a certain thing when this is necessary for realising the goal', which seems to be a characteristic attributable to any kind of need. While this definition usefully expounds the concept of need, it is rather general and would have to be improved to make it suitable for defining need for mental health services.

The health service approach is that a need exists when a patient's functioning falls below - or threatens to fall below- some minimum specified level and there is a remediable cause. This is the generally the approach taken by the Medical Research Council. A slightly broader (perhaps more reasonable) definition of needs is 'the requirement of individuals to enable them to achieve, maintain or restore an acceptable level of social independence or quality of life, as defined by particular care agency or authority' (Department of Health 1992).

An important and useful classification of needs from the sociological point of view was provided by Bradshaw (1972), identifying four types of need:

1. Normative (defined by an expert or professional)
2. Felt need (what people want)
3. Expressed need (equivalent to demand made upon health services)
4. Comparative need (identified by comparing populations)

These distinctions are helpful as they illustrate how the health services approach to defining need may differ from the societal view of need.

The most notable efforts in recent years to define needs in relation to the health sector and with reference to equity in health were by the economists. The health economics literature on 'need' for general medical care in the last few decades has been just adding to the debate about what is to considered 'equitable' care. Conflicts between equity and efficiency, and the general reluctance to move beyond the neoclassical, economic interpretations of efficiency, were both problems to the equity question in relation to health. Equity or social justice demands satisfaction of the 'normative need' (as in Bradshaw 1972) for services, providing good health and equal opportunity for a healthy living. At the same time, resource efficiency calls for analysing costs and benefits of health services, and meeting only those needs where benefits are positive. In the language of needs, such needs may be termed 'economic needs', as it is an economist's view of need, not necessarily those of the health care providers, the patients or the general public.

The most widely presented definition of need favoured by economists is 'the ability of people to benefit from health care provision'. Williams (1974), for example, equated need to a person's capacity to benefit from health care. Culyer and Wagstaff (1991) redefined need as 'the amount of resources required to exhaust capacity to benefit'. 'Capacity to benefit' is a measure of 'how far the quality and length of life of an individual can be increased' by the administration of medical care. According to these definitions, 'need' for health care exists only if there is a 'capacity to benefit' from a particular healthcare service. In other words, need may be assumed to exist when there is an effective treatment or 'health gain'. Culyer and Wagstaff, for instance, argued that "It is hard to see why someone who is sick can sensibly be said to need health care, irrespective of the [provider's] ability to improve the person's health. [People] cannot surely be said to need health care if no technology is available to improve their health or prevent its avoidable deterioration. They may need medical research, they may need comfort, and they may, most fundamentally of all, need health but they surely do not need health care."

This argument restricts need categories to those that are economically beneficial, and can be met with current technology. However, acknowledging a need for non-existent technology suggests that something ought to be done to restore health. Thus a 'normative need' for health care or comparable alternatives exists. This definition focuses on 'health care' rather than 'health'. Individual's needs appear to be conditioned by their capacities to benefit which in turn depend on, among other things, on endowed health, inherent (perhaps inherited) strengths and weaknesses (which form part of the basic capabilities in Sen's terminology), and existing medical technology. This concept of need implicitly recognises deficiencies in basic endowments which limit the individual's health options, and 'need' thus defined is constrained by these deficiencies and will not compensate for them and hence will not result in resource egalitarianism in the wider sense of equalising basic capabilities. Another point to consider is that benefit from healthcare may be affected inversely by the severity of disorders. This can be problematic when studying human behaviour based on complex interactions between: individual behaviour, social circumstances, cultural beliefs and genetic construction (Asadi-Lari 2003).

In the case of mental health care, ability to benefit from health care can be influenced by several factors, resulting in deprivation of basic capabilities. This means that the concept of 'need' for mental health care would have to deviate from the concept of need offered by Williams (1974) or Culyer and Wagstaff (1991), and take into account 'basic capabilities' of individuals. For example, if a person with mental health problems has a low capacity to benefit from health care, resource egalitarianism may demand that more resources than allocated by the Culyer-Wagstaff argument be spent on her. Deprivation may result in lower capacities to benefit, lower capabilities and compensating for this discrepancy may require more physican/psychiatrist (or other practitioner) consultations, nurse time, more community support facilities and more resources in general, than would be necessary for a better endowed person in a similar condition.

Equity considerations demand that lower capacities to benefit from heath and social care and lower capabilities translate to a greater need for resources.

One must recognise that 'economic need' as represented in Culyer-Wagstaff definition is actually a subset of the 'normative need' for resources, as illustrated in figure 4.1. Furthermore, economic need can vary depending on what one perceives as health benefits, since quality-of-life improvements and mental perceptions of happiness and well-being are relative, subjective concepts. An equitable policy should reduce the gap between economic and normative needs (and felt needs). Expanding the domain of economic need to coincide with normative need would require improving medical technology, efficacy of currently available health care interventions and personal health endowments of the concerned populations and conceptions of benefits from health care, for different populations.

'Felt needs' may be equated with what most health surveys measure as self-reported health problems. Some or many of these may not be recognised by the experts or professionals (the normative need) for the simple reason that they do not fit into the psychopathological definitions of disorders or because there are no known remedies or interventions available within the current knowledge and technology base. Nevertheless, they are problems experienced by the concerned individuals and there is likely to be a 'felt need' for services or some alternatives that can reduce the capability-deprivation. The levels and standard of such 'felt needs' may depend on 'comparative need'.

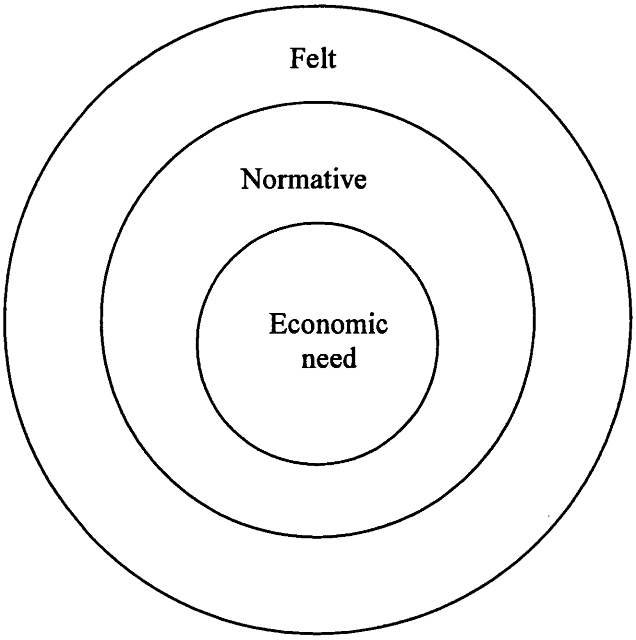


Figure 4.1 Levels of needs

For an equity analysis in the domain of mental health, it would, therefore, be useful to examine both 'normative' and 'felt' needs and also how these needs compare between different population groups, defined by income, social class, gender, ethnicity, region or other distinguishing characteristics.

4.4 Defining equity in mental health

Equity in mental health can be defined as equal probability of reaching the desired end, 'positive mental health' for all. An equitable mental health policy will ensure that everyone will have an 'equal probability' of reaching a certain desirable level of 'positive mental health', irrespective of gender, ethnicity, wealth, region, educational qualifications or other differential factors affecting individual circumstances and life time opportunities for health and wealth. In other words, the mental health of an individual should not be a function of non-biological factors. An equitable policy will be one that neutralises the differential effects of such factors within cohorts, thus ensuring the same availability of health opportunities for all.

However, deviations from this equity standard caused by exceptional characteristics of certain groups need recognition. There may be legitimate reasons for accepting constraints in making probabilities equal for certain groups. For example, for frail older people whose health levels cannot be altered significantly, an equitable policy will be one that is restricted to ensuring equal chances of receiving long-term care. Similarly, for severely disabled people whose health levels cannot be altered by medical or alternative interventions, their health shortfalls are part of their health endowment and therefore a parameter in their health-production function. An equitable policy should aim to find ways of avoiding or reducing such misfortunes for future generations.

The main arguments of the equity in mental health theory will run thus:

- Positive mental health is essential for the achievement of basic vital goals of decent living (survival).
- Basic capability is the practical freedom of choice to function in important ways if one so wishes.
- Mental illness curtails an individual's mental ability to reach the basic vital goals. Hence mental illness is capability-deprivation in the same way as is poverty.
- Deprivation of basic capability in relation to mental health may result from factors such as stigma, government oppression, lack of financial resources, human rights abuse or ignorance.
- When it is possible to remedy such capability-deprivation through appropriate interventions, society has the responsibility to provide such interventions.
- Everyone has a 'claim right' to enjoy positive mental health. Recognising the factors that may cause capability-deprivation and making concerted efforts to equalise capabilities or make necessary compensations when it is not possible to equalise capabilities, should be the aim of equity in public policy.
- Curtailment of basic capabilities should be the (rough) guide to the 'need' for mental health care or relevant alternatives.
- 'Need' for mental health care will have to be defined more broadly than merely by symptoms recognised in a medical model of mental health.

- The medical model identifies what may be termed as 'normative need'. This is to be contrasted with 'felt need' and 'economic need'.
- It is important to recognise that 'economic need' is only a small subset of the overall needs in society.
- It is also important to distinguish between equity and efficiency objectives in the distribution of mental health care resources.
- Efficiency objectives suggest the satisfaction of 'economic needs' alone while equity objectives point toward the importance of expanding the domain of economic needs so that they cover 'normative needs' and 'felt needs' as well.
- Equity in mental health can be defined as 'equal probability' of reaching the desired end, 'positive mental health' for all.
- An equitable policy will be one that neutralises the differential effects of non-biological factors within cohorts, thus ensuring the same availability of health opportunities for all.

Thus an equitable mental health policy will ensure that everyone will have an 'equal probability' of reaching a certain desirable level of 'positive mental health', irrespective of gender, ethnicity, wealth, region, educational qualifications or other differential factors affecting individual circumstances and life time opportunities for health and wealth.

With this theory of positive mental health, instruments for measuring mental health and for measuring outcomes need to take the individual's important basic goals into consideration. Empirical analysis of equity would have to relate use of services (expressed needs) to normative as well as felt needs, and also compare these across population groups.

4. 5 Conclusions

The main issues in relation to studying equity in mental health contexts were discussed in this chapter. As in the case of general health, some useful points were derived from the overview of literature on general theories of distributive justice. The main points to consider are the following:

- Need appropriately defined might be the proper basis for deciding distributive justice in the mental health field.
- Resources should be so allocated as to benefit the least well-off more in terms of health; the concept of a decent minimum also appears to warrant more attention.
- Resource egalitarianism is important but it should be related to the 'end' for which it is the 'means' in such a way that the 'end' itself will have an ethically acceptable distribution.
- Equality of access to mental health care is important but it deals with only a part of the resource egalitarianism that is essential for equity in mental health.
- Defining the role of 'need' and 'capabilities' in attaining positive mental health may be an initial step in developing a proper basis for equity analysis in this field.

Three concepts were identified as central to the development of the conceptual basis for equity analysis in mental health – positive mental health, capabilities and needs. These three concepts were linked together to develop a theory of equity in mental health where equity is defined as 'equal probability' of reaching the desired end, 'positive mental health' for all. The importance of equalising basic capabilities for the achievement of this goal was highlighted. Identification and distinction of different need categories was shown to be an important part of moving towards the goal of equalising basic capabilities.

While it is beyond the scope of this thesis to cover every aspect of equity that would be necessary for informing public policies in this field, two specific aspects of the problem will be examined, namely income and social-class related inequalities and ethnicity-related inequalities in both mental health and in the use of mental health care services. The results of these analyses are presented in chapters 6-8. In studying the use of services, in addition to 'normative needs' that experts would identify as needs, felt needs of individuals are also examined with the aim of highlighting the differences in the two types of needs. When needs are compared across income or social class groups and across ethnic groups, some element of comparative needs is also covered. Such an exposition helps the analysis of equity to be more robust and brings it closer to the theoretical requirements outlined in this chapter.

CHAPTER 5

Data and methods

5.1 Introduction

The premise of health equity analysis is to assess and understand how health outcomes or health related behaviours vary along some dimension of living standard or other non-need variables such as ethnicity, gender or place of residence. Although the principal aim of most empirical studies is the analysis of equity in the use of health care, analysis of equity in the health variable(s) of interest generally forms a part of the exercise. As Wagstaff and Van Doorslaer (2000) point out it can be argued that all concerns about the distribution of health care stem ultimately from a more fundamental concern about the distribution of health itself, as health care systems can influence the extent to which health inequalities exist and the extent to which they are systematically related to characteristics such as socioeconomic status, place of residence or ethnicity.

The organisation of this chapter is as follows. Section 5.2 reviews the empirical approaches to studying equity in the health context, distinguishing between testing for equity and measuring inequalties and inequity. Section 5.3 discusses the method of computation of the most widely used tool for measuring inequalities and inequities and also the one used in this study, the concentration index, covering application of the method to health status and health care utilisation data. This section also discusses the method of decomposing the index to study the demand elasticity of various factors with respect to use of medical care and to unravel the contribution of different socio-economic and demographic factors to total inequality. Section 5.4 gives brief descriptions of the data sources and the variables used for the empirical analyses of income-related inequalities in mental health. Section 5.5 describes the estimation methods used in empirical analyses.

5.2 Empirical approaches to studying equity in health and health care utilisation

Empirical approaches to the study of equity in health and health care are beset with the same problems of definitions and confusion as to whether it is equity or inequality that is being studied. Most studies use the term 'equity' but often the concept studied may be 'inequalities' rather than equity. The clear distinction between equity and inequalities was made by Van Doorslaer *et al* (2004) when they pointed out how equity is need-related while inequalities are not.

In this section, therefore, a distinction is made between approaches to testing for inequities and measuring inequalities in the first instance, and relating such inequalities to needs.

5.2.1 Testing for inequity

Equity in relation to income or socio-economic status

The simplest approach to testing for equity is descriptive analysis as in Collins and Klein (1980) who compare medical care utilisation in the UK across socio-economic groups within various morbidity categories. They divided their sample into several need categories, such as non-sick, acutely sick and chronically sick, and compared access rates to primary care by each of the socio-economic groups (SEGs) within each need category. (They found evidence of a class bias only in the case of the 'not sick' group.)

The alternative approach to testing for equity is to employ regression analysis as in Benham and Benham (1975) and Puffer (1986 &1987). Benham and Benham, for example, estimated regression equations of the form:

$$m_i = \alpha_0 + \alpha_1 y_i + \alpha_2 h_i + \alpha_3 x_i + u_i \qquad (5.1)$$

where m_i is imputed medical care expenditure of person i, y_i is income, h_i is a health status indicator, x_i captures demographic factors and α's are coefficients. Equity is tested by looking at the estimate of α_1. (Their estimates from two equations, for 1963 and 1970 led them to conclude that the US has moved in the direction of greater equity between the years.)

Puffer's (1986) approach is similar but uses interaction terms to estimate an equation relating medical care consumption to measures of health status, income, age, gender and interaction terms between income and the other variables. She estimated probit models for the demand for primary care in the UK and the US, where belonging to the lowest income quartile was the variable used to test for equity in access to health care. (The results showed that in the US low income tends to reduce the probability of women and men contacting a physician when ill, whilst in Britain low income reduces the probability of contact only amongst women.)

Similar approaches can be seen in Rosenzweig and Schultz (1991) for the use of prenatal medical services in the US, Birch *et al* (1993) for the use of family physician visits in Canada, Grytten *et al* (1995) for physician visits in Norway, Hamilton *et al* (1997) for physician visits in the US and Canada, and Gerdtham (1997) for physician contact in Sweden, all using either equation (5.1) or its variant with interaction terms to test for equity.

Van Doosrlaer *et al* (1993) point out that an attraction of the regression approach is that it can easily accommodate the fact that in a typical distribution of medical expenditures, a large percentage of the population records zero utilisation. The appropriate regression model in this case is a two-part model, the first part of which models the determinants of the individual's decision to seek care, whereas the second models the determinants of the amount of care received, given that a contact has been made (Manning *et al* 1981; Van Vliet and Van de Ven 1985). The first part can be estimated by any of the estimation methods available for a regression model with a binary dependent variable (e.g., logit, probit). The second part of the model can then be estimated by ordinary least squares (or other appropriate method) using only those individuals recording positive utilisation. The two-part model allows one to explore the possibility that income may not affect the likelihood of persons in a given degree of need seeking care but may affect the amount of care they receive once contact has been made. Van Doosrlaer *et al* (1993) also point out that although in general, regression-based studies of inequity are based on a single equation regression model, one could estimate separate equations for each income group and then perform the relevant tests to identify presence or absence of equity directly instead of indirectly via the interaction terms.

Equity in relation to race, gender or region

Drawing on the literature on discrimination in the labour market, empirical analysis to test if there is inequity/inequality with respect to race, gender or region can be undertaken by estimating a model of the type given below. If, for example, there are only two groups, black and white, we can write:

$$m_i = \alpha_b + \beta_b h_i + u_{bi} \qquad \text{if black,} \qquad (5.2)$$

$$m_i = \alpha_w + \beta_w h_i + u_{wi} \qquad \text{if white} \qquad (5.3)$$

where m_i is medical care received by person i, h_i dummy variable for health status (indicating need for medical care) and α's and β's are coefficients and the u's are error terms. If, on average, those who are not ill are treated the same, irrespective of whether they are black or white, $\alpha_b = \alpha_w$. If, on average, people who are ill are treated alike whether they are black or white, then we should have $= \alpha_b + \beta_b = \alpha_w + \beta_w$. If there is equity in both need categories, then we should have $\alpha_b = \alpha_w$ and $\beta_b = \beta_w$.

This approach can be followed to test for other kinds of inequities where the sample is split by e.g., gender or region, ethnicity or even religion, which has become increasingly important in recent years. Inequality is assumed to be absent if the intercepts and slopes are the same across the groups and to exist if they differ. Discrimination would be measured either as $(\alpha_b - \alpha_w) + h_w (\beta_b - \beta_w)$ or as $(\alpha_b - \alpha_w) + h_b (\beta_b - \beta_w)$, depending on which group is used as the reference group (Joshi and Paci 1998).

5.2.2 Measuring equity and inequalities

The methods discussed here are those used in international literature for measuring income or socio-economic status-related inequalities in health and health care utilisation. The most common inequality measures used in health services research are: the range (Townsend and Davidson 1982), Gini coefficient (Le Grand *et al.* 1985, 1989; Illsley and Le Grand 1987), index of dissimilarity (Preston *et al.* 1981; Koskinen 1985), slope index and associated relative index (Pamuk 1985, 1988), and concentration index (Wagstaff *et al.* 1989; World Bank 2003; Van Doorslaer *et al.* 2004).

A useful review of these and other measures is provided by Wagstaff *et al.* (1991a), who suggest that minimal requirements for an inequality measure are: (i) that it reflects the socio-economic dimension to inequalities in health; (ii) that it reflects the experiences of the entire population (rather than just, say, the extremes of the social class scale); and (iii) that it is sensitive to changes in the distribution of the population across socio-economic groups. As Wagstaff and colleagues point out, the range measure fails to satisfy the second and third requirements, while the Gini coefficient and index of dissimilarity fail to satisfy the first. The slope and relative index of inequality and the concentration index satisfy all three requirements. Over recent years, the concentration index has become widely accepted as a standardised tool for summarising health inequalities (World Bank 2003). It is closely related to the slope and relative indices but it provides a more useful graphical device for comparisons over time, across geographical locations or across disease categories.

The concentration index

The concentration index approach builds on the well-known Lorenz Curve and Gini coefficient, widely used for measuring inequality in income distribution, and provides a means of quantifying the degree of income-related inequality in a specific health variable. While the Gini coefficient measures inequality in income, the Concentration index measures inequality in the health variable of interest in relation to the distribution of income. Therefore it captures the effect of both distributions – income as well as health.

The index is defined with reference to a concentration curve which graphs on the horizontal axis the cumulative percentage of the sample, ranked by living standards, beginning with the poorest, and on the vertical axis the cumulative percentage of the health variable corresponding to each cumulative percentage distribution of the living standard variable. The two key variables underlying the concentration curve are therefore the health outcome variable, the distribution of which is the subject of interest; and a variable capturing living standard, against which the distribution is assessed. If everyone has exactly the same value of the health variable, irrespective of living standards, then the concentration curve will be a 45^0 line - the so-called line of equality.

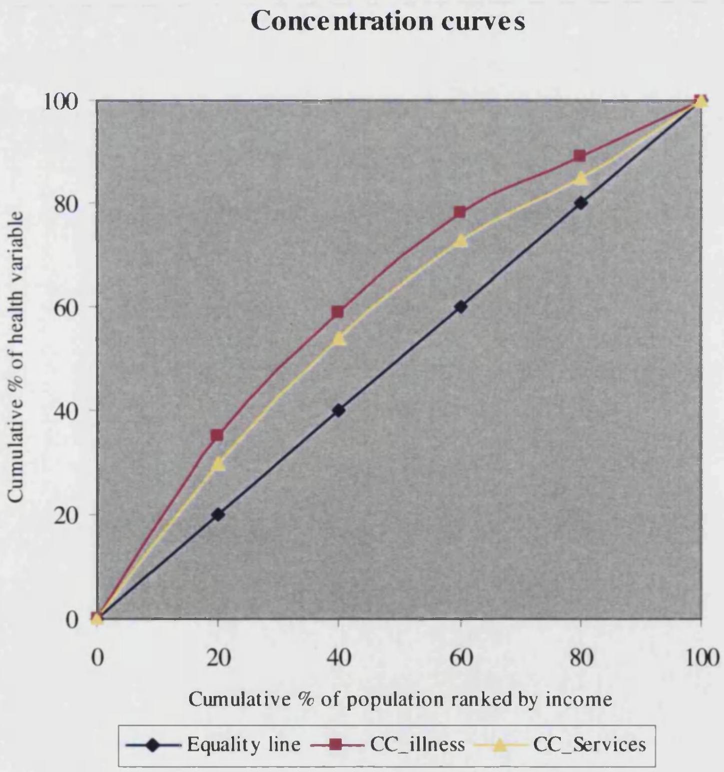


Fig. 5.1 Concentration curves for illness and use of services

Fig. 5.1 provides an example of a concentration curve, where the health variable is ill-health, which is higher amongst the poor than amongst the better-off. The further the curve CC_illness is above the line of equality, the more concentrated the health variable is amongst the poor. This illness concentration curve is compared to a use of services concentration curve, CC_services, which plots the cumulative proportions of the population against the proportions of total health services received. In so far as lower income groups are more intensive users of health services than the higher income groups, the concentration curve for use of services also lies above the diagonal. If health care utilisation across income groups is in proportion to their share of total ill-health, the two concentration curves coincide. If those in lower income groups receive less medical care when ill than those in higher income groups, the concentration curve for use will lie below the illness concentration curve. The extent of inequity can be assessed by looking at the size of the area between the two concentration curves.

The concentration index (usually abbreviated to *CI*) is defined as one minus twice the area between the line of equality and the concentration curve (Wagstaff *et al.* 1991a; Kakwani *et al.* 1997). If there is no income-related inequality, the concentration index will thus take the value zero. The index takes a negative value when the curve lies above the line of equality, indicating disproportionate concentration of the health problem among the poor, and a positive value when it lies below the line of equality, indicating disproportionate concentration of the health variable among the rich. If the health variable is ill health, a negative value of the concentration index means ill health is higher among the poor. The minimum and maximum values of *CI* are –1 and +1.

5.3 Computation of the concentration index

Lerman and Yitzhaki (1984) have shown, in what is now known as the 'convenient covariance' result, that the Gini index of inequality (to which the *CI* is related) can be written as a simple linear transformation of the covariance (*cov*) between an income unit's rank (R_i) in the income distribution and its income (say y_i), and that the cov (y_i, R_i) can be found by running a regression of y on R. Kakwani (1980, p.173) offered similar result for the concentration index that it can be written as:

$$CI = 2 \operatorname{cov}(y_i, R_i) / \mu \qquad (5.4)$$

where y is the health variable of interest, μ is the mean of y, and R_i is the fractional rank of the ith individual in the income distribution. The concentration index can be computed easily by making use of this 'convenient covariance' result. However, for statistical inference, it will be necessary to compute the standard error for the concentration index. Kakwani *et al.* (1997) suggest a 'convenient regression approach' for this purpose which also has the advantage of yielding an estimate of the concentration index itself. The convenient covariance result given above is used to define a convenient regression for the concentration index, equal to

$$2\sigma_R^2 \left[\frac{y_i}{\mu} \right] = \alpha + \beta R_i + u_i \qquad (5.5)$$

where σ_R^2 is the variance of the fractional rank variable. Individuals are ranked according to income and ordinary least squares regression is run on the above equation. The estimate of β from this regression is equal to the concentration index (*CI*), and the standard error of β provides an estimate of the index's standard error. However, the standard errors estimated in such a regression will not be wholly accurate since, due to the nature of the fractional rank variable, the observations in each regression equation will not be independent of one another and this will induce a particular pattern of autocorrelation in the data. The Newey-West regression estimator (Newey and West 1994), which is easily available within standard statistical estimation packages (such as STATA), corrects for autocorrelation as well as any heteroscedasticty. Estimating the *CI* using this regression equation is an alternative (but equivalent) to the convenient covariance method (World Bank 2003).

5.3.1 Equity in health status

For equity analysis of health status, the approach is to examine the distribution of health in relation to income (or other indicator of socio-economic status) conditional on other socio-demographic factors such as age, gender and education, which are correlated with health and socio-economic status. This is generally achieved by examining the unstandardised or standardised health distribution using the concentration index approach.

Demographic standardisation of mental health distribution

If we suspect that some mental health problems are correlated with age and gender, and that these two demographic variables may be unequally distributed across income or socio-economic groups, it is generally advisable to examine the *standardised* health distribution using concentration indices. Direct and indirect ways of standardising have been suggested (World Bank 2003). Direct standardisation determines the distribution of health across income or socio-economic groups that one would observe if all groups had the same age structure but group-specific intercepts and age effects. Indirect standardisation, on the other hand, corrects the actual distribution by comparing it with the distribution that would be observed if all individuals had their own age but the same mean age-gender effect as the entire population. Both methods of standardisation can be implemented through regression analysis. The method recommended in the literature (World Bank 2003; Van Doorslaer *et al.* 2004) and used in most recent studies in the field is indirect standardisation.

A simple method of obtaining an indirectly standardised concentration index is to include the standardising variables directly in a convenient regression equation for the concentration index (World Bank 2003). This approach can be used to standardise for either full or partial correlations of the health variables of interest with the standardising variables. In the former case, only standardising or confounding variables are included in the regression analysis. In the latter case, other non-confounding variables are also included in order to estimate the correlation of the confounding variables conditional on those other variables. To give an example, if age and gender are correlated with education and also with both income and health, then omitting education from the regression analysis will mean that the estimated coefficients of age and gender will reflect the joint correlations with education and we would be standardising for education, in addition to age and gender, differences by income.

The indirectly standardised distribution is obtained by estimating a regression like

$$y_i = \alpha + \sum_j \beta_j x_{ji} + \sum_k \gamma_k z_{ki} + \varepsilon_i \tag{5.6}$$

where y_i is the indicator of health, (i denotes individual), α, β and γ are parameters and ε the error term. The x_j are confounding variables for which we want to standardize and z_k are non-confounding variables for which we do not want to standardize but want to control for in order to estimate partial correlations with the confounding variables. If we want to standardize for the full correlations with the confounding variables, the z_k variables are left out of the regression. Ordinary least squares (OLS) parameter estimates of $\hat{\alpha}, \hat{\beta}_j, \hat{\gamma}_k$, observed values of the confounding variables x_{ji} and sample means of the non-confounding variables $\bar{z}_k$ are then used to obtain the predicted values of the health indicator, $\hat{y}_i^X$, as in equation (5.7).

$$\hat{y}_i^X = \hat{\alpha} + \sum_j \hat{\beta}_j x_{ji} + \sum_k \hat{\gamma}_k \bar{z}_k \tag{5.7}$$

Estimates of the indirectly standardized health are then given by the difference between actual and expected health, plus the overall sample mean.

$$\hat{y}_i^{IS} = y_i - \hat{y}_i^X + \bar{y} \tag{5.8}$$

The distribution of $\hat{y}_i^{IS}$ across income groups can be interpreted as the distribution of health that one would expect to observe, irrespective of differences in the distribution of the x variables.

5.3.2 Equity in health care

Empirical studies on equity in health care are based on the principle that health care ought to be distributed according to need and not willingness or ability to pay or any other variable unrelated to need. An equitable distribution of health care is one in which the amount of health care received correlates highly with indicators of need and is independent of variables such as income, which are irrelevant to need. Most empirical studies in the field focus on the principle of horizontal equity in the delivery of health care. The principle is derived from one of the earliest thinking on distributive justice, attributed to Aristotle. His formal principles of distributive justice are

(i) Horizontal equity: Equals should be treated equally, and
(ii) Vertical equity: Unequals should be treated unequally in proportion to the relevant inequalities.

Application of the horizontal equity principle to health care is interpreted as the requirement that persons of equal need actually end up receiving equal treatment, irrespective of personal characteristics that are irrelevant to need. As Van Doorslaer *et al* (2004) point out, while the concentration index of medical care use can measure the degree of inequality in the use of medical care by income, it will not measure the degree of inequity. For any inequality to be interpretable as inequity, need-determined inequality has to be taken into account. In general, in empirical analyses of equity in health care, the extent of inequity is determined by comparing the distributions of need and treatment across income deciles or socio-economic groups. The measure of horizontal inequity (HI) suggested by Wagstaff and Van Doorslaer (2000) has now become the standard way of interpreting inequity in health–related research. They define horizontal inequity as the difference between the inequality in actual and needed use of medical care:

$$HI_{wv} = C_M - C_N \qquad (5.9)$$

where C_M and C_N denote the concentration index corresponding to actual and needed use of medical care, respectively.

Need-determined inequality can be computed neatly using the standardised concentration indices. The aim of standardisation is to ascertain to what extent the actual, observed distribution of health care (e.g., by income groups) matches the distribution of need for such care. Analogous to the methods described in section 5.3.1

with respect to demographic standardisation of distributions, there are the direct and the indirect methods of standardising distributions for need differences.

Standardising for need

The direct method of standardising for need computes a concentration index for medical care use that would emerge if each individual or income group has the same need characteristics as the population as a whole, as in Wagstaff *et al* (1991b).

The indirect standardisation method proceeds by obtaining a measure of need for medical care for each individual, as the predicted use of a regression on need indicators. This method of standardisation generates a figure for each individual indicating the amount of medical care he/she would have received if he/she had been treated like others with the same need characteristics. This is interpreted as his/her need for medical care. In this method, in order to statistically equalise needs for the groups or individuals to be compared, one is effectively using the average relationship between need and treatment for the population as a whole as the vertical equity norm and horizontal inequity is measured by systematic deviations from this norm by income level. The differences in average medical care usage between need categories is assumed to be given and differences within need categories, especially those that are associated with income, are studied for measuring whether there is inequity in the system. The discrepancy between observed and expected utilisation rates given the group-specific average (or an individual's) characteristics is examined.

While indirectly standardising the distributions for need in order to study if there is horizontal inequity in the use of services, a similar approach as described in section 5.3.1 is followed but with the inclusion of need and non-need variables in the regression equation as in equation (5.10).

$$y_i = \alpha + \sum_k \beta_k x_{ki} + \sum_p \gamma_p z_{pi} + \varepsilon_i \qquad (5.10)$$

where y_i is the indicator of the use of services, α, β and γ are parameters and ε the error term. In the explanatory variables we have, a set of k need predictor variables (x_k) which may include demographics and morbidity variables and a set p of other non-need variables (z_p).

Equation (5.10) can be used to generate need-predicted values of y, i.e., the expected use of medical care of individual i on the basis of his/her need characteristics which indicate the amount of medical care one would have received if she/he had been treated as others with the same need characteristics, on average. Thus *need-expected use of services* can be generated by using the estimated values of $\hat{y}_i$. When the variable is binary, appropriate limited dependent models such as the probit can be used estimate the predicted probabilities of use of services. Combining OLS estimates of the coefficients in equation (5.10) with actual values of the x_k variables and sample mean values of the z_p variables, we can obtain the *need-expected* values of utilisation $\hat{y}_i^x$ as

$$\hat{y}_i^x = \hat{\alpha} + \sum_k \hat{\beta}_k x_{ki} + \sum_p \hat{\gamma}_p \bar{z}_p \qquad (5.11)$$

Estimates of *need-standardised use of services* are then obtained as the difference between the actual and need-expected utilisation expressed as deviations from the sample mean.

$$\hat{y}_i^{IS} = y_i - \hat{y}_i + \bar{y} \qquad (5.12)$$

5.3.3 Decomposing the concentration index

Using decomposition method suggested by Wagstaff *et al* (2003), we can decompose total inequality in observed use into acceptable inequality (i.e., need-induced) and unacceptable inequality (i.e., non-need-related). The latter may be due to income/social class or due to the contribution of other non-need variables (z_p in equation 5.10) e.g., educational qualifications, region, ethnicity, employment status or marital status.

The method for decomposing the measured degree of inequality into the contributions of explanatory factors is rather straightforward. In the context of a linear additive model of the form

$$y_i = \alpha + \sum_j \beta_j x_{ji} + \varepsilon_i \tag{5.13}$$

where the x variables are a set of regressors associated with health care demand y and ε is the disturbance term, the concentration index can be written as:

$$CI = \sum_k (\beta_k \bar{x}_k / \bar{y}) C_k + GC_\varepsilon / \bar{y} \tag{5.14}$$

where $\bar{y}$ is the mean of y, $\bar{x}$ is the mean of x_k, C_k is the concentration index for x_k and GC_ε is the generalised concentration index for ε_i. CI in equation (5.14) can be thought of as being made up of two components. The first is the deterministic component, equal to the weighted sum of the concentration indices of the k regressors, where the weight or share for say, x_k, is the elasticity $(\beta_k \bar{x}_k / \bar{y})$ of y with respect to x_k (evaluated at the sample mean). The second is a residual component, captured by the last term, which reflects the inequality in health care that cannot be explained by systematic variation across income groups in the x_k. Equation (5.14) shows that we can partition total inequality into inequalities associated with each of the x_k regressors.

Equation (5.14) also shows that the separate contribution of each of the x_k regressors to total income-related inequality in health care demand can be decomposed into two parts: (1) its impact on demand for health care, represented by demand elasticity, and (2) its degree of unequal distribution across income, as measured by the concentration index C_k. It is, therefore, possible to identify the importance of each of these two components within each factor's total contribution to inequality in the use of health care. This property makes it a powerful tool for unpacking the mechanisms contributing to the degree of inequality in use of health care (Van Doorslaer *et al* 2004).

5.4 Data and variables

Several national surveys that include information on mental health problems among the UK population were reviewed in order to identify sources of information that could support the empirical analysis of equity in mental health. Of the surveys reviewed, three – the Psychiatric Morbidity Surveys of 1993 and 2000, the Ethnic Minority Psychiatric Illness Rates in the Community Survey of 2000 were found to be useful. All three surveys covered large nationally representative samples, used well-validated instruments for measuring mental illnesses, included information on other demographic and socio-economic variables. They provided the most recent data on mental health in Britain to carry out the intended equity analysis for the national sample and for the ethnic minority groups and also to compare the situation between 1993 and 2000 when many changes in the mental health policy and practices had taken place. These surveys provided the information required for carrying out the empirical analysis of inequality and equity in mental health care services in Britain.

The British Household Panel Survey data for three years was also used as it facilitated an exercise in analysis of longitudinal data in the context of health, as the psychiatric morbidity surveys were all cross-sectional and causal models of health could not be tested using such data. All four data sets were made available for use by the UK Data Archive.

5.4.1 Psychiatric Morbidity Survey 1993

The *Psychiatric Morbidity: Private Household Survey 1993* covered 10,108 adults aged 16 to 64 years living in private households. The survey aimed to estimate prevalence of psychiatric morbidity in Britian and to examine use of mental health services in relation to diagnosis and also to look at co-morbidity between mental illness and physical illness. Information was collected for all respondents on many variable - their personal and household socio-demographic and economic characteristics, neurotic symptoms; psychiatric diagnoses, physical illnesses; economic activity; financial circumstances; difficulties with activities of daily living; experience of recent stressful life events; extent of social support from family and friends; participation in leisure activities; cigarette smoking, alcohol consumption and problems, drug use and dependence.

Information on use of services or receipt of treatment was collected for respondents scoring over a threshold score on the assessment for neurotic disorders, identified as 'cases'. Standard measures used for the assessment of mental disorders included - Clinical Interview Schedule - Revised (CIS-R) (Lewis & Pelosi 1990) which is a battery of questions covering the presence of, and severity of 14 symptoms of neurotic disorder; Psychosis Screening Questionnaire (PSQ) (Bebbington & Nayani 1994) which is a sift questionnaire covering 6 items indicative of psychosis; Schedules for Clinical Assessment of Neuropsychiatry (SCAN) (WHO 1992); and perceived social support scale from 1987 Health and Lifestyle Survey.

5.4.2 Psychiatric Morbidity Survey 2000

The *Psychiatric Morbidity Survey 2000* is a cross-sectional household survey of private households with at least one person aged 16-74 years at the time of the survey. The total number of adults included in the first stage interview was 8,580. A second stage sample was then drawn to include all those who screened positive for psychotic disorder, half of those who sifted positive for anti-social and borderline personality disorder and 1 in 14 of those who sifted positive for other personality disorder and 1 in 14 of those showed no evidence of either psychosis or personality disorder. The survey was designed to estimate the prevalence of psychiatric morbidity among the adult population of Britain, to examine the varying use of services in relation to mental disorders, to establish key current and lifetime factors which may be associated with mental disorders and to provide information on changes in the prevalence of disorder and related factors between 1993 and 2000. The topics covered in the survey therefore include assessments of neurotic symptoms & disorder (CIS-R), psychotic disorder (SCAN), personality disorder (SCID II) (First *et al* 1997), alcohol misuse (AUDIT (Babor *et al* 1992) and SAD-Q (Stockwell *et al* 1983)) and drug dependence. Other subjects included were: general health and service use (including SF-12 (Ware *et al* 1996) and longstanding illness), socio-demographic data, education and employment, finances (income and debt), accommodation (tenure, stability, quality), stressful life events experienced, activities of daily living, informal care and intellectual functioning (NART (Nelson & Willison 1991), TICS-m (Plassman *et al* 1994) and animal naming test).

Assessment of disorders followed a two-stage approach, with an initial structured interview of the entire sample covering all the major topics and a second-stage clinical interview of a sub-sample, focussed on psychosis and personality disorder. Initial interviews were completed by 8,580 individuals, a response rate of just under 70%. The response rate at the second stage was 73% with 638 second stage interviews being completed.

The survey data were weighted to take account of the stratified survey design and differential non-response among regions and age groups in order to ensure that the results were representative of the household population aged 16-74 as a whole. Separate weights were applied for the second stage interview data to account for the differential sampling probabilities and non-response.

5.4.3 Ethnic Minority Psychiatric Illness Rates in the Community 2000

Ethnic Minority Psychiatric Illness Rates in the Community 2000 was a cross-section survey of 4281 adults aged 16-74 years in England, belonging to Black Caribbean, Indian, Pakistani, Bangladeshi or Irish ethnic groups who had been respondents to HSE (Health Survey of England) 1998 and had agreed to be re-contacted. White adults aged 16-74 years, selected from HSE 1998 respondents who had agreed to be re-contacted, were also included in the sample. The topics covered in the survey were: episodes of sickness and treatment, use of health services, social support and social networks, carers, control at home and work, chronic strains, problems with relatives, financial problems over providing necessities and payment of bills, housing problems, difficulties in the local neighbourhood, discrimination/harassment, SF12 physical and mental health summary scales, neurotic and psychotic symptoms, social functioning, language and ethnic identity of the respondents. The questions in the survey were taken from existing well defined instruments that were used in the Psychiatric Morbidity Surveys for private households 1993 and 2000 as well.

5.4.4 British Household Panel Survey

The *British Household Panel Survey (BHPS)* is an annual survey of each adult (aged 16+) member of a nationally representative sample of more than 5000 households, making a total of approximately 10,000 individuals. The same individuals are re-interviewed in successive waves. The BHPS data from the first 3 waves of the survey, for the years 1991, 1992 and 1993 were used in the estimation of the empirical model in the study. The sample for the present study was 7,702 cases which were common to all three waves and had valid data for the variables of interest. The data from the BHPS was supplemented by secondary sources of data on the supply of health care facilities and population statistics for the regions in order to match individual level data from the BHPS to the Health Authority Regions the sampled individuals reside in. Information on the number of GPs was taken from the GMS Basic Statistics, 1993 for England and Wales and from the Scottish Health Statistics, 1991 for Scotland. Population figures were taken from the Key Population and Vital Statistics-local and health authority areas, 1992 for England and Wales and from the Census 1991 Report for Scotland.

5.5 Estimation methods

In the empirical analysis of equity in mental health and in the use of services presented in chapters 6, 7 and 8, the concentration index approach described in section 5.2 is used in the examination of income-related inequality in mental health using estimation methods suggested by Wagstaff and Van Doorslaer (2000), the World Bank (2003) and Van Doorslaer *et al.* (2004) and discussed in section 5.3.

5.5.1 Variables used

As discussed earlier in the chapter, the concentration index and the related concentration curve provide a means of quantifying the degree of income-related inequality in a specific health or health care use variable. The two key variables underlying the concentration curve are: the health or health care variable, the distribution of which is the subject of interest; and a variable capturing living standard, against which the distribution is to be assessed.

The choice of indicators representing the morbidity, use of services and living standards were driven by the availability of data. While there was no problem for the morbidity and use of service indicators in the three psychiatric morbidity surveys, availability of information on the living standards measure varied in these three surveys. Therefore, the measure of living standard used differs in the three empirical analyses as the best available measure was used for each of the surveys. In literature on empirical works on the measurement of equity (O'Donnell and Propper 1989; Pereira 1992), equivalised household income is considered to be a better measure of living standards than individual income. This measure was readily available for the EMPIRIC data set and therefore was used in the estimation of concentration indices for the study of inequalities with reference to the ethnic minorities. It was, however, not possible to use the same measure for the other two psychiatric morbidity surveys.

Table 5.1 gives some basic information about these two psychiatric morbidity surveys. As can be noted for the table, only 18% and 15% of the 1993 sample had information on individual and household incomes, respectively. In the 2000 survey, the corresponding figures were 96% and 60%. For the year 2000 survey, since information on household income was available only for 60% of the sample, it was not possible to carry out the equity analysis using equivalised income as the living standards measure. The analysis of income-related inequalities was therefore carried out using individual income. Information on income was totally unsatisfactory for the 1993 survey. Comparison of income-related inequalities between 1993 and 2000 was, therefore, not possible. As both the surveys had useful information (97% and 96%) on the Registrar General's social class variable, comparative analysis was performed using this alternative measure of living standards.

In analysing mental health morbidity, indicators of 'normative' as well 'felt' needs were included. These were compared with the 'expressed needs' which is the actual use of services. This was in keeping with the theoretical arguments presented in chapter 4 and also following part of the suggestion of experts (Blaxter, 1989; World Bank 2003) that it is advisable to use medical, subjective and functional indicators of health alongside one another to obtain a better picture of the distribution of health. Medical and subjective indicators were included in the analysis.

Table 5.1: Basic information about relevant variables in the Psychiatric Morbidity Surveys 1993 & 2000

	OPCS 1993		**OPCS 2000**	
	n	%	n	%
Full Sample	10,108	100 %	8,580	100%
Mental health problems				
Self-reported [1]	5,651	56 %	4,771	56%
Clinically assessed [2]	1,736	17 %	1,414	17%
Sample with valid income information on:				
Individual weekly income	1,836	18 %	8,268	96 %
Household weekly income	1,529	15 %	5,109	60 %
Sample with valid information on:				
Social Class [3]	9,790	97 %	8,252	96 %

Notes:
1 = Those with a score of 2+ on any of the 14 symptoms in the CIS-R (clinical interview schedule-revised).
2 = Those with a total score of 12+ on CIS-R or were assessed to have 'probable psychosis'.
3 = Classification based on Registrar- General's 1991 *Standard Occupational Classification*, Vol. 3, OPCS, HMSO, London.

Two measures of need used are:

1. Individual perception of need (felt need), i.e., self-reported problems or symptoms, which are represented by a score of >2 on any of the 14 symptoms in the CIS-R. The OPCS Report 1 (OPCS 1993, p.32) defines this level of symptoms as ‘symptoms of moderate to high severity’. It is important to consider self-perceived indicators of health, as perceptions of health depend on expectations about health. These 'felt needs' may require the use of services although the individuals concerned may not have sought the use of, or received

any mental health care services.

2. Clinical assessment of need (normative need), i.e., those who were screened positive for mental illness according to the clinical assessment instruments used in the survey, i.e., those with a total score of 12+ on the CIS-R ('cases' according to ONS 2000) or assessed to be positive for psychosis according to SCAN and the algorithms used for assessment where SCAN was not administered ('probable psychosis'). This is equivalent to 'normative need', i.e., need that the mental health care system would actually recognise.

In addition, some diagnostic categories of mental health disorders – depression, generalised anxiety disorder (GAD), mixed anxiety disorder (MAD), obsessive-compulsive disorder (OCD), panic disorder, phobias and also probable psychosis have been analysed.

The indicator of use of services was a simple measure of whether or not the individual had used any health or social care service during the preceding 12 month period. The information on the use of services was comprehensive in the 2000 survey, covering a wide arrange of health and social care services. The 1993 survey covered only four types of services – GP visits, hospital inpatient care, outpatient care and home care services. The list of services covered in the EMPIRIC survey was also not as comprehensive as the 2000 survey. Further details of data and variables are discussed in the relevant chapters.

5.5.2 Computation of the inequality indices

Methodological developments (Lerman and Yitzhaki 1984, 1989; Kakwani 1980 1997) have facilitated estimation of concentration indices using standard software packages such as STATA. All data sets were downloaded from the UK Data Archive website in SPSS format. Initial data analysis, recoding of variables and preparation of the data sets for intended empirical analysis was done using SPSS statistical software. Computation of the concentration indices and other multivariate analyses were carried out using econometric software package STATA.

CHAPTER 6

Equity in mental health and mental health care in Britain

6.1 Introduction

> Inequalities in health arise, in part, because of inequalities in society. There is no society without inequalities. It is a major challenge to reduce the magnitude of social inequalities in health. To do so requires commitment and concerted action across many sectors of society (Marmot 2005, p. 3).

Reduction of health inequalities is a major policy goal in the UK. The importance of narrowing the health gap has been emphasised in a number of recent policy developments, such as the *Programme for Action* (2003) and the *Choosing Health* (2004) White Paper and its delivery plan. The *Programme for Action* stressed the need for action on a broad front to address inequalities across different geographical areas, between genders and different ethnic communities, and between social and economic groups. The *Choosing Health* White Paper provides strong support for tackling health inequalities. It stresses the importance of health inequalities as well as that of health improvement. Health inequalities are also identified as the first of six priorities in the White Paper delivery plan, *Delivering Choosing Health*, which was published in March 2005. The Wanless review, *Securing Good Health for the Whole Population: Final Report,* published in February 2004 stated that while individuals are primarily responsible for their own and their families' health, the Government has a major role in the process by providing the necessary framework improving health and tackling health inequalities.

The priority which the Government has given to tackling health inequalities is rooted in the fact that health is linked to social circumstances in childhood and adulthood and despite overall improvement in general health of the population over, say, the last 50 years, the health gap between the top and bottom ends of the social scale remains large.

As evidenced in many studies and reports, there is generally a social gradient in health in the UK. It is, therefore, generally recognised that as part of the overall goal of reducing health inequalities, priority should be to improve the health of the poorest groups and communities so as to bring their standards of health closer to those enjoyed by the rest of the country. There is no doubt that health inequalities are the result of a complex and wide-ranging network of factors. People who experience material disadvantage, poor housing, lower educational attainment, insecure employment or homelessness are among those more likely to suffer poorer health outcomes compared with the rest of the population. These disadvantages reinforce health inequalities and help sustain these inequalities across generations. As a result, despite overall improvements in health, those from lower socio-economic groups continue to suffer the worst health. It has been suggested, therefore, that health equity audits should be a key tool for policy decisions and should be a mandatory part of the planning programmes for health services (Department of Health 2005). Such audits are expected to help identify how fairly services or other resources match to the health needs of different groups. By using evidence on inequalities to inform decisions on investment, service planning, commissioning and delivery, health equity audits should help organisations address inequalities in access to services and in health outcomes. The recommendation, therefore (from the Department of Health), is to use data on health inequalities to support decisions at all levels, make appropriate comparisons by area, ethnicity, socio-economic group, gender etc.

While there has been so much emphasis on reducing inequalities in health, mental health has, however, not received considerable attention. For example, the omission of mental health indicators in the Report: *Tackling health inequalities: status report on programme for action* (Department of Health 2005) which focuses on monitoring health gaps for the national target for reducing inequalities and providing a baseline against which to measure current and future action, is quite striking. It has been acknowledged in the executive summary of the report that due to the constraints on data availability, the report does not cover all aspects of health inequalities and mental health is highlighted as an important gap that has not been dealt with in the report. While the report focuses mainly on a few headline indicators of health, the importance of other factors in tackling health inequalities, such as mental health and inequalities experienced by black and minority ethnic (BME) and other groups is, however, recognised. Thus, although there is official recognition of the disadvantaged position of people with mental health problems (Social Exclusion Unit 2004; DH 2005), the extent of inequality in respect of mental health problems – their incidence, prevalence and, particularly the association with socio-economic characteristics, has not been widely studied (Fryers *et al.* 2005). Similarly, the extent of income or socio-economic status-related inequalities in the use of mental health services has not been investigated using robust analytical methods and recent data.

This chapter aims to measure income-related inequality in the distribution of psychiatric disorders and in the use of mental health care services using data from the Psychiatric Morbidity Survey 2000 (Office for National Statistics 2000). The well-validated and widely used concentration index, discussed in chapter 5, is employed to examine income-related inequalities with respect to the presence of psychiatric disorders and the use of services among the general population of Britain. As this summary measure facilitates comparison between outcome measures, inequality in mental health is compared with inequality in general health. Using the decomposition technique described in chapter 5, concentration indices are decomposed to study the contribution of various factors to total inequality.

The chapter is organised as follows. Section 6.2 provides a brief description of the data and methods. Section 6.3 presents descriptive statistics of the sample studied. Results of statistical analyses are presented in section 6.4. Section 6.5 covers the discussion of the results. The concluding section 6.6 provides a summary of the results.

6.2 Data and methods

Data for this study were taken from the Psychiatric Morbidity Survey 2000, a cross-sectional survey of private households in England, Wales and Scotland, covering adults aged 16-74 years. The survey covered a representative sample of 8580 individuals. Details of the survey are described in chapter 5. Since the focus was on income-related inequalities, availability of valid information on income of the respondents or their family was crucial for any meaningful analysis. About 4% of the total sample did not have any information on income and hence were excluded from the analyses. The study sample therefore consists of 8261 individuals, for whom information on individual weekly income was available in the survey data. Weighted data has been used in all analyses in this study. The survey data were weighted to take account of the stratified survey design and differential non-response among regions and age groups in order to ensure that the results were representative of the household population aged 16-74 as a whole. As the assessment of disorders followed a two-stage approach, with an initial structured interview of the entire sample covering all the major topics and a second-stage clinical interview of a sub-sample, focussing on psychosis and personality disorder, response rates for the two stages differed. Separate weights were applied for the second stage interview data to account for the differential sampling probabilities and non-response.

In this study, income-related inequalities in mental health and in the use of services are measured using the concentration index approach. Estimations are based on the regression method suggested by the World Bank (2003) and Van Doorslaer *et al.* (2004) and elucidated in chapter 5. Concentration indices are estimated in relation to several mental health indicators of the population of Britain which are derived from the Psychiatric Morbidity Survey 2000 data. Concentration index for an indicator of the use of mental health services is also estimated using the same approach and compared with the main mental health morbidity indicator (the normative indicator of need). The living standards measure with reference to which these inequalities are measured is individual income. Although it would have been preferable to have used equivalised household income, it was not possible to do so as only 60% of the sample had information on household income compared to 96% with information on individual income. Income information was collected in the survey using broad bands and there was no information on net income. Using gross income is however not inappropriate in this context as mental health is influenced by the type of housing, area of residence, social standing etc., which are influenced ,by gross income. The normal tradition of using income quintiles is followed in all analyses although it would be possible to use other ways to split the range, such as deciles. Presenting distribution of health variables by income quintiles facilitates a convenient way of understanding the gradient in the distribution.

The mental health outcome measures analysed are symptoms and scores based on the CIS-R and SCAN. Three outcome measures based on the CIS-R scores and SCAN assessments which are considered to be of analytical importance in the field of psychiatry were identified thorough personal communication with experts. These three were: the total CIS-R scores, scores of 12+ which are termed 'cases' by the architects of the survey (Singleton *et al.* 2001), and 'probable psychosis'. Since the sample for the second stage interview in the survey was small and there were some non-responses, an assessment of probable psychotic disorder was employed to obtain an estimate of the prevalence of psychotic disorder based on the whole sample who had undertaken an initial interview (Singleton *et al.* 2001). This was based on an algorithm that identified factors associated with an increased likelihood of receiving a SCAN assessment of psychotic disorder, developed in the survey of prisoners (Singleton *et al.* 1998). Results for these three outcome measures have been analysed.

In addition to the three indicators described above, a few other indicators were also included in this study for a better understanding of the mental health profile of the country, from a social science researcher's perspective. In keeping with the theoretical arguments presented in the preceding chapters, indicators of 'normative' and 'felt' needs were analysed. Self-reported mental health problems represented by a score of >2 on any of the 14 symptoms in the CIS-R was used as an indicator of individual perception of illness, the 'felt need'. The OPCS Report 1 defines this level of symptoms as 'symptoms of moderate to high severity' (Meltzer *et al* 1995, p. 32). The medical indicator of mental health, the 'normative need' was derived from the clinical assessment instruments used in the survey i.e., those with either a total score of >12 on the CIS-R or were assessed to have 'probable psychosis'. In addition to this overall measure of 'normative need', inequalities by major diagnostic categories have also been analysed. Since the CIS-R generates a total score that can be conceived as a measure of neurotic disorder along a continuum of severity, results for these scores at different levels – low, moderate and severe - were also analysed.

The indicators of morbidity and service use analysed are the following:

Morbidity

1. Total CIS-R scores

2. 'Cases' – CIS-R scores 12+

3. Probable psychosis

4. Self-reported illness symptoms: CIS-R score of more than 2 on any of the 14 symptoms in the CIS-R.

5. Clinical assessment of mental illness: Total CIS-R score of 12+, which is defined as the overall threshold score for significant neurotic psychopathology (OPCS 1993 Report 1, p. 6 & 13) or assessed to be positive for psychosis according to SCAN and the algorithms used for assessment where SCAN was not administered (probable psychosis).

6. Three levels of CIS-R scores - low (2-11), moderate (12-17) and high (18+).

7. Diagnostic categories – Generalised Anxiety Disorder (GAD), Mixed Anxiety and Depression (MAD), Obsessive Compulsive Disorder (OCD), panic disorder, phobias and depression.

All these indicators, except total CIS-R scores, were dummy variables with score one if the individual belonged to the group and zero other wise. Total CIS-R scores was a continuous variable with values ranging between 0-54.

Use of services

A dummy variable scored one if the individual used any health, social care or voluntary services during the previous 12 months and zero otherwise.

6.3 Descriptive statistics

Tables 6.1- 6.3 present basic descriptive statistics for the study sample.

Table 6.1: Socio-economic and demographic characteristics of the study sample

Variable	**(Sample N = 8261)**
	n (%)
Gender	
Male	3706 (44.9)
Female	4555 (55.1)
Age years	
16-24	780 (9.4)
25-34	1660 (20.1)
35-44	1801 (21.8)
45-54	1496 (18.1)
55-64	1353 (16.4)
65-74	1171 (14.2)
Employment status	
Full-time employed	3758 (45.5)
Part-time employed	1422 (17.2)
Unemployed	255 (3.1)
Economically inactive	2826 (34.2)
Ethnicity	
White	7789 (94.3)
African	178 (2.2)
Asian	156 (1.9)
Other	138 (1.6)
Educational qualifications	
Degree	1212 (14.7)
A-level	1110 (13.4)
GCSE or equivalent	2892 (35.0)
Nursing/teaching/ HND	605 (7.3)
No qualifications	2441 (29.5)
Marital status	
Married	4182 (50.6)
Single	2243 (27.0)
Divorced	947 (11.5)
Widowed	546 (6.6)
Separated	352 (4.3)
Housing tenure	
Owned - outright	2072 (25.1)
Owned - mortgage	3794 (45.9)
Renting - LA or HA	1616 (19.6)
Renting-private	769 (9.3)

The total sample of 8261 adults was distributed fairly equally between male and females and different age-groups with the exception of the age-group 16-24. About 37% of the sample was either unemployed or economically inactive. Forty five percent were in full-time employment and the rest in part-time employment. The sample had a very small proportion of non-white population. Therefore, most of the results from this study apply to the white majority of the population of Britain. The limitation of not having a large sample of ethnic minorities is dealt with later in the thesis, in chapter 8, where data from the survey of Ethnic Minority Psychiatric Illness Rates in the Community (EMPIRIC) 2000 are analysed. Fair representations for persons with different levels of education, different marital status and housing tenures are to be found in the data. These are expected to be nationally representative and therefore will provide estimates that will be relevant at the national level. Table 6.2 provides the percentage distribution of the sample by health authority regions.

Table 6.2: Geographical distribution of the study sample

Health Authority Regions	**(Sample N = 8239)**
	n (%)
North & Yorkshire	929 (11.2)
Trent	713 (8.6)
West Midlands	715 (8.7)
North West	948 (11.5)
Eastern	806 (9.8)
London	842 (10.2)
South East	1278 (15.5)
South west	761 (9.2)
Wales	381 (4.6)
Scotland	888 (10.7)

In Table 6.3, descriptive statistics for the main clinical characteristics of the sample are presented. Although about 56% of the sample had reported moderate to severe mental health symptoms, only about 17% of these had what may be termed 'clinically assessed illness' or 'normative need'. Only 0.7% of the sample had what is termed 'probable psychosis'. All these groups are analysed separately in the analyses that follows in the next section. As can be noted, nearly 40% of the sample was associated with what is termed CIS-R low. These as well as those with moderate or high level or CIS-R scores are distinguished in the analyses. The proportions identified with the diagnosis of common neurotic disorders are also shown in the table. The highest percentages are for mixed anxiety and depression (9%) and panic disorder (7%). Separate analyses for these diagnostic categories are also carried out in the next section.

Table 6.3: Clinical characteristics of the study sample

Clinical Variables	**(Sample N = 8261)**
CIS-R score	
Range	0-54
Mean (s.d)	5.5 (7.3)
Median	3.0
	n (%)
CIS-R low	3263 (39.5)
CIS-R moderate	682 (8.3)
CIS-R high	669 (8.1)
Presence of psychiatric disorders	
Self-reported illness symptoms	4608 (55.8)
Clinically assessed illness	1368 (16.6)
Probable psychosis	56 (0.7)
Depression	244 (3.0)
MAD	742 (9.0)
GAD	414 (5.0)
OCD	112 (1.4)
Phobias	169 (2.0)
Panic disorder	66 (0.8)

The data provide useful information on all important mental health indicators for a very large nationally representative sample. A major strength of the data is that mental health morbidity indicators are measured using standardised psychiatric instruments.

6.4. Results

6.4.1 Income-related inequalities in mental health

Income-related inequality results for the three indicators of mental health morbidity suggested by the experts are presented here initially. These results are analysed further using the other indicators described in section 6.2.

Figure 6.1 presents the concentration curves for the three outcome measures – total CIS-R scores, 'cases' and 'probable psychosis'. Cumulative percentage of population ranked by income is measured along the horizontal axis, with the lowest income nearest to the origin. The vertical axis measures the cumulative percentage of mental health problems corresponding to the cumulative percentage of income distribution. The concentration curves provide an indication of the nature of income-related inequality in mental health. While all curves are above the equality line - suggesting inequality unfavourable to the lower income groups - the level of inequality is exceptionally high for psychosis in comparison to the other measures. The bottom two quintiles account for 80% of all psychosis cases, with 50% of them belonging to the second lowest quintile. The curve for the CIS-R total scores plots the share of total value of scores for the population in each income quintile. This curve for CIS-R total score is very close to the curve for 'cases' (CIS-R >12). Further analysis (detailed below) reveals that although the share of low-level CIS-R scores is quite high among those in the top income quintiles, their share of more serious problems, represented by CIS-R score >18 is remarkably low in comparison to those in the lower income quintiles.

These concentration curves use unstandardised sample information. As discussed in chapter 5, to eliminate the possible confounding effects of demographic variables, it is essential to standardise the variables. Age-gender standardised concentration indices for the indicators used in Figure 6.1 were estimated, using the indirect standardisation method. In Table 6.4, both the unstandardised and standardised concentration indices are presented. All indices are negative and all significantly different from zero, indicating the existence of income-related inequalities in mental health in Britain, even after adjustment for age and gender. It is interesting to note the variation in these indices and the rather high level of inequality for psychosis, compared to other indicators.

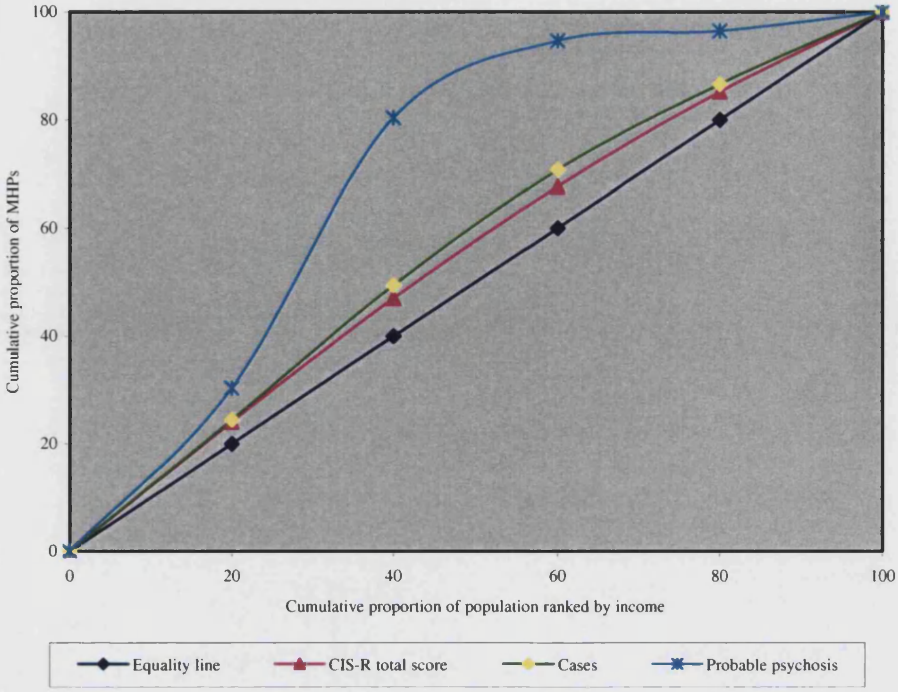


Fig 6.1: Concentration curves for CIS-R total scores, cases and probable psychosis

Table 6.4: Inequality in adult mental health in Britain, 2000

Mental health measure	Quintile Means					Unstandardised CI	t-value	Standardised CI	t-value
	Low	2	3	4	High				
Total CIS-R score	5.96	6.5	5.28	4.66	4.15	-0.07976	-9.39	-0.09474	-11.51
Cases	0.170	0.205	0.153	0.122	0.109	-0.10572	-6.84	-0.13128	-8.89
Probable psychosis	0.011	0.007	0.004	0.001	0.001	-0.43936	-3.43	-0.66677	-3.84

Notes:
1. CI = concentration index
2. Standardised CI = standardised for age and gender.

After standardising the distributions for the demographic composition of the quintiles, the standardised indices are higher than the unstandardised indices for all indicators. What the standardised results suggest is that, if everyone had the same (mean) age-gender effects as the entire population, the expected distribution of mental health problems would be *more* unequal than is currently observed. The results of standardisation were tested for full as well as partial correlations of the mental health indicators with the demographic standardising variables. As it is possible that variables such as educational qualifications, employment status, marital status and characteristics of the area of residence (rural, urban or semi-urban) may be correlated with demographic confounders, standardised concentration indices were estimated with the inclusion of these controls as well.

Table 6.5: Concentration indices – unstandardised and standardised, with and without controls

		Standardisation results		
Mental health measure	**Unstandardised**	**Age & gender only**	**Age & gender + controls (Qlfs, martial status & area)**	**Age & gender + controls (Qlfs, martial status, area & emply.status)**
	CI (t-value)	**CI (t-value)**	**CI (t-value)**	**CI (t-value)**
Total CIS-R score	-0.07976 (-9.39)	-0.09474 (-11.51)	-0.10248 (12.45)	-0.11176 (13.49)
Cases	-0.10572 (-6.84)	-0.13128 (-8.89)	-0.14234 (-9.64)	-0.14629 (9.87)
Probable psychosis	-0.43936 (-3.43)	-0.66677 (-3.84)	-0.66256 (-3.82)	-0.46201 (-3.44)

Notes:
1. Qlfs = educational qualifications
2. area = rural, urban or semi-urban
3. emply.status = employment status

Results of standardisation with and without these control variables are given in Table 6.5. It can be seen that the results are only slightly different from those obtained when only age and gender are included. Exclusion of control variables results in very small under-estimation of inequality. It should also be noted that the control variables (except maybe marital status) are associated with income. Inclusion of other variables such as ethnicity did not result in any significant difference in the indices. The implications of this result are as discussed before: (i) if everyone had the mean age-gender effects of the entire population, the expected distribution for these disorders would be more unequal than what is currently observed; and (ii) all of the inequality observed for these disorders may, therefore, be linked to income and none to unavoidable demographic characteristics, although of course we need to be careful about attributing causality as we are working with cross-sectional data.

While these results are interesting and illuminating, they cover inequalities in only the indicators of 'normative need' that is important from a service provider's perspective. To follow the informational requirements suggested by the theoretical framework in chapter 4, information on symptoms was utilised to estimate inequality in 'felt needs' and these were compared with a combined measure of 'normative need' ('cases' and 'probable psychosis'). The information available from psychiatric morbidity survey data was rich enough to allow further analysis to be carried out for better exposition of the inequalities from a more general societal perspective. It was possible to disaggregate the indicators further to find out more about the distribution of common mental health problems and their levels of severity. Results for these additional indicators of mental health morbidity are discussed below.

In Figure 6.2, income is measured along the horizontal axis, with the lowest income quintile nearest to the origin. The vertical axis measures the percentage of those with mental health problems within income quintiles. The measure of morbidity used to represent self-reported mental illness is a score of >2 on any of the 14 symptoms in the CIS-R. It can be seen that, for this indicator, there is a clear gradient with the percentage of those reporting mental health problems (symptoms) decreasing with increase in income. Clinically assessed problems (normative need) defined by a score of >12 on the CIS-R ('cases') or assessed positive for ‘probable psychosis’, show a slightly different pattern with the highest percentage of persons with problems being concentrated in the second income quintile.

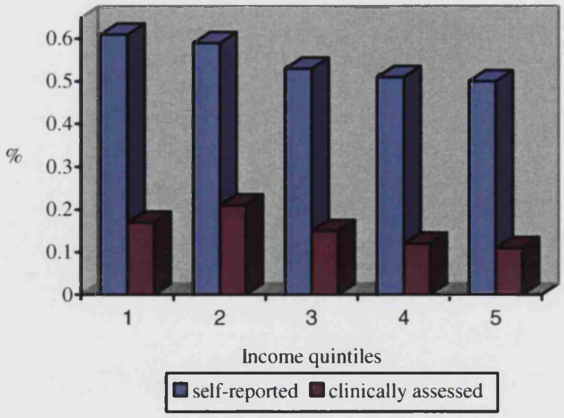


Fig 6.2: Distribution of self-reported and clinically assessed mental health problems

The concentration curves in Figure 6.3 provide a better indication of the overall level of inequality in self-reported and clinically assessed mental health problems. Both the curves lie above the diagonal (equality line), suggesting concentration of mental health problems among the poor. However, a greater inequality can be observed for the distribution of clinically assessed disorders.

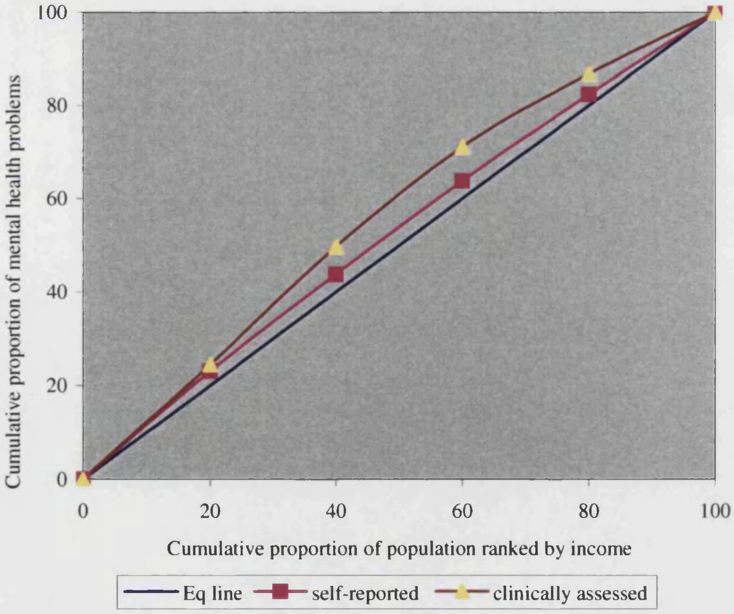


Fig 6.3: Concentration curves for self-reported and clinically assessed mental health problems

To understand the nature of self-reported problems further, in Figure 6.4, three levels of problems – low, moderate and high, defined by CISR scores of < 12, 12-17 and >18 - are considered. It can be seen that while the share of low level of problems among those in the top two income quintiles is quite high, their share of more serious problems, represented by CISR score of >18 is remarkably low in comparison to those in the lower income quintiles. The second lowest income quintile accounts for the highest share of both moderate and high level of mental health problems.

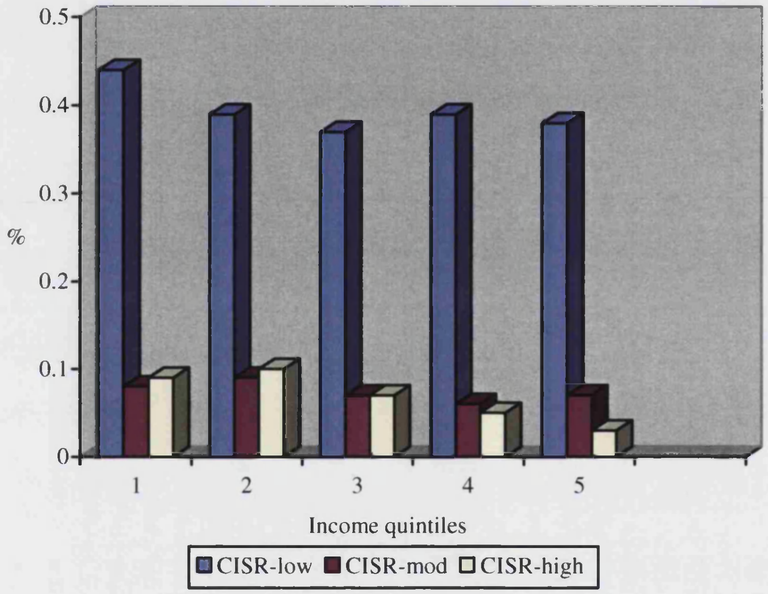


Fig 6.4: Distribution of mental health problems - low, moderate and high

In Figure 6.5, the concentration curves for low, moderate and high levels of problems are presented. The nature of income-related inequality in mental health can be noticed much more clearly from this figure. The extent of inequality increases with the severity of problems, with the greatest inequality observed for CIS-R high.

The concentration curves in the Figures 6.3 and 6.5 use unstandardised sample information. As discussed above, to eliminate the possible confounding effects of demographic variables, it is essential to standardise the variables. Age-gender standardised concentration indices were estimated for all the indicators used in Figures 6.3 and 6.5 in order to check if the level of inequalities observed are due to demographic confounders. The unstandardised and standardised concentration indices are presented in Table 6.6. As expected all indicators show distributions that favour the rich. All of the concentration indices are negative and also significantly different from zero (except the standardised index for CIS-R-low), indicating significant income-related inequalities in mental health in Britain. It is interesting to note the variation in these indices and the rather high level of inequality for CIS-R-high, compared to other indicators. The negative values of all indices imply that even after taking the demographic structure of the sample into account, inequalities favour the rich.

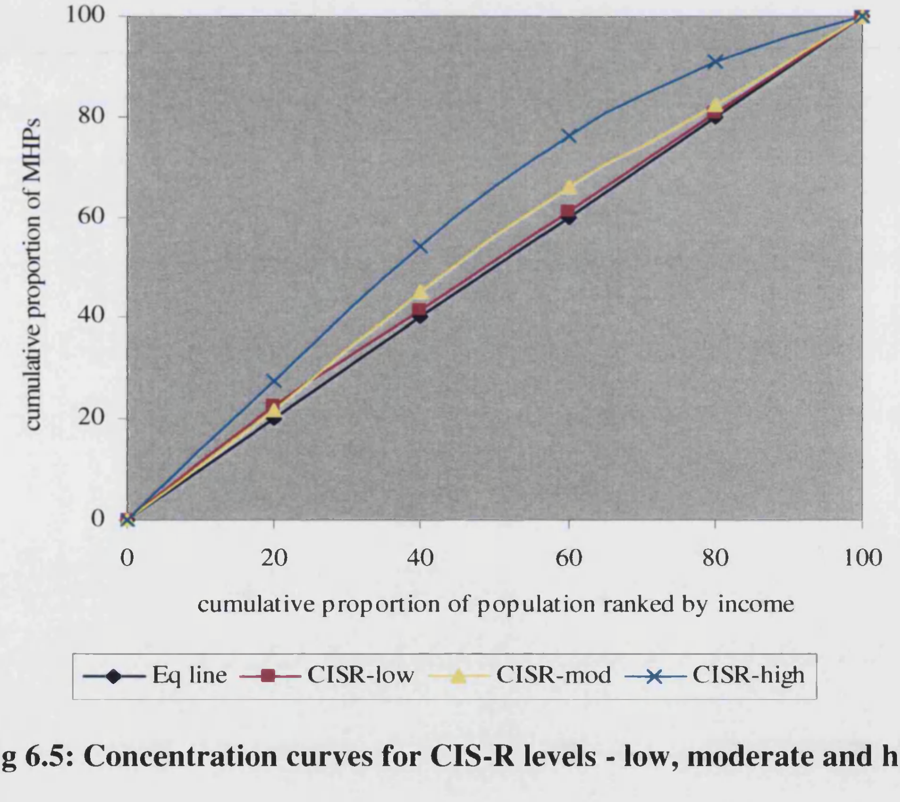


Fig 6.5: Concentration curves for CIS-R levels - low, moderate and high

After having standardised the distributions for the demographic composition of the quintiles, using the convenient indirect standardisation approach (described in chapter 5), the degree of inequality is slightly reduced for the overall self-reported problems and moderate level of problems, implying that some of the inequality observed is due to the demographic structure of the sample. For example, those in lower income groups, in general, are males and females in age groups 16-24 and 55-74. It is possible that they report more symptoms and problems than other demographic groups. The standardised indices for clinically assessed problems and high level of problems appear to be more interesting, being higher than the unstandardised ones.

Table 6.6: Inequality in adult mental health in Britain, 2000 by some unconventional measures of need

Mental health measure	Quintile Means					Unstandardised CI	t-value	Standardised CI	t-value
	Low	2	3	4	High				
Self-reported MHPs	0.607	0.597	0.530	0.513	0.496	-0.02377	-7.16	-0.02082	-5.44
Clinically assessed MHPs	0.172	0.207	0.154	0.122	0.109	-0.05638	-6.91	-0.07367	-7.31
CIS-R-low	0.437	0.393	0.379	0.393	0.387	-0.01129	-2.46	-0.00115	-0.22
CIS-R-Moderate	0.083	0.099	0.075	0.066	0.072	-0.03127	-2.58	-0.02917	-2.05
CIS-R-High	0.087	0.105	0.078	0.056	0.037	-0.08213	-7.00	-0.11762	-7.42

Notes:
1. Self-reported mental health problems (MHPs) = Score of >2 on any of the 14 symptoms in the CIS-R (clinical interview schedule-revised).
2. Clinically assessed mental health problems (MHPs) = Total score of >12 on CIS-R or assessed + for 'probable psychosis'.
3. CISR-low = Total score of < 12.
4. CISR-moderate = Total score of 12 – 17.
5. CISR- high = Total score of >18.

What the standardised results suggest is that if everyone had the mean age-gender effects as the entire population, self-reported problems and moderate level of problems would be less unequal than what is currently observed but the expected distribution of clinically assessed problems and severe mental health problems (CIS-R-high) would be more unequal than what is currently observed. One implication of the standardised index for the clinically assessed problems and more severe problems is that all of the observed inequality is due to income and none due to unavoidable demographic characteristics. Another implication is that the more severe mental health problems are not correlated with age and gender because, when we standardise the variables, rather than using the actual sample proportions falling into each of the mental health categories in each income quintile, we use the demographically expected (i.e., age-gender standardised) proportions.

In Figure 6.6 unstandardised concentration curves for six major diagnostic groups of neurotic disorders are presented for comparison. The degree and nature of income-related inequality in relation to these diagnostic groups can be easily observed. Panic disorders and phobias show very high concentration among the lower income groups, compared to other major neurotic disorders. Adhering to the methodological requirement, unstandardised and standardised concentration indices for these groups of disorders were estimated which are presented in Table 6.7. Once again negative indices, significantly different from zero, indicate inequality unfavourable to the lower income groups with respect all of the disorders. Panic disorder, phobias, obsessive compulsive disorder (OCD), generalised anxiety disorder (GAD), depression and mixed anxiety and depression (MAD) affect those in lower income groups much more significantly than the better off.

The standardised indices for panic disorder, depression, generalised anxiety disorders and phobias are higher than the unstandardised indices. The implications of this result are similar to what was discussed earlier in the case of other outcome measures. Standardised *CI*s for mixed anxiety and depression and obsessive compulsive disorder are slightly lower than the unstandardised indices, suggesting that some of the observed inequality for these disorders may be due to the age-composition of the sample.

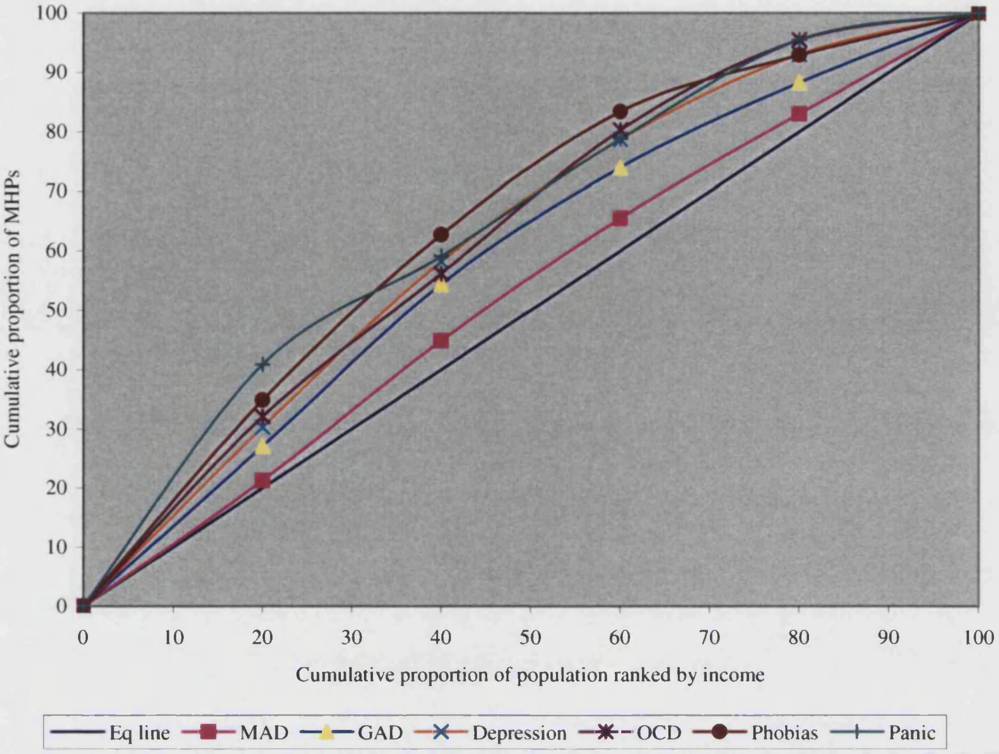


Fig. 6.6: Concentration curves for the major diagnostic categories of disorders

Table 6.7: Inequality in adult mental health in Britain, 2000 by major diagnostic groups

Mental health measure	Quintile Means					Unstandardised CI	t-value	Standardised CI	t-value
	Low	2	3	4	High				
Depression	0.034	0.040	0.026	0.014	0.012	-0.11018	-5.53	-0.17763	-5.97
GAD	0.054	0.066	0.039	0.034	0.031	-0.07051	-4.62	-0.12677	-6.26
MAD	0.089	0.107	0.087	0.080	0.075	-0.02659	-2.31	-0.02320	-1.69
OCD	0.015	0.018	0.012	0.009	0.002	-0.10623	-4.09	-0.10552	-2.91
Panic	0.028	0.033	0.018	0.009	0.006	-0.14004	-6.14	-0.21093	-6.53
Phobia	0.025	0.030	0.016	0.009	0.006	-0.13518	-5.84	-0.18233	-5.57

Notes:
GAD = Generalised anxiety disorder
MAD = Mixed anxiety disorder
OCD = Obsessive compulsive disorder

For a much more disaggregated analysis of the problems, the 14 symptoms used in CIS-R were analysed. In Table 6.8, the *CI*s for these symptoms are presented. Graphical illustration of the variation in the level of observed inequalities, represented by the unstandardised *CI*s for the 14 symptoms is provided in Figure 6.7, which plots the *CI*s with their 95% confidence intervals. Indices are arranged in order of increasing level of inequality, from left to right.

Table 6.8: Inequality in adult mental health in Britain, 2000 by major symptoms

Mental health measure	Quintile Means					Unstandardised CI	t-value	Standardised CI	t-value
	Low	2	3	4	High				
Somatic symp	0.663	0.094	0.067	0.065	0.057	-0.02495	-2.01	-0.04049	-2.51
Fatigue	0.313	0.323	0.275	0.246	0.215	-0.04028	-6.96	-0.04568	-6.68
Concent/forgetful	0.100	0.129	0.098	0.088	0.074	-0.03878	-3.69	-0.06761	-5.41
Sleep problems	0.348	0.357	0.263	0.252	0.219	-0.05360	-9.57	-0.04489	-6.83
Worry about physical health	0.081	0.107	0.073	0.048	0.037	-0.08442	-6.92	-0.12256	-7.64
Depressed	0.122	0.146	0.100	0.101	0.077	-0.04949	-4.82	-0.07685	-6.15
Depressed ideas	0.121	0.119	0.093	0.079	0.056	-0.07414	-6.98	-0.09415	-6.89
Worry	0.203	0.194	0.189	0.179	0.184	0.01215	-1.60	-0.02096	-2.34
Anxiety	0.092	0.110	0.085	0.727	0.066	-0.04252	-3.77	-0.07199	-5.04
Phobias	0.061	0.063	0.043	0.031	0.029	-0.08159	-5.28	-0.07860	-4.00
Panic	0.028	0.033	0.018	0.009	0.006	-0.14004	-6.14	-0.21093	-6.53
Compulsions	0.036	0.046	0.031	0.023	0.017	-0.08396	-4.54	-0.08118	-3.69
Obsessions	0.063	0.071	0.065	0.043	0.037	-0.05274	-3.94	-0.04057	-2.37
Irritability	0.202	0.228	0.202	0.192	0.176	-0.01818	-2.51	-0.03462	-4.04

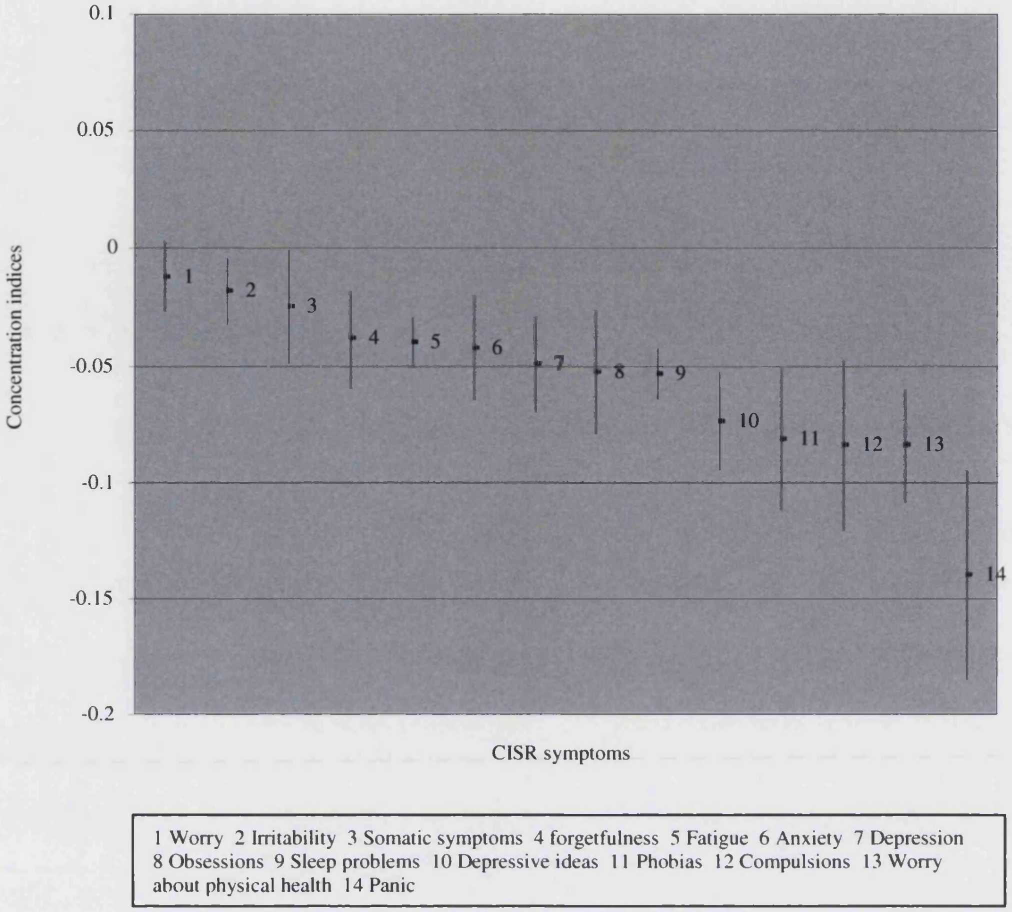


Fig. 6.7: Concentration indices for the 14 CIS-R symptoms with 95% confidence intervals

All of the symptoms have concentration indices that are negative and significant, indicating inequality unfavourable to the poor. The symptoms with the lowest levels of inequality are worry and irritability, which by implication affect those in higher income groups too quite significantly. Symptoms with large inequality indices are panic disorder, compulsions, phobias and worry about physical health. It should be noted that of these four symptoms, the first three also have wider confidence intervals than most other symptoms. That, however, does not alter the result that these symptoms are disproportionately concentrated among the less well-off.

Results of standardised concentration indices are useful in knowing whether the distributions of these symptoms are associated with the demographic composition of the sample. From Table 6.8, it can be seen that in the case of phobias, compulsions, obsessions and sleep problems, unstandardised *CI*s are larger than the standardised *CI*s, One implication of this result is that, while lower income groups experience these symptoms more than expected, some of the observed inequality for these symptoms may be simply due to the age-gender composition of the sample. For all other symptoms unstandardised *CIs* are lower than the standardised *CIs*, indicating lower levels of observed inequality than expected, given the demographic composition of the income quintiles. The implication once again is that all of the observed inequality is attributable to income levels.

Decomposition of inequality indices into contributing factors

The inequalities in mental health and in the use of services stem from inequalities in the determinants of these variables. Income is only one of the determinants, which influences the health variables directly as well as indirectly. Having measured income-related inequalities in the health sector, it is useful to see how much of the measured inequality is due mainly to income and how much is due to other variables which are linked with income distribution. Therefore, to understand the causes of inequalities further, the concentration indices are decomposed and the relative contribution of inequalities within each of the potential determinants, to the overall inequality index are assessed. The core idea is to explain the distribution of the health variable in question by a set of factors which vary systematically with income.

Using methods suggested by Wagstaff *et al* (2003) and described in chapter 5, the concentration index is decomposed in order to separate the contributions of income and other variables (e.g., education, job status, marital status and region) to total inequality. The total contribution of a variable is a product of its elasticity with reference to the health variable and the inequality in the distribution of the variable itself. Results of such decomposition analysis for the indicator of 'normative need' – the clinically assessed mental health problems - are presented in Table 6.9 and Figure 6.8. Since there is much interest in the more disabling conditions such as psychosis, the decomposition analysis was also applied separately to the indicator 'probable psychosis', results of which are presented in Table 6.10 and Figure 6.9. The reference category used in the analyses is fully employed male, living in the North, single, with a university degree, owning house outright and belonging to ethnic group classified as other.

Table 6.9: Decomposition of concentration index for clinically assessed mental illness

CI for clinically assessed mental illness = -0.056				
Variables	**Elasticities**	**Concentration index**	**Contribution**	**Group contribution (Sum)**
Male16-24	0.010	-0.308	-0.003	
Male25-34	0.043	0.361	0.016	
Male35-44	0.057	0.421	0.024	
Male45-54	0.052	0.384	0.019	
Male55-64	0.031	-0.156	-0.004	**0.052**
Female16-24	0.028	-0.374	-0.011	
Female25-24	0.069	-0.039	-0.003	
Female 35-44	0.075	-0.076	-0.005	
Female 45-54	0.069	-0.097	-0.006	
Female 55-64	0.035	-0.311	-0.011	
Female 65-74	0.006	-0.398	-0.002	**-0.038**
Income	-0.056	0.324	-0.018	**-0.018**
Other ethnic	-0.177	0.002	0.000	
African	-0.006	-0.047	0.000	
Asian	-0.002	-0.113	0.000	**0.000**
No Qualifications	0.014	-0.282	-0.004	
GCSC	-0.005	-0.052	0.000	
Alevel	0.002	-0.121	0.000	
Teaching/nursing/ HND	0.002	0.272	0.000	**-0.004**
Trent	-0.003	-0.057	0.000	
Wmidlands	-0.006	-0.032	0.000	
Northwest	-0.017	-0.059	-0.001	
East	-0.001	0.079	0.000	
London	0.058	0.134	0.000	
South east	-0.009	0.066	0.000	
Swest	0.020	0.000	0.000	
Wales	0.005	-0.056	0.000	
Scotland	-0.012	-0.026	0.000	**-0.001**
Married	-0.055	0.018	-0.001	
Separated	0.009	0.039	0.000	
Divorced	0.020	0.016	0.000	
Widowed	0.002	-0.180	0.000	**-0.001**
Part-time employed	0.008	-0.252	-0.002	
Unemployed	0.003	-0.578	-0.002	
Inactive	0.148	-0.383	-0.057	**-0.061**
LA house	0.067	-0.311	-0.021	
Rented house	0.026	-0.042	-0.001	
Mortgage	0.069	0.180	0.123	**0.101**

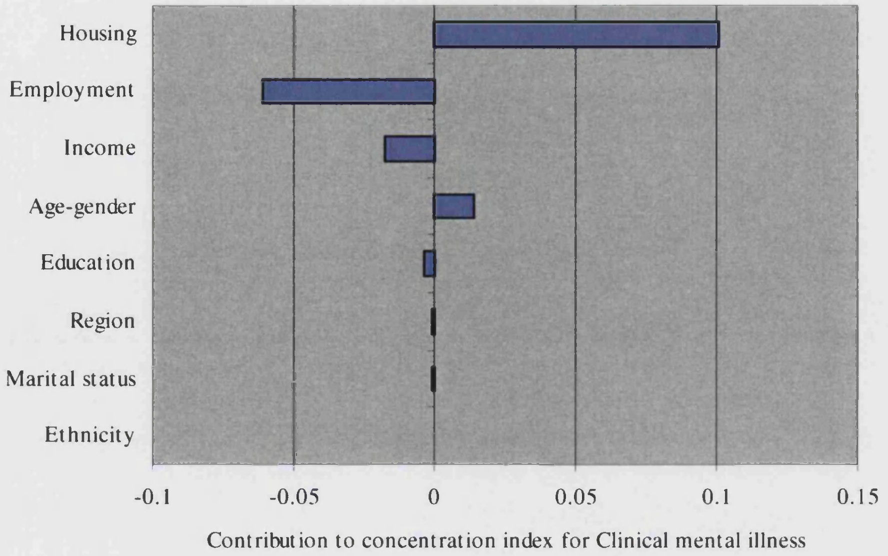


Fig 6.8: Income related inequality in clinically assessed mental health problems by source

The column ‘contribution to CI’ reveals the contribution of each of the determinants considered in the model to the overall concentration index for the variable under consideration. The column 'concentration index' represents the distribution of the variable itself with reference to income. A determinant will have a greater contribution if it is more unequally distributed by income or if it has a greater elasticity, i.e., a stronger effect on the variable of interest. It can be seen from group contributions shown in the last column that in both the tables (Tables 6.9 & 6.10), the effect of unfavourable employment status is stronger and it contributes much more to the total inequality in the health variable than income inequality itself (also shown in Figures 6.8 and 6.9). Inequality in income distribution itself accounts for only -0.038 points for all clinically assessed mental health problems (Table 6.9) but accounts for a much higher contribution for 'probable psychosis of -0.305 points (Table 6.10). Reducing the numbers of unemployed and economically inactive persons is likely to have the greatest impact on reducing the overall inequality in mental health. The economically inactive group ought to be a high priority group, particularly in relation to 'probable psychosis', where the contribution of this group to the total inequality index is quite high at -0.29 units and also the effect is especially high with elasticity represented by 0.765 points .

The effect of demographic (age and gender) variables is quite marked for 'probable psychosis' but it is not so when we take all clinically assessed mental health problems into account. The effect, represented by elasticity, is generally stronger for men in the age-group 25-54. The strongest effect for both males and females is for the age-group 35-44. It is interesting to note that the effect of housing tenure is that it contributes quite significantly to reducing the overall inequality (the effect being positive) in clinically assessed mental illness but adds to inequality in the case of psychosis. The reason for the negative result for psychosis is the high elasticity of the variable representing local authority housing. The regional variables do not appear to contribute to overall inequality in mental health noticeably. However, regions contribute marginally to inequality in the case of probable psychosis. Not surprisingly, the greatest contribution to inequality within the group of regions comes from London. Ethnicity does not contribute to overall inequality noticeably but this is likely to be due to the very small number of non-whites in the sample. Although the overall contribution of the marital status variables to total inequality is marginal in the case of both the indicators studied, effect of being divorced is noticeable in both cases. In the case of probable psychosis, being single also has a strong effect.

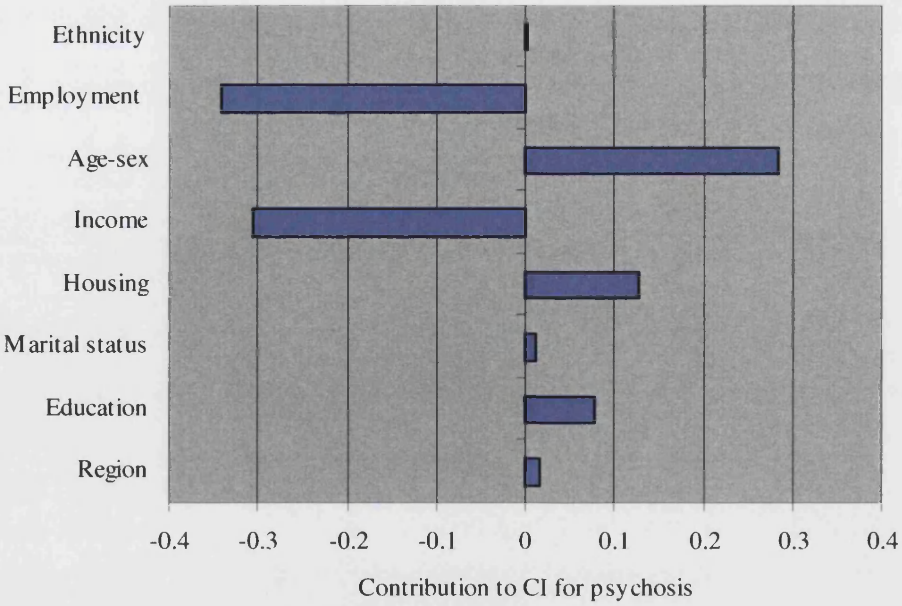


Fig 6.9: Income-related inequality in probable psychosis by source

Table 6.10: Decomposition of concentration index for probable psychosis

Concentration index for psychosis = -0.439				
Variables	**Elasticities**	**Concentration index**	**Contribution**	**Group contribution (Sum)**
Male16-24	-0.036	-0.275	0.010	
Male25-34	0.315	0.289	0.091	
Male35-44	0.533	0.214	0.114	
Male45-54	0.334	0.287	0.096	
Male55-64	0.255	0.039	0.010	**0.322**
Female16-24	0.032	-0.335	-0.011	
Female25-24	0.143	0.058	0.008	
Female 35-44	0.399	-0.030	-0.012	
Female 45-54	0.153	-0.127	-0.019	
Female 55-64	0.136	-0.152	-0.021	
Female 65-74	-0.037	-0.428	0.016	**-0.039**
Income	-0.998	0.305	-0.305	**-0.305**
Other ethnic	-0.013	-0.183	0.002	
African	0.091	-0.009	-0.001	
Asian	0.001	-0.165	0.000	**0.002**
No Qualifications	-0.261	-0.274	0.072	
GCSC	0.265	-0.090	-0.024	
A level	0.003	0.167	0.001	
Teaching/nursing/ HND	0.086	0.340	0.029	**0.077**
Trent	-0.013	-0.140	0.002	
Wmidlands	-0.054	-0.103	0.006	
Northwest	0.042	-0.123	-0.005	
East	-0.098	0.001	0.000	
London	-0.100	0.144	-0.014	
South east	0.085	0.089	0.008	
Swest	-0.069	0.173	-0.012	
Wales	-0.022	-0.070	0.002	
Scotland	-0.067	0.011	-0.001	**-0.016**
Single	0.490	0.045	0.022	
Separated	0.020	0.015	0.000	
Divorced	0.399	-0.071	-0.028	
Widowed	0.025	-0.287	-0.007	**-0.013**
Part-time employed	0.367	-0.241	-0.088	
Unemployed	-0.076	-0.461	0.035	
Inactive	0.765	-0.374	-0.286	**-0.340**
LA house	0.416	-0.302	-0.125	
Rented house	0.070	0.016	0.001	
Mortgage	-0.017	0.223	-0.004	**-0.128**

6.4.2 Income-related inequalities in the use of services

Any equity analysis is incomplete without an analysis of the distribution of services in relation to the distribution of needs. Actual, need-predicted and need-standardised (need-corrected inequality) concentration indices for *inequalities in the use of services* with reference to 'normative needs' and 'felt needs' are presented in Tables 6.11 and 6.12 respectively.

Table 6.11: Distribution of actual, need-predicted and need-standardised use of mental health services for clinically assessed (normative) needs

	Probability of using services				
Income quintiles	**Actual**	**Needed**	**Difference**	**Needed**	**Need-standardised**
		Predicted using probit	Actual minus predicted	Predicted using probit and controls	Predicted using probit and controls
Lowest	0.211	0.185	0.025	0.219	0.170
2nd	0.229	0.201	0.028	0.230	0.177
3rd	0.183	0.177	0.007	0.170	0.191
4th	0.146	0.164	-0.018	0.137	0.187
Highest	0.110	0.159	-0.049	0.121	0.167
Mean	0.178	0.178	0.000	0.178	0.178
			HI		**HI**
CI (t-value)	-0.12925 (-9.22)	-0.03976 (-7.56)	-0.0895 (-6.80)	-0.13185 (-23.42)	0.00260 (0.20)

Notes:
1. Need = clinically assessed need (CIS-R 12 + or 'probable psychosis')
2. CI = Concentration index
3. HI = Horizontal index of inequality

In Table 6.11, standardisation of the distribution is for the 'normative' or 'clinically assessed need', represented by the presence of a CIS-R score of 12+ or 'probable psychosis'. In Table 6.12, similar results are presented, for the sake of comparison, with standardisation of the distribution for 'felt needs' or 'self-reported mental health problems'. As can be noted from the two tables, need-standardised results do not differ much.

The concentration index for the distribution of actual use of services is -0.129. The index is negative and statistically significant. The negative value of the index means that those in lower income groups are more intensive users of services. As discussed in chapter 5, for the equity analysis it is essential to standardise the distribution for need for services. Using the indirect standardisation method, need-predicted probabilities of using the services were estimated. Standardisation for 'normative' or 'clinically assessed' needs was carried out, the concentration index for the need-predicted use reduced considerably in magnitude to -0.039. The implication is that although low income groups are more intensive users of services, this is due to the fact that their needs are also greater than those in the higher income groups. Some of the inequality in the distribution of use may therefore be justified by the greater level of needs among the lower income groups. The horizontal index of inequality (HI) which is the difference between the actual and need-predicted use is -0.089, which indicates that even after taking into account the greater level of needs among the lower income groups, the distribution would still be pro-poor, that is, the poor are expected to use more services than expected on average given their level of need. The difference between actual and need-predicted use gives us an indication of the extent of over-use or under-use of services within quintiles. For example, for those in the lowest quintile the probability of use of services is 2.5 % higher than expected on average given their need and for those in the highest income quintile, the probability of use of services is 4.9% lower than expected on average given their level of need.

However, as is widely known, use of services may be influenced by many factors other than 'needs'. Therefore, predicted use of services was estimated with the inclusion of other socio-economic and socio-demographic control variables in the probit equation for the estimation of predicted probabilities. Interestingly, when these control variables were included, the concentration index for need-predicted use was slightly higher than that for actual use (-0.132). This means that given the needs and other characteristics of the population, the lower income groups would on average be expected to use even more services than what is observed in the sample. However, for need-standardised use of services, using the same need and control variables, the concentration index (which is the horizontal index of inequality) is close to zero (-0.002), showing no inequality in the use of services. The result, though, is not statistically significant (it has a very wide confidence interval). However, the point can be made clear with the simple graphical illustration of the distributions of clinical needs and use of services presented in figure 6.10. As can be noted, the concentration curves for 'clinical need' and 'use of services' almost coincide with each other, suggesting no income-related inequalities or inequity given the actual needs and other factors influencing use of services in the community. The need-standardised result can be interpreted as the distribution of utilisation of services one would expect to observe, irrespective of the distribution of the need variable. That is, the distribution that would be observed if all individuals had their own need but the same mean probability of use of services as the entire population.

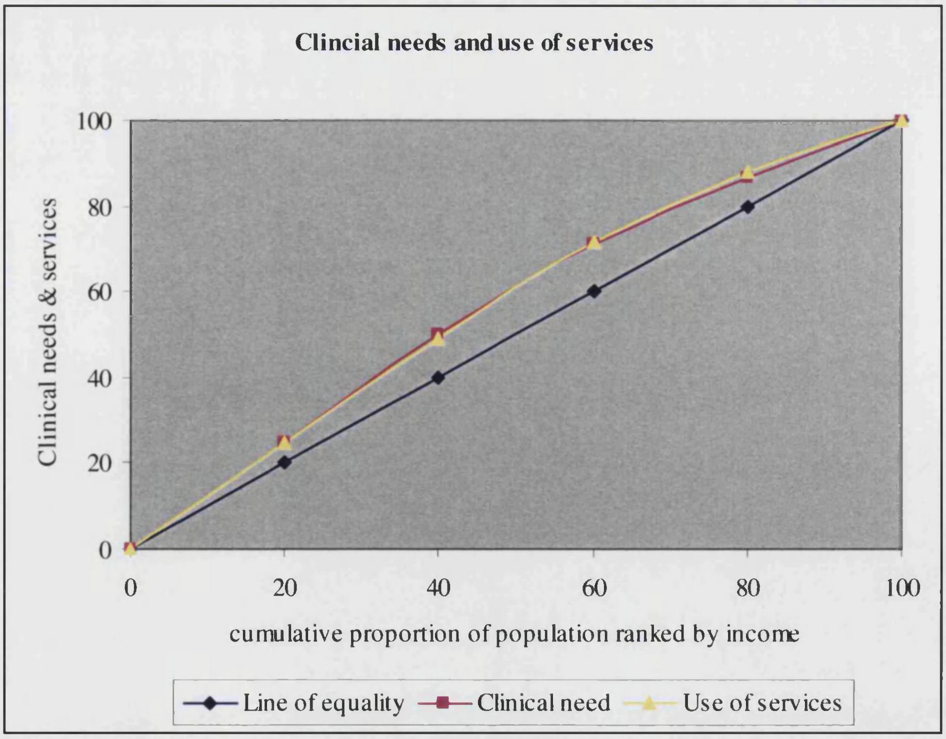


Fig 6.10: Concentration curves for 'clinically assessed needs' and use of services

Given the theoretical framework discussed in chapter 4, it was useful to analyse use of services in relation to the 'felt needs' of the population. In Table 6.12, actual, need-predicted and need-standardised concentration indices for the use of services are presented, where 'felt needs', represented by self-reported mental health problems, was used for need standardisation.

Table 6.12: Distribution of actual, need-predicted and need-standardised use of services for 'felt needs'

	Probability of using services				
Income quintiles	**Actual**	**Needed**	**Difference**	**Needed**	**Need-standardised**
		Predicted using probit	Actual minus predicted	Predicted using probit and controls	Predicted using probit and controls
Lowest	0.211	0.189	0.021	0.225	0.163
2nd	0.229	0.187	0.042	0.222	0.185
3rd	0.183	0.174	0.009	0.167	0.195
4th	0.146	0.171	-0.025	0.139	0.185
Highest	0.110	0.167	-0.057	0.124	0.164
Mean	0.178	0.178	0.000	0.178	0.178
			HI		**HI**
CI (t-value)	-0.12925 (-9.22)	-0.02821 (-7.27)	-0.1022 (-7.36)	-0.13195 (-28.09)	0.00270 (0.20)

Notes:
1. Need = self-reported mental health problems
2. CI = Concentration index
3. HI = Horizontal index of inequality

As can be seen, the need-predicted and need-standardised distributions do not change considerably from those presented in Table 6.11 where standardisation was for 'normative needs'. The concentration index for need-predicted use when estimated without control variables is slightly lower than in Table 6.11 (-0.028 compared to -

0.039). The horizontal index of inequality (HI) is -0.102, which indicates that even after taking into account the slightly greater level of needs among the lower income groups, the distribution would still be pro-poor, that is, the poor are expected to use more services than expected given their level of need. When control variables are used in the probit estimation of probabilities, there is practically no difference at all in the results for need-predicted and need-standardised concentration indices from those presented in Table 6.11. What is interesting to note is that those in the second quintile have a very high probability of use of services compared to their needs. Their probability of use of services is 4.2 % higher than expected on average given their need while for those in the lowest quintile the probability of use of services is only 2.1% higher than expected given their need.

It has to be understood that the analyses presented here are based on the existing level of use of services, represented by the same overall mean for all distributions (0.178). The estimate does not consider how much the overall mean should be increased (or decreased) for the level of overall needs, 'felt' or 'normative'. The concentration indices indicate only if the existing distribution of use is inequitable given the differences in the level of needs across income quintiles. That is, it is not a measure of unmet needs overall but a measure of possible unmet needs across quintiles relative to each other.

The results in Tables 6.11 and 6.12 do not indicate that there are income-related inequalities in the use of services that are unfavourable to the lower income groups. However, it is useful to analyse the contribution of various factors that influence use of services, to the total inequality index for use of services. In Table 6.13, results of the decomposition of the concentration index for need-predicted use of services for 'normative' or 'clinically assessed' need are presented. Since the results for 'felt needs' presented in Table 6.12 are not significantly different from those for 'normative needs' in Table 6.11, no separate decomposition analysis for felt needs are presented.

As described earlier in the chapter, the total contribution of a variable is a product of its elasticity with reference to the health variable and the inequality in the distribution of the variable itself. A determinant of the use of services will have a greater contribution if it is more unequally distributed by income or if it has a greater elasticity, i.e., a stronger effect on the variable of interest. The reference category for comparison is a fully employed male, living in the north, single, with a university degree, owning house outright and belonging to the ethnic group classified as other. Looking at the elasticities of the variables in the model, it is interesting to note that the effect of 'probable psychosis', which is an important need indicator, on the probability of use of services is much smaller than the effect of many other variables. The other need indicator 'cases' exhibits the strongest effect on the probability of use of services. The other variables with strong positive effects are 'economically inactive' status and 'white'. The effect of being white cannot be given much importance as the sample had only a very small proportion of other ethnic minorities. Being economically inactive is an important determinant of use of services. It can be noted that females in the age-group 25-54 have greater positive elasticity of use of services than those in other age-groups. Among males the strongest effect is for the age-group 45-54. Living in local authority housing is another significant indicator of the use of services. Income has a fairly strong negative elasticity of use of services. That is, those with higher incomes have lower probability of use of services. Being divorced or separated also are associated with greater probability of use of services. Being married on the other hand has a negative effect on the use of services.

The group contributions in the last column show that the largest contribution to the inequality index comes from employment status, with the economically inactive contributing most to this group's sum. The contribution from this group (-0.077) is even greater than that of the need variables (-0.046) and income (-0.016). The contribution from the females (-0.034) is also greater than that of income itself. Housing tenure has a contribution of -0.019, mainly due to the contribution of those living in local authority housing. These results show that income is neither the main determinant of use of services nor the main reason for the inequality in the use of services across quintiles. Other socio-economic and demographic factors along with the need indicators determine the probability of use of services among the population of Britain and also account for the inequality in the use of services that is observed between income quintiles.

Table 6.13: Decomposition results for use of services for clinically assessed (normative) needs

Concentration index for use of services = -0.132				
Variables	**Elasticity**	**Concentration index**	**Contribution to CI for use of services**	**Group contribution (Sum)**
Income	-0.049	0.324	-0.016	**-0.016**
Cases	0.316	-0.122	-0.038	
Probable psychosis	0.018	-0.395	-0.006	**-0.044**
Males 25-34	0.027	0.362	0.010	
Males 35-44	0.028	0.420	0.012	
Male45-54	0.044	0.384	0.017	
Male55-64	0.016	0.158	0.004	
Males 16-24	-0.001	-0.010	0.000	**0.043**
Female16-24	0.016	-0.372	-0.006	
Female25-24	0.076	-0.040	-0.003	
Female 35-44	0.084	-0.077	-0.006	
Female 45-54	0.054	-0.099	-0.005	
Female 55-64	0.029	-0.311	-0.009	
Female 65-74	0.009	-0.398	-0.003	**-0.032**
White	0.122	0.002	0.000	
African	0.000	-0.051	0.001	
Asian	-0.009	-0.113	0.001	**0.002**
No qualifications	-0.009	-0.283	0.003	
GCSC	0.007	-0.052	-0.001	
A level	-0.004	0.122	-0.001	
Teacing/Nursing/hnd	-0.011	0.272	-0.002	**-0.001**
Part-time employed	0.015	-0.253	-0.002	
Unemployed	0.003	-0.579	-0.001	
Economically Inactive	0.182	-0.383	-0.069	**-0.072**
Married	-0.091	0.018	-0.001	
Widowed	0.010	-0.179	-0.001	
Divorced	0.025	0.019	0.002	
Separated	0.022	0.036	0.002	**0.002**
Trent	-0.001	-0.058	0.000	
West Midlands	-0.001	-0.031	0.001	
North west	0.006	-0.059	-0.001	
East	-0.008	0.078	0.000	
London	-0.001	0.133	0.001	
South East	0.002	0.065	0.001	
South West	-0.011	0.001	0.000	
Wales	-0.003	-0.053	0.000	
Scotland	0.002	-0.027	0.000	**0.002**
Mortgage	0.013	0.180	0.002	
Rent house	0.002	-0.042	0.001	
LA housing	0.063	-0.311	-0.019	**-0.016**
Total				**-0.132**

6.5 Discussion

6.5.1 Inequalities in mental health

From the results discussed in the previous section, it is clear that there is significant income-related inequality in mental health in Britain and the result is consistently true for all indicators of mental health. Various levels of disaggregation of the morbidity indicators reported in the Psychiatric Morbidity Survey 2000 were used in the analyses. Unstandardised and standardised (for demographic composition of the sample) concentration indices were estimated for all indicators. All indices show inequalities that are unfavourable to the poor. The negative values of all estimated concentration indices imply that, even after taking the demographic structure of the sample into account, inequalities are unfavourable to poorer groups. There is no discernible demographic pattern for these problems that is independent of income. More importantly, all of the observed inequality with respect to more severe mental health problems is due to income and by implication those factors that affect and are associated with income. Low-to-moderate level CIS-R scores are found to be associated with the demographic structure of the sample, partly explaining the inequality index for these scores. Similarly when we look at the symptoms, we find that the standardised indices for phobias, compulsions, obsessions and sleep problems are lower than the unstandardised indices, suggesting that although those in lower income quintiles experience these symptoms more than expected on average, some of the inequalities observed for these symptoms may be due to the age-gender composition of the sample. However, the standardised indices being negative still represent inequality linked to income levels.

Psychosis is associated with the highest level of income-related inequality with a concentration index of -0.439. The inequality index for the standard measure of neurotic disorders, 'cases', is -0.106. Neurotic disorders with comparably high levels of income-related inequality are panic disorder, phobias and depression. What is striking is that all concentration indices in Tables 6.4, 6.6 and 6.7 (except the index for CIS-R low) are higher than the concentration index for inequality in general health in the UK reported in Van Doorslaer and Koolman (2004). Using the third wave (1996) of the European

Community Household Panel (ECHP) study, these two authors estimated that the concentration index for income-related inequality in self-reported health in the UK was -0.0129.

The results show that there can be no doubt that there are inequalities with respect to all symptoms and mental health disorders that are attributable to income and, therefore, in the language of advocates of concentration index approach, potentially 'avoidable'. In the literature on inequalities in general health, that part of the concentration index that is due to the demographic structure of the sample, is labelled 'unavoidable inequality'.

Decomposition of the concentration indices indicates that the effect of unfavourable employment status on the mental health of populations is very strong and it contributes much more to inequality than income inequality itself. Reducing the number of unemployed and economically inactive groups is likely to have the greatest impact on reducing the overall inequality in mental health. The effect of demographic variables is pronounced for psychosis, with the age-group 35-44 being the most vulnerable among both males and females. Being divorced or single also appears to make one more prone to suffer from psychosis. This decomposition analysis is useful for policy purposes as it helps us to separate the effects on inequality of various factors and thus suggest areas where policies to reduce inequalities may be targeted.

6.5.2 Inequalities in the use of services

The concentration indices, both unstandardised and standardised, for use of services are negative, which suggests that lower income groups are more intensive users of services, even after taking into account their greater level of needs. The higher income groups generally are much less likely to use services than expected on average, given their level of needs. However, it has to be recognised that this result for the higher income groups may be because the surveys did not include the use of private health services. It is likely that those in the higher income groups are more likely than those in lower income groups to make use of private services. Standardised results with control variables included, however, suggest that there is no horizontal inequity in the use of services. That is, when needs and other factors that influence use of services are taken into account, there is no discernible inequality in the use of services that is at least unfavourable to the lower income groups. There is no significant difference in the results whether standardisation is for 'normative needs' or for the indicator of 'felt needs'.

Decomposition of the concentration index for use of services shows that employment status and need indicators are major determinants of use of services. Female gender, being divorced or separated, and living in local authority housing are other major determinants of use of services. These factors also are the major contributors to the pro-poor inequality index for use of services.

6.5.3 Comparison with other studies

In the literature in this field, although mental ill-health has generally been found to be more prevalent among population groups with lower material standards of living there are inconsistencies in the reported association between common mental disorders and income or occupational class, and results have not been consistently replicated in international studies. Generally speaking, it is difficult to draw precise comparisons with the results from previous studies due to the different methods, concepts and unstandardised approaches used. While most studies report a relationship between mental health indicators and socio-economic status, it has to be recognised that socio-economic status is a complex concept (Lewis *et al.* 2003). For example, the literature contains examples of studies that have used several different variables to measure socio-economic status, including the (UK) Registrar General's Social Class measure, educational attainment, income, wealth and standard of living (represented by access to a car or housing tenure). None of the previous mental health studies has developed a quantitative summary measure of inequality, as has been done in this study, which again makes comparison difficult. Although Weich *et al* (2001) used the Gini coefficient in their study, the focus of their work was to study the effect of regional variations in income distribution on the prevalence of common mental disorders, which is a slightly different issue than the one addressed here. Using British Household Panel Survey (BHPS) data, they found that the association between income inequality and prevalence of the common mental disorders varied with individual income level. In regions with greater income inequality, as indicated by high Gini coefficient, common mental disorders were more prevalent even among persons with the highest incomes.

Some UK studies report a strong association between the incidence or prevalence of psychiatric disorders and social class (Thornicroft 1991; Jenkins *et al.* 2003; Lewis *et al.* 2003) and income or living standards (Weich and Lewis 1998; Fryers *et al.* 2003). Other studies have found no such association with social class (Melzer *et al.* 2003) or income (Andres 2004). Some of these studies have used the General Health Questionnaire (GHQ), which has its limitations as an indicator of mental health (Stansfeld and Marmot 1992; Araya *et al.* 1992). On the other hand, of course, the GHQ has been widely employed in general population surveys (such as the British Household Panel Survey and Health Survey for England) which facilitates comparisons. The empirical material in this chapter drew on data from the National Survey of Psychiatric Morbidity which, in both 1993 and 2000, used standardised questionnaires for measuring mental ill-health, in particular the CIS-R.

Comparing the results found in this chapter with those of other researchers is not straightforward because most previous studies have not quantified inequality in the same way, or have used different clinical measures. The only other study that reports an estimated concentration index for mental health in the UK is by Wildman (2004). Using BHPS data for waves 1 and 7, he reported that the concentration index for mental health in the UK was -0.022 in 1991 and -0.016 in 1997. His results are not strictly comparable to the ones presented in this chapter because of the different mental health variable used in his analysis: his analysis is based on the GHQ, which is a more limited measure of mental health than the CIS-R. While most other previous studies have tested for the association of socio-economic status with mental health, in this study quantitative measures of inequality for several different standardised indicators of mental health have been provided. This quantitative measure of inequality has enabled comparison of income-related inequality for different diagnostic groups, which has not been attempted by any previous study. These distinctions as well as the one between self-reported mental health problems and clinically assessed problems will be useful in understanding further the equity issues in mental health.

The literature also presents inconsistent results with regard to inequalities in the use of services. Due to the different methods, concepts and unstandardised approaches used in previous studies, and due to the different context in which use of services was analysed, it is not possible to make any consolidated comparisons with the results in this chapter. Moreover, no previous study has estimated income-related inequalities using the method used here or quantified inequalities using any standard measure. Therefore, the results presented here are unique in that they provide an estimate of the income-related inequalities and also of potential inequity in the system by comparing use of services with need indicators.

6.5.4 Limitations

The work in this chapter has its limitations. The measure of living standards used is individual income, which may not be the best indicator of living standards for those with mental health problems. Household income per equivalent adult is a probably a better indicator, but it was not possible to use this measure because it was available for only some sample members. Because the data come from a cross-sectional survey, it is hard to tease out causality, a difficulty shared with almost all studies of health inequality (van Doorslaer and Koolman 2004; Fryers et al. 2005).

6.6 Conclusions

I have provided evidence that income-related inequalities exist in mental health in Britain and that the extent of inequality for severe mental health problems is much higher than that reported for general health. A quantitative measure of inequality using the concentration index approach was used. Using data from the most recent Psychiatric Morbidity Survey 2000, results presented here are fairly up-to-date. While inequalities unfavourable to the poor were evidenced for all measures of mental ill-health, there appeared to be no discernible demographic pattern that may explain these inequalities. The result that almost all of the observed inequality is due to individual income, and implicitly therefore to factors associated with income, suggests that what we have is potentially 'avoidable' inequality, although there are clearly complex underlying causal connections in more than one direction.

No evidence of inequity in the use of services was found. Those in lower income groups are more intensive users of services, even when their level of relative needs is taken into account. Decomposition analysis employed in the study highlights the importance of employment status, marital status and housing tenure in explaining inequalities both in mental health and in the use of services. This analysis suggests that policies directed towards reducing unfavourable employment status are likely to have the greatest impact on reducing inequalities in mental health. Policies for creating better housing environments and those targeted towards divorced and separated individuals are also likely to be important. The age-group 35-44 appears to be the most vulnerable and therefore it may be important to consider the needs of this group in mental health policies.

CHAPTER 7

Comparison of equity in mental health and mental health care in Britain – 1993 & 2000

7.1 Introduction

As discussed in chapter 2, although mental ill-health has been generally found to be most prevalent among those with low material standards of living the reported association between common mental disorders and occupational or social class in the literature of the 1980s and 1990s was inconsistent. The trend of contradictory results appears to have continued with more recent studies too.

Studies looking at the use of services generally found that severity of symptoms was the main factor influencing the utilisation of services. Social class or income did not contribute significantly to use of services (Bebbington *et al* (2003a & b). However, studies also found that even people suffering from high levels of psychiatric symptoms very often do not contact professionals who might help them and that unmet need for mental health treatment in primary care attendees is high (e.g., Boardman *et al* 2004). There were also studies that found that socio-economic factors account for almost 50% of the variance in psychiatric admission rates (e.g.,Koppel and McGuffin 1999).

As discussed in chapter 6, the importance of reducing health inequalities, whether related to income, social class, gender, ethnicity or region has been highlighted in many recent policy documents. Important policy changes have taken place since the 1990s in the mental health field and the pledge to improve health and living conditions of those suffering from mental health problems has been voiced in many forums. The aim of this chapter is, therefore, to see if the reforms that were intended through all the policy changes that have occurred since the beginning of the 1990s have resulted in any changes in equity of the mental health system in Britain. The focus is on social class-related inequalities in mental health status and in the use of services among the household population of Britain. Comparison is for two points in time, 1993 and 2000.

The analyses are based on the concentration index approach described in chapter 5 and already employed in chapter 6.

The organisation of the chapter is as follows. The main features of the changes in policies and the mental health care system since the early 1990s are discussed in section 7.2. Brief description of the data and methods used are provided in section 7.3. Section 7.4 presents the descriptive statistics of the data. Results of analyses using the concentration index are detailed in section 7.5. Section 7.6 provides a discussion of the main findings and section 7.7 concludes.

7.2 The mental health system since the 1990s

The pre -1990 mental health care system was characterised by many problems and a number of long-standing difficulties were thought to have led to both an inefficient and inequitable mental health system (Kavanagh and Knapp 1995). Information deficiencies, boundary problems, perverse incentives and inequitable allocations were some of the major problems. Information systems were not capable of monitoring service quality, checking user outcomes, analysing inefficiencies or highlighting inequalities. Boundaries between agencies were sources of confusion, friction and frustration. Many mental health service users with multiple needs suffered as they suffered segregation and treatment failure as they needed to access services from a range of agencies, and blurred or shifting boundaries were often a hindrance to obtaining timely support. The *Griffiths Report* (Griffiths 1988), the *1990 NHS and Community Care Act* (Department of Health 1990) and the White papers that followed gave emphasis to a number of changes, including a system of services that was responsive to needs and preferences of individual users and their families, growth in local authority spending on mental health, closer integration of health and social care activities and substitution of community-based services to institutional provision.

The aim was to replace a system of decision-making dominated by the availability of services to one of needs-based planning of service provision. The mixed economy of provision and the internal market (quasi-market) were the key elements of the new development, where commissioning rather than management was to be the primary means by which services were delivered or controlled. Two noticeable consequences of these changes were growth in local authority spending on mental health and closer integration of health and social care activities exemplified by the widespread establishment of multi-disciplinary community mental health teams, assertive outreach services and so on. Another major change that came from the 1990 legislation was the initiative to substitute community-based for institutional provision, closing more of the old mental asylums and opening a range of new community facilities.

Though there was much that was new and welcome in the emerging picture of the 1990s, inequities were still a major concern (Knapp *et al* 2005). Studies showed that there was evidence of persisting inequitable disadvantages in London and other major cities (Johnson *et al* 1997) and the existence of marked variations in prevalence rates by socio-economic group (Meltzer *et al* 2003) and problems of social exclusion of people with mental health problems (ODPM 2004). There were also problems with the internal market. Commissioning of mental health services was often of poor quality, lacked strategic intent and insight, was poorly coordinated with GP fundholders, relied on limited and often uninformative data and embodied continuing perverse incentives (Simpson 1998; Cumella *et al* 1998). In the words of Hadley and Goldman (1995, p. 1557), '..... the mental health system in Britain ...characterised by a multiplicity of payers leads to poor continuity of care and major inefficiencies in resource allocation. It is not a hopeful model for joint planning or for developing coherent policy.'

Another major problem with the mental health policy was, and still is, the mismanagement of the risk issue, the result of which was social exclusion and inequity. As Wolff (2002) points out, 'Mental health policy [in the UK] fails because it is designed to minimise the wrong risks of violence among a small number of persons with mental illness and the political liabilities and responsibilities of the political official. Policies that promote and perpetuate risk aversion, as reflected in Labour's modernising policy, promote the following ends: short-run chaos, ...more security-focussed treatment regimes,... a more expensive system of care, ... implementation uncertainty,... public disillusionment.' Many users find a worrying trend in the emphasis on control over care and feel that the focus by the government and media on risk and dangerousness add to the stigma and prejudice they experience (Levenson et al 2003, p.3).

The two white papers, *The New NHS* (Department of Health 1997) and *Modernising Mental Health Services* (Department of Health 1998) set out a range of measures to improve the quality and reduce unacceptable variations, with services responsive to needs regardless of age, gender, race, culture, religion, disability or sexual orientation. The 1997 White Paper set out six basic principles for changes. The first of these reads thus:

- To achieve a genuinely national service with fair access to consistently high quality, prompt and accessible services (paragraph 2.4).

The White Paper also proposed six broad criteria for successful health care, namely, health improvement, fair access, effective delivery of appropriate health care, efficiency, positive patient/caregiver experiences and better health outcomes for patients and caregivers. Each of these aims applied to both mental health and other health services. There was a clear statement regarding *fair access*, in relation to need, irrespective of locality, socio-economic status, demographic characteristics or care group (such as learning disability).

The 1998 White Paper *Modernising Mental Health Services* set out a new mental health strategy that promised more funds, new systems to manage resources more effectively, well-integrated care processes, crossing professional and agency boundaries, legal powers which work with and underpin comprehensive local services. The *National Service Framework* (NSF) published in 1999 gave high priority to mental health, focussing on mental health needs of working age adults up to age 65. The Labour government's policy was that mental health services should be safe, sound and supportive. The NSF was evidence-based, set national standards, defined service models and suggested measures of performance and milestones to gauge progress over a ten-year programme. The NSF argued, among other things, that people with mental health problems should be able to expect that services will:

- Deliver high quality treatment and care which is known to be effective and acceptable
- Be well suited to those who use them and non-discriminatory
- Be accessible so that help can be obtained when and where it is needed
- Deliver continuity of care for as long as this is needed

The NSF reaffirmed the very important aim of equity in mental health services. Four of the seven standards laid down addressed equity issues. (The other three related to caring about carers, preventing suicide and health promotion and effective services.). These four standards were:

1. Health and social services should promote mental health for all, working with individuals and communities, combat discrimination against individuals and groups with mental problems, and promote their social inclusion.
2. Any user who contacts their primary health care team with a common mental health problem should have their mental health needs identified and assessed, and be offered effective treatments, including referral to specialist services for further assessment, treatment and care if they require it.
3. Any individual with a common mental health problem should be able to make contact round the clock with the local services necessary to meet their needs and receive adequate care; and be able to use NHS direct, as it develops, for first-level advice and referral on to specialist help lines or to local services.
4. Each service user who is assessed as requiring a period of care away from their home should have timely access to an appropriate hospital bed or alternative bed place which is in the least restrictive environment consistent with the need to protect them and the public, and as close to home as possible; and a copy of written after-care plan agreed on discharge.

The NSF was followed by a number of implementation activities. The NHS performance assessment framework (PAF) published in 1999 spanned six domains: improving peoples' health, fair access to services, delivering effective health care, efficiency, the experience of patients and their carers, and health outcomes.

It is claimed that the current mental health policies are intended to 'overcome a legacy of neglect' (Department of Health 2001, p3). The key elements of mental health policy today, thus, are: tackling social exclusion, promoting better health, supporting people with mental health problems in the community where possible, and using hospital admissions where necessary. As Robbins (2004) writes, 'Government mental health policy is focused on how to ensure that all those with mental ill health are able to access timely and effective, evidence-based services and receive any treatment and care they *need.* New investments have been directed towards the provision of new teams, staff and services....new money, clear targets and new structure and institutions have been put in place to ensure that all this happens ' (p.1). In 2004, a report from the ODPM (2004) set out an action plan for addressing the social exclusion of people with mental health problems, including tackling stigma and discrimination.

The main dimensions of change since the later 1980s have been: the continued move away from hospital towards community-care; the growing reliance on primary care; the broadening of the concept of need with the increasing emphasis on promoting mental well being rather than just treating mental illness; the greater emphasis on fair access; social inclusion; the growth of user involvement; and a number of reconfigurations of community-based teams. The emphasis on equity issues is present in all policy documents and the intention to create a fair system aimed at providing services that are need-based and non-discriminatory and promoting mental health has been reaffirmed many times over. It is, therefore, useful to see if the reforms have resulted in any improvement in equity of the mental health system.

7.3 Data and methods

Sources of data and the sample

The choice of the years for comparison is due to the availability of data from two Psychiatric Morbidity Surveys for the two years, 1993 and 2000. Main features of the surveys have been described in chapter 5. The surveys are cross-sectional and data come from individuals living in private households. (The 1993 survey also covered, separately, a sample of those living in institutions. In this study I have not looked at the institutional sample.) Both the surveys used the same sampling methods and questionnaire and therefore have identical variables which facilitate comparison of the situation in the two years. Details of the sampling methods used in the 2000 survey described in chapter 6 also apply to the 1993 survey and therefore those details are not repeated here. The samples used in this study are 9790 adults aged 16-64 from the 1993 survey and 8580 adults aged 16-74 from the 2000 survey. In both the years these constituted about 96% of the survey sample. Those who did not have valid information on the social class variable were excluded from the study sample.

Indicator of living standards

The indicator of living standards with reference to which inequalities are measured in this chapter is the social class of the respondents. A deviation from the living standards measure used in the previous chapter had to be made due to data constraints and the need to have similar basis for comparison. In the 1993 survey only 18% of the sample had provided information on individual income and 15% on household income, whereas valid information on social class was available for 99.7% of the sample in 1993 and for 96% of the sample in 2000. Registrar General's 1991 classification of social classes (OPCS 1991) defined in the surveys which is based on the participant's current (or most recent) occupation is used in all comparative analyses in this chapter. In the survey data, in addition to the 6 main social classes – professional (I), intermediate (II), skilled non-manual (IIINM), skilled manual (IIIM), partly skilled (IV) and unskilled (V), there were two additional categories – the 'armed forces' and the 'never worked'. Since it is difficult to assign these two categories to any of the main categories they were not included in this study. The total numbers in these two categories constituted a small proportion of the total sample, 2.9% in the 1993 Survey and 0.3% in the 2000 Survey. The study samples for the two years were therefore 96.9% and 96%, respectively.

In the survey, social class was based on the respondent's own current (or most recent, if unemployed or economically inactive at the time of the interview) occupation. If the respondent was a married or cohabiting woman, the spouse or partner's occupation was used. If the spouse or partner had never worked, then the woman's own occupation was used. Social class was not determined where the respondent (and spouse) had never worked, or if the respondent was a full-time student or where occupation was inadequately described.

Morbidity and service use indicators

Indicators of morbidity and service use analysed are similar to those used in chapter 6.

Morbidity

Morbidity measures analysed are based on the CIS-R scores and SCAN assessments. Three outcome measures considered to be important, by experts in the field, are –

1. The total CIS-R scores
2. CIS-R scores of 12+, termed 'cases' by the architects of the survey (Singleton *et al.* 2001)
3. 'Psychosis'. There was no estimation of probable psychosis in 1993 survey. Therefore for the sake of comparison, the equivalent variable named 'psychosis estimation as in the first survey' was used for 2000. (The difference between this variable and probable psychosis was insignificant anyway to have made any difference to the results.)

Some other indicators which are thought to be interesting to look at (listed in chapters 5 and 6), are also analysed although they are not routinely examined in conventional literature and are not what psychiatrists would normally use in their classifications of morbidity. These indicators were constructed keeping in view the theoretical arguments for analysing 'normative' and 'felt needs' and also to get a wider picture of the mental health morbidity experienced by the population. These are:

4. Self-reported illness symptoms: CIS-R score of more than 2 on any of the 14 symptoms in the CIS-R. The OPCS 1993 Report 1 (Meltzer *et al* 1995) defines this level of symptoms as 'symptoms of moderate to high severity' (p. 32). This, perhaps, can be construed as a measure of 'felt need' for services.

5. Clinical assessment of mental illness: Total CIS-R score of 12+, which is defined as the overall threshold score for significant neurotic psychopathology 'cases' (OPCS 1993 Report 1, p. 6 & 13) or 'probable psychosis', i.e., assessed to be positive for psychosis according to SCAN or the algorithms used for assessment where SCAN was not administered. This may be construed as the 'normative need' for services, i.e., needs that the health service system will recognise as requiring a service.

6. CIS-R scores low (2-11), moderate (12-17) and high (18+). Since the CIS-R generates a total score that can be conceived as a measure of neurotic disorder along a continuum of severity, distinguishing between these levels was though to be useful.

7. Diagnostic categories of neurotic disorders - GAD, MAD, OCD, panic disorder, phobias and depression.

Total CIS-R score was a continuous variable with values ranging between 0-57. All other morbidity indicators were dummy variables scored one if the individual belonged to the group and zero otherwise.

Use of services

A dummy variable scored one if the individual used any health, social care or voluntary services during the previous 12 months and zero otherwise.

Method of analyses

Social class-related inequalities in mental health and in the use of services are measured using the concentration index, using the regression methods explained in detail in chapter 5. Separate indices are estimated for the two years for the indicators of mental health (listed above) and for the use of services. The index of horizontal inequity in the use of services, which the concentration index method enables one to estimate, is also estimated. As this quantitative index of inequality and inequity enables straightforward comparison between time periods, results are presented for the two years of interest, 1993 and 2000, so that assessment of any changes in equity in mental health between the two years can be made.

7.4 Descriptive statistics 1993 & 2000

Socio-demographic and socio-economic characteristics of the study samples for 1993 and 2000 are given in Tables 7.1 and 7.2. In both the surveys there were slightly more females than males. Skilled workers (social classes III and IV) form about 60% of the sample in both the years. Intermediate occupational categories account for nearly 28 - 30% of the sample. Professional and unskilled categories each account for less than 10 % of sample.

Table 7.1: Socio-demographic characteristics of the study sample

Variable	**1993 (n=9790)**	**2000 (n=8239)**
	n (%)	**n (%)**
Gender		
Male	4556 (46.5)	3686 (44.7)
Female	5234 (53.5)	4553 (55.3)
Age years		
16-24	1220 (12.5)	641 (7.8)
25-34	2538 (25.9)	1630 (19.8)
35-44	2163 (22.1)	1803 (21.9)
45-54	1955 (20.0)	1524 (18.5)
55-64	1914 (19.6)	1410 (17.1)
65-74	-	1231 (14.9)
Ethnicity		
White	9217 (94.1)	7809 (94.8)
African	167 (1.7)	169 (2.1)
Asian	256 (2.6)	128 (1.6)
Other	74 (0.8)	129 (1.6)
Marital status		
Married	6099 (62.3)	4298 (52.2)
Single	2156 (22.0)	2083 (25.3)
Divorced	832 (8.5)	954 (11.6)
Widowed	354 (3.6)	554 (6.7)
Separated	302 (3.1)	350 (4.2)

While the 1993 survey included persons aged 16-64, the 2000 survey included those in the age group 65-74 as well. In both the surveys, nearly 60% of the sample belonged to the age-group 24-54, which is when common mental health problems are generally known to be more prevalent. 32-36% of the samples were either unemployed or otherwise economically inactive. About 94 % of the samples were white, with only about 6% belonging to other ethnic origin. Nearly 30% of the sample in both the years had no recognisable educational qualifications. Major proportions of the samples were either married or single. The proportions in the categories - divorced, widowed or separated - increased from 15% in 1993 to 22% in 2000. There were more people (about 9%)who owned their house outright in 2000 than in 1993 Slightly fewer persons rented their house privately or from the local authorities or housing associations in 2000 compared to 1993.

Table 7.2: Socio-economic characteristics of the study sample

Variable	**1993 (n=9790)**	**2000 (n=8239)**
	n (%)	n (%)
Social class		
I Professional	677 (6.9)	419 (5.1)
II Intermediate	2711 (27.7)	2437 (29.6)
IIIN Skilled non-manual	1579 (16.1)	2023 (24.6)
IIIM Skilled manual	2776 (28.4)	1505 (18.3)
IV Partly skilled	1518 (15.5)	1365 (16.6)
V Unskilled	529 (5.4)	490 (5.9)
Employment status		
Full-time employed	4934 (50.4)	3804 (46.2)
Part-time employed	1632 (16.7)	1452 (17.6)
Unemployed	819 (8.4)	229 (2.8)
Economically inactive	2405 (24.6)	2754 (33.4)
Educational qualifications		
Degree	1123 (11.5)	1211 (14.7)
A-level	960 (9.8)	1086 (13.2)
GCSE or equivalent	3440 (35.1)	2881 (35.0)
Nursing/teaching/ HND	1176 (12.0)	609 (7.4)
Other qualifications	74 (0.8)	-
No qualifications	2939 (30.0)	2451 (29.7)
Housing tenure		
Owned - outright	1721 (17.6)	2154 (26.1)
Owned - mortgage	5164 (52.7)	3787 (46.0)
Renting - LA or HA	2012 (20.6)	1560 (18.9)
Renting-private	893 (9.1)	722 (8.8)

Tables 7.3 and 7.4 show the geographical distribution of the samples in 1993 and 2000 respectively. The information for the 2000 survey was according to the NHS regions while that for the 1993 survey was according to the then Health Authority Regions. The survey samples were selected using small users' postcode address file (PAF). The postcode sectors were stratified on the basis of socio-economic group within each region, thus providing a representative sample in each region.

Table 7.3: Geographical distribution of the study sample, 1993

Health Authority Regions	**1993 (n=9790)**
	n (%)
North	534 (5.5)
Yorkshire	698 (7.1)
Trent	900 (9.2)
East Anglia	376 (3.8)
NW Thames	659 (6.7)
NE Thames	648 (6.6)
SW Thames	517 (5.3)
SE Thames	690 (7.0)
Wessex	555 (5.7)
Oxford	487 (5.0)
South west	530 (5.4)
West Midlands	874 (8.9)
Mersey	443 (4.5)
North West	712 (7.3)
Wales	480 (4.9)
Scotland	684 (7.0)

Table 7.4: Geographical distribution of the study sample, 2000

NHS Regions	**2000 (n=8239)**
	n (%)
North & Yorkshire	980 (11.0)
Trent	719 (8.7)
West Midlands	718 (8.7)
North West	943 (11.4)
Eastern	805 (9.8)
London	831 (10.1)
South East	1267 (15.4)
South west	778 (9.4)
Wales	386 (4.7)
Scotland	884 (10.7)

Table 7.5 presents the clinical characteristics of the study sample. The Overall mean CIS-R-scores were very slightly higher in 1993 than in 2000, although the range was slightly narrower in 1993. About 40% of the sample in both surveys had CIS-R scores of 2-11 (labelled CIS-R low). Those with moderate or high CIS-R scores constituted 15.4 % of the sample in 1993 and 16.3 % in 2000. In both the surveys around 56% of the sample thus reported symptoms with a score of two or more (the self-reported symptoms of mental illness). Combined estimates of probable clinical cases of neurotic psychopathology and psychotic psychopathology (clinically assessed illness) were 15.5% and 16.5 % in 1993 and 2000 respectively. In the 2000 survey, proportions of the sample suffering from depression, mixed anxiety and depression, generalised anxiety disorders or psychoses were slightly higher than in the 1993 survey. There were slightly higher proportions of those with obsessive compulsive disorder and panic disorders in the 1993 survey as compared to the 2000 survey.

Table 7.5: Clinical characteristics of the study sample

Clinical Variables	**1993 (n=9790)**	**2000 (n=8239)**
CIS-R score		
Range	0-50	0-54
Mean (s.d)	5.8 (7.2)	5.5 (7.3)
Median	3.0	3.0
	n (%)	**n (%)**
Cases (CIS-R 12+)	1500 (15.3)	1342 (16.3)
Probable psychosis	50 (0.5)	53 (0.6)
Depression	256 (2.6)	242 (2.9)
Mad	783 (8.0)	742 (9.0)
GAD	476 (4.9)	414 (5.0)
OCD	171 (1.7)	109 (1.3)
Phobias	191 (2.0)	164 (2.0)
Panic disorder	90 (0.9)	67 (0.8)
CIS-R low	3996 (40.8)	3242 (39.3)
CIS-R moderate	741 (7.6)	678 (8.2)
CIS-R high	759 (7.8)	664 (8.1)
Self-reported illness symptoms	5496 (56.1)	4584 (55.6)
Clinically assessed illness	1519 (15.5)	1357 (16.5)

Note: s.d = standard deviation

7.5 Results

7.5.1 Social class-related inequalities in mental health problems, 1993 & 2000

Results of the inequality analyses for the morbidity indicators listed in section 7.3 are presented here using concentration curves and concentration indices. In Figures 7.1 and 7.2, concentration curves for the three indicators of mental health morbidity suggested by the experts, namely, total CIS-R scores, 'cases' and 'psychosis' are depicted for the years 1993 and 2000, respectively. In these and all figures that follow, the measure of living standards used in the study, the Registrar General's social class is represented along the horizontal axis with social class V (unskilled) closest to the origin. Cumulative proportions of the population belonging to the six social classes are measured along this axis, with representation of classes moving progressively from unskilled to professional from left to right.

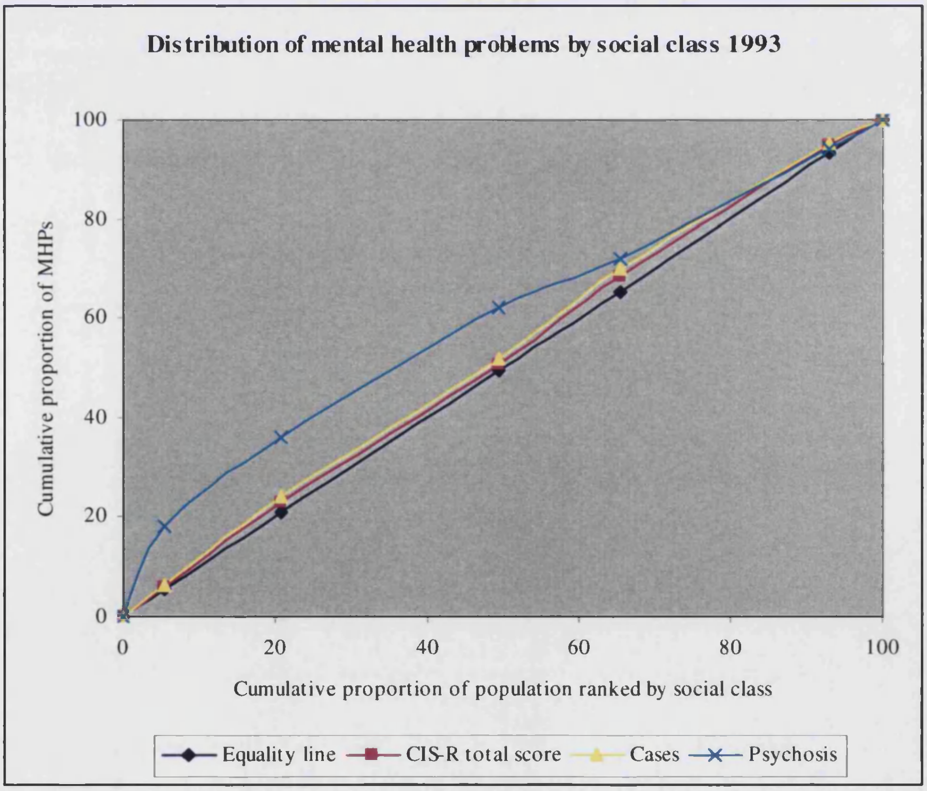


Fig 7.1: Concentration curves for the main morbidity indicators, 1993

Table 7.6: Inequality in adult mental health in Britian – distribution by social class 1993

Mental health measure	Social class means						Unstandardised CI	t-value	Standardised CI	t-value
	V	IV	IIIM	IIINM	II	I				
Total CIS-R score	6.33	6.0	5.44	5.87	5.21	4.52	-0.0353	-4.38	-0.0350	-4.38
Cases	0.174	0.161	0.140	0.156	0.129	0.098	-0.0607	-3.99	-0.0679	-4.51
Psychosis	0.017	0.004	0.004	0.004	0.003	0.004	-0.1794	-1.73	-0.1784	-1.72

Notes:
1. CI = concentration index
2. Standardised CI = standardised for age and gender.

As can be noted from the figures, the distribution of neurotic disorders, as represented by the two indicators, total CIS-R score and 'cases' does not show very high level of inequality as the distribution of psychosis. There appears to be very little difference between the two indicators in both the years studied. The concentration curves lie above the diagonal for both the years suggesting inequality in mental health unfavourable to the lower socio-economic classes, the share of the problems for the lowest socio-economic group appears to have increased between the two years. This point will become clearer from the discussion of the figures in the tables 7.6 and 7.7. As for the distribution of psychosis, it can be seen that the level of inequality is quite marked and highly unfavourable to the lower socio-economic classes. All the three concentration curves for 2000 appear more levelled out compared to those for 1993, suggesting that the distributions may have become less unequal in 2000 than in 1993.

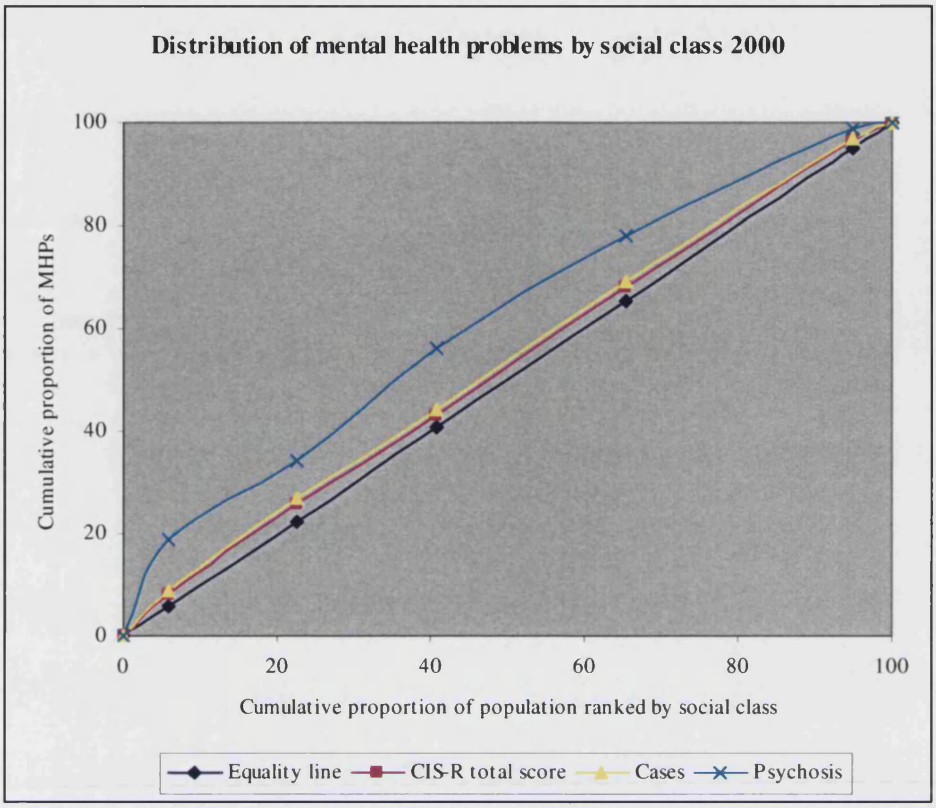


Fig 7.2: Concentration curves for the main morbidity indicators, 2000

Table 7.7: Inequality in adult mental health in Britain – distribution by social class 2000

Mental health measure	Social class means						Unstandardised CI	t-value	Standardised CI	t-value
	V	IV	IIIM	IIINM	II	I				
Total CIS-R score	6.67	5.73	5.11	5.55	5.19	3.81	-0.0199	-4.12	-0.0206	-4.29
Cases	0.204	0.165	0.151	0.162	0.144	0.096	-0.0286	-3.42	-0.0327	-3.94
Psychosis	0.010	0.003	0.004	0.003	0.002	0.000	-0.1354	-2.17	-0.1448	-2.32

Notes:
1. CI = concentration index
2. Standardised CI = standardised for age and gender.

The concentration indices which are quantitative measures of the inequalities depicted in these figures are presented in Tables 7.6 and 7.7, respectively. The tables also present group mean values of the three indicators for the social classes which also help us to see how the distribution of morbidity has changed between the years. Unstandardised and standardised (for age and gender) indices were estimated for the three morbidity indicators. Unstandardised indices represent the level of inequality in the actual distribution of mental health indicators that is observed in the survey data. Standardised indices adjust the actual distribution for the differences in the distribution of age-gender that may be present between the socio-economic groups. The standardised indices indicate what the expected distribution of mental health problems would be if everyone had the same (mean) age-gender effect as the entire population.

The main points that emerge from Tables 7.6 and 7.7 are:

- All indices are negative and significant, suggesting clearly that social class-related inequalities in mental health exist and they are unfavourable to the poor.
- The level of inequality in relation to neurotic disorders is not as marked as it is for psychosis in both 1993 and 2000.
- The difference between standardised and unstandardised indices for the total CIS-R scores is very small in 1993; for 'cases', the standardised index is slightly larger which indicates that there was no significant age-gender effect on this indicator. If everyone had the same mean age-gender effect as the entire population, the distribution would have been more unequal than what was actually observed.
- The standardised index for psychosis for 1993 is slightly lower than the unstandardised one, suggesting that some of the inequality observed may be due to the age-gender composition of the social classes.
- For the year 2000, standardised indices are higher than the unstandardised ones for all three indicators (Table 7.7), suggesting that there are no age-gender effects on the main mental health indicators.
- All three indicators have lower values in 2000 as compared to 1993, suggesting lower levels of social class-related inequalities in mental health in 2000.

- The social class means however show that the percentage of people suffering from neurotic disorders among five of the six social classes (except social class I) has actually increased between 1993 and 2000. For example, 17 % of those in the unskilled category (social class V) suffered from neurotic disorders in 1993. The corresponding figure for 2000 is 20%. Similar increase can be noted for the other four social classes. In the case of psychotic disorders, there is a decrease in the percentages of those with these disorders in 2000 compared to 1993 among social classes V, IV, II and I and no change for the other two social classes.

Since the mental health of a population can be influenced by many socio-economic and socio-demographic variables which are also correlated with social class, standardised concentration indices were estimated controlling for those variables. This was done by including the variables representing educational qualifications, marital status, employment status, housing tenure, ethnicity and area of residence, in the standardising equations along with age-gender variables. Results of standardisation with and without these control variables are presented for comparison in Tables 7.8 and 7.9 for 1993 and 2000 respectively. It can be seen from these tables that using the control variables does not add to the results much. For total CIS-R scores, the indices are significant with very marginal changes from the age-gender standardisation results. The results for 'cases' and psychosis are not statistically significant.

Table 7.8: concentration indices with and without controls 1993

		Standardisation results	
Mental health measure	**Unstandardised**	**Age & gender only**	**Age, gender & control variables**
	CI (t-value)	**CI (t-value)**	**CI (t-value)**
Total CIS-R score	-0.0353 (-4.38)	-0.0350 (-4.38)	-0.0336 (-4.23)
Cases	-0.0607 (-3.99)	-0.0679 (-4.51)	-0.0176 (-1.18)
Psychosis	-0.1794 (-1.73)	-0.1784 (-1.72)	0.0315 (0.31)

Table 7.9: concentration indices with and without controls 2000

		Standardisation results	
Mental health measure	**Unstandardised**	**Age & gender only**	**Age, gender & control variables**
	CI (t-value)	**CI (t-value)**	**CI (t-value)**
Total CIS-R score	-0.0199 (-4.12)	-0.0206 (-4.29)	-0.0197 (-4.16)
Cases	-0.0286 (-3.42)	-0.0327 (-3.94)	0.0023 (0.29)
Psychosis	-0.1354 (-2.17)	-0.1448 (-2.32)	0.0085 (0.14)

As discussed in chapter 4 and chapter 6, the three indicators of morbidity discussed above may be termed as the indicators representing 'normative need' for services. The measure of 'felt needs' in the study defined by the self-reported symptoms of mental health problems was also analysed and contrasted with a single measure of 'normative needs', the clinically assessed mental illnesses, which was created by combining the indicators of neurotic and psychotic disorders (cases and psychosis). The distribution of these two measures of mental health morbidity across social classes for 1993 is illustrated in Figure 7.3. Figure 7.4 presents similar information for 2000.

The figures reveal some interesting points about the percentage distribution of mental health problems among social classes. It can be noted from figure 7.3 that in 1993, while there was little variation in the percentages of those with self-reported symptoms of moderate to high severity (felt needs) between the social classes, there were marked differences in the percentages of those with clinical cases of mental illness (normative need). The percentage of clinically assessed illnesses ranges from 9.9% for those in the 'professional' category to 19% for those in the 'unskilled' category, with the clear gradient being interrupted by an increase for the 'skilled non-manual' category. Not surprisingly, the 'skilled non-manual' category also has the highest percentage of those with the self-reported symptoms of moderate to high severity.

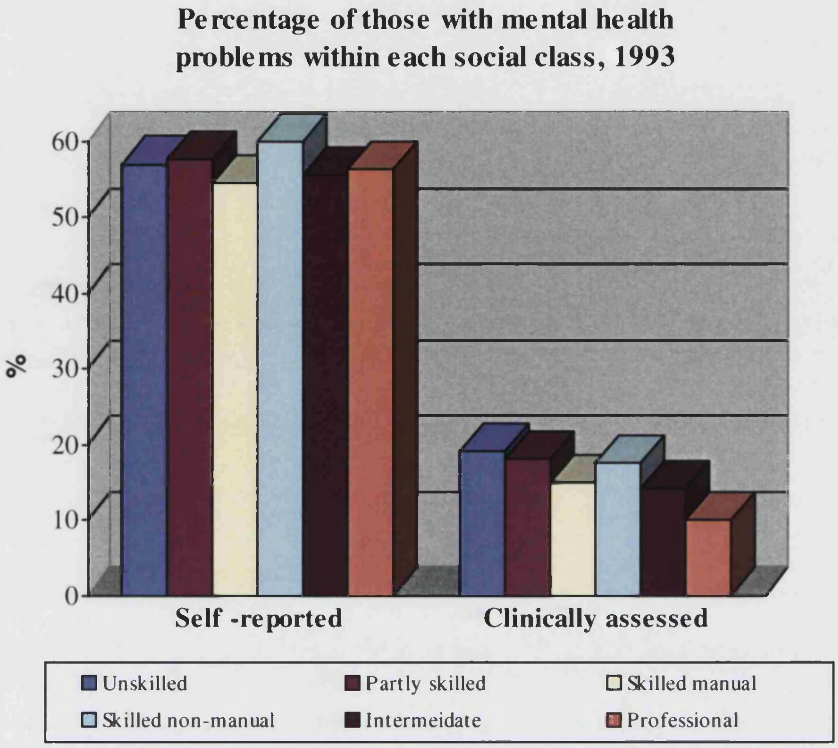


Figure 7.3: Mental health problems within social class, 1993

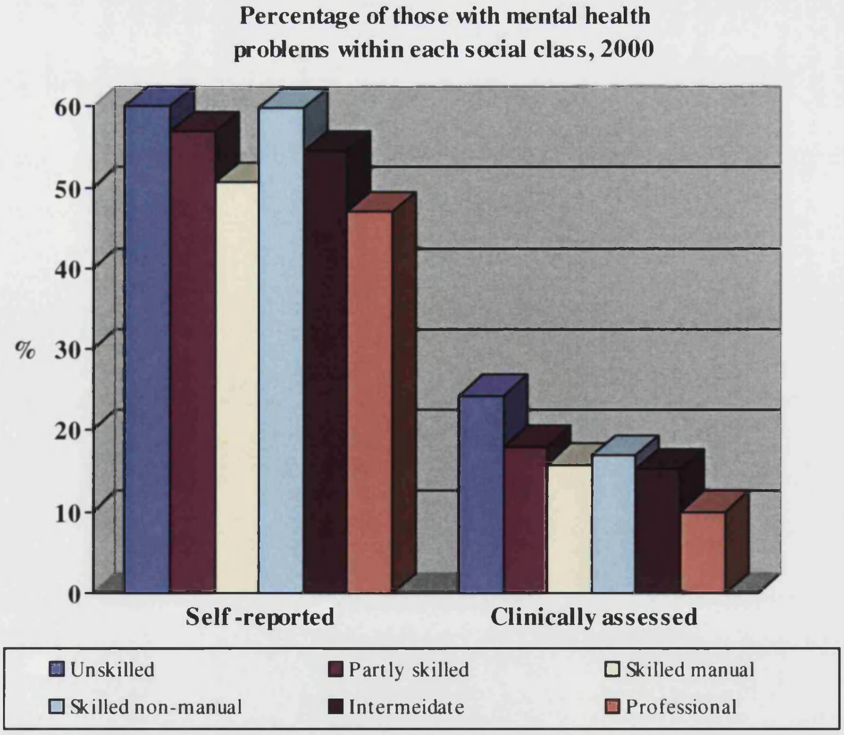


Figure 7.4: Mental health problems within social class, 2000

The scenario in 2000 is slightly different. The gradient for the clinically assessed illnesses is steeper than in 1993. The 'skilled non-manual' category once again shows slightly higher percentage prevalence of illnesses than the 'skilled manual' category. What is noticeable is that there is an increase in the proportion of people suffering from mental health problems in the 'unskilled' category, with 24% having clinically assessed problems and 63% with self-reported symptoms of mental illnesses. In contrast, the 'professional' category is better off in 2000, with only 47% having self-reported symptoms of mental illness, a decrease from the 1993 figure of 53%. All social classes except the 'skilled non-manual' had slightly higher percentages of clinically assessed mental health problems in 2000.

The data presented in the Figures 7.3 and 7.4 give us an indication of the varying prevalence rates of mental health problems within the social classes. They provide an immediate and essential picture of the spread of common mental disorders and symptoms among social classes. However, these figures do not tell us if the distribution of ill-health across social classes is inequitable. That is, whether the lower social classes experience higher levels of illness in relation to their share of the total population or whether any of the observed levels of disorders are due to the confounding demographic or other variables. The concentration index is the tool essential to study the distribution of mental health problems taking into account the demographic composition of the social classes as well as any other socio-economic variables which may be correlated with the socio-demographic variables. Social class-related inequality in these two indicators of mental health morbidity can be examined in Figures 7.5 and 7.6 and Table 7.10.

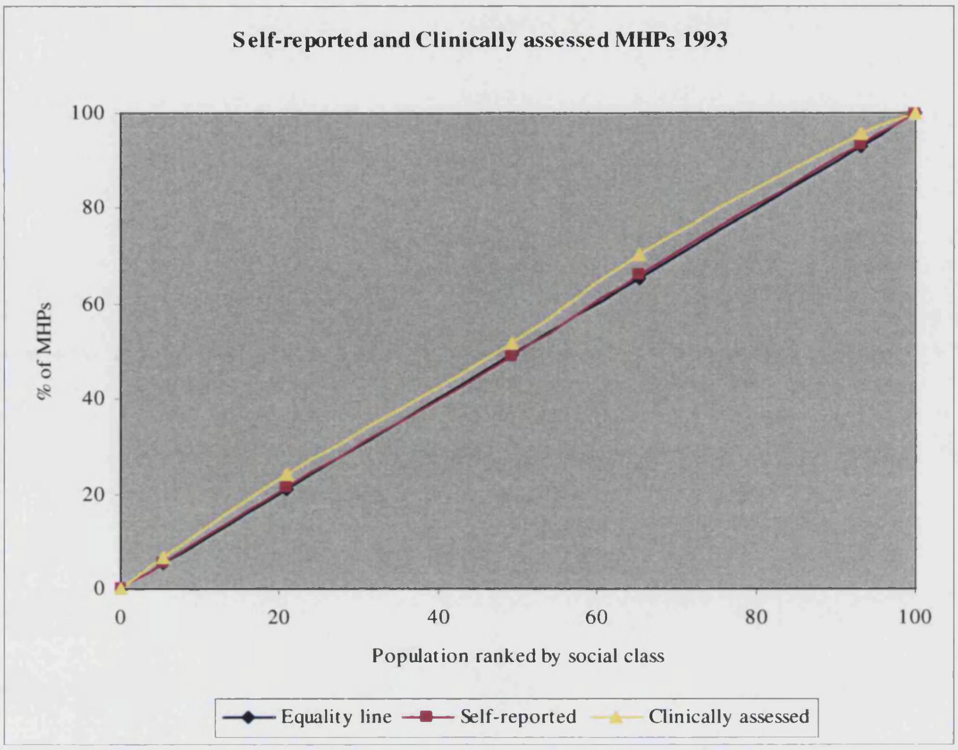


Figure 7.5: Concentration curves for self-reported and clinically assessed problems, 1993

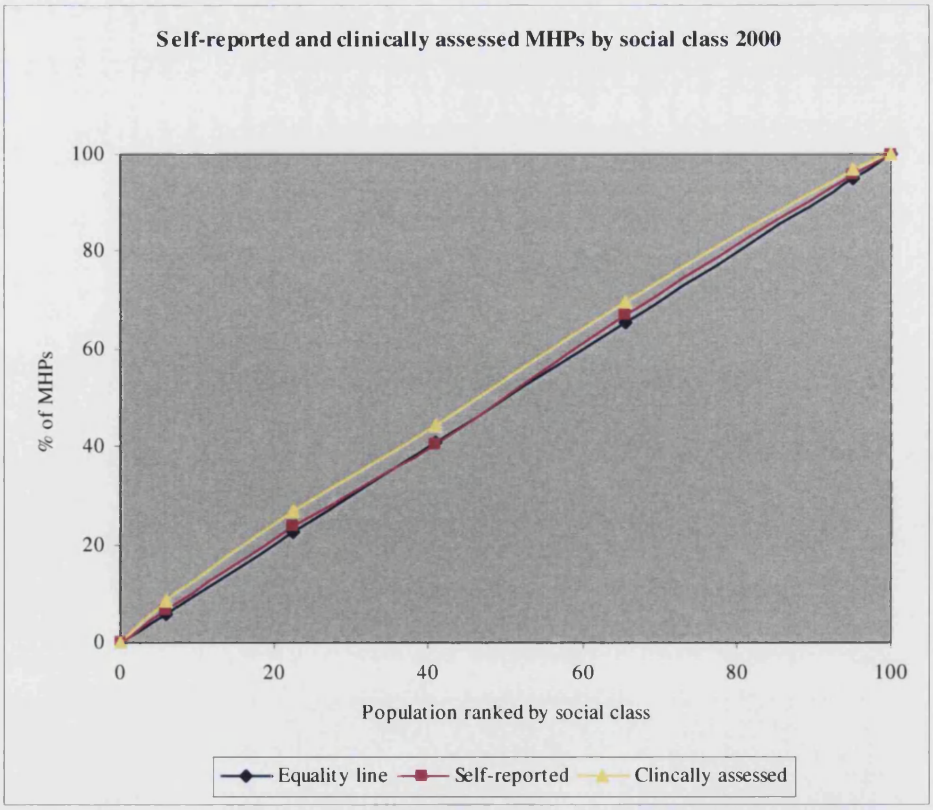


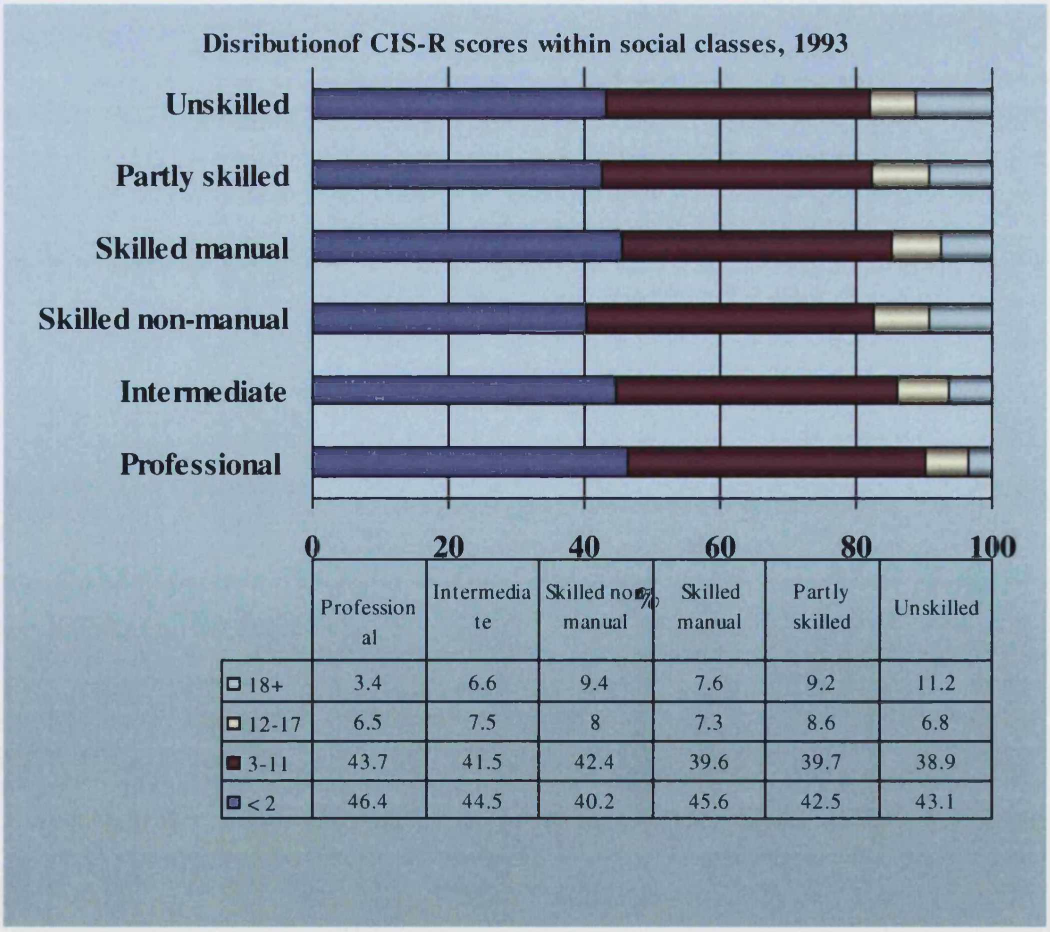
Figure 7.6: Concentration curves for self-reported and clinically assessed problems, 2000

The concentration curves in Figures 7.5 and 7.6 illustrate that while there is no clearly visible inequality in the distribution of self-reported symptoms of illnesses, clinically assessed illnesses show some inequality, in that the concentration curves lie above the equality line. The result applies to both 1993 and 2000. These results are reflected in the concentration indices presented in Table 7.10. The unstandardised concentration index for the self-reported measure is close to zero but statistically insignificant in both the years. The standardised concentration index for 2000 is significant but again, close to zero. Unstandardised and standardised concentration indices for the clinically assessed measure, however, are significant. All indices are negative indicating inequality unfavourable to the lower social classes. Age-gender standardised indices are higher than the unstandardised indices in both the years suggesting no possible demographic influence on these disorders that can explain the inequalities. Both the indices are lower in magnitude in 2000 suggesting that social class-related inequality in clinically assessed mental health problems has reduced between 1993 and 2000.

Table 7.10: Concentration indices for self-reported and clinically assessed mental health problems

	Concentration indices	
Mental health measure	**1993**	**2000**
Self-reported problems		
-actual (t)	-0.0019 (-0.33)	-0.0058 (-0.03)
-standardised (t)	-0.0027 (-0.46)	-0.0070 (-2.75)
Clinically assessed problems		
-actual (t)	-0.0546 (-3.85)	-0.0304 (-3.71)
-standardised (t)	-0.0624 (-4.38)	-0.0368 (-4.35)

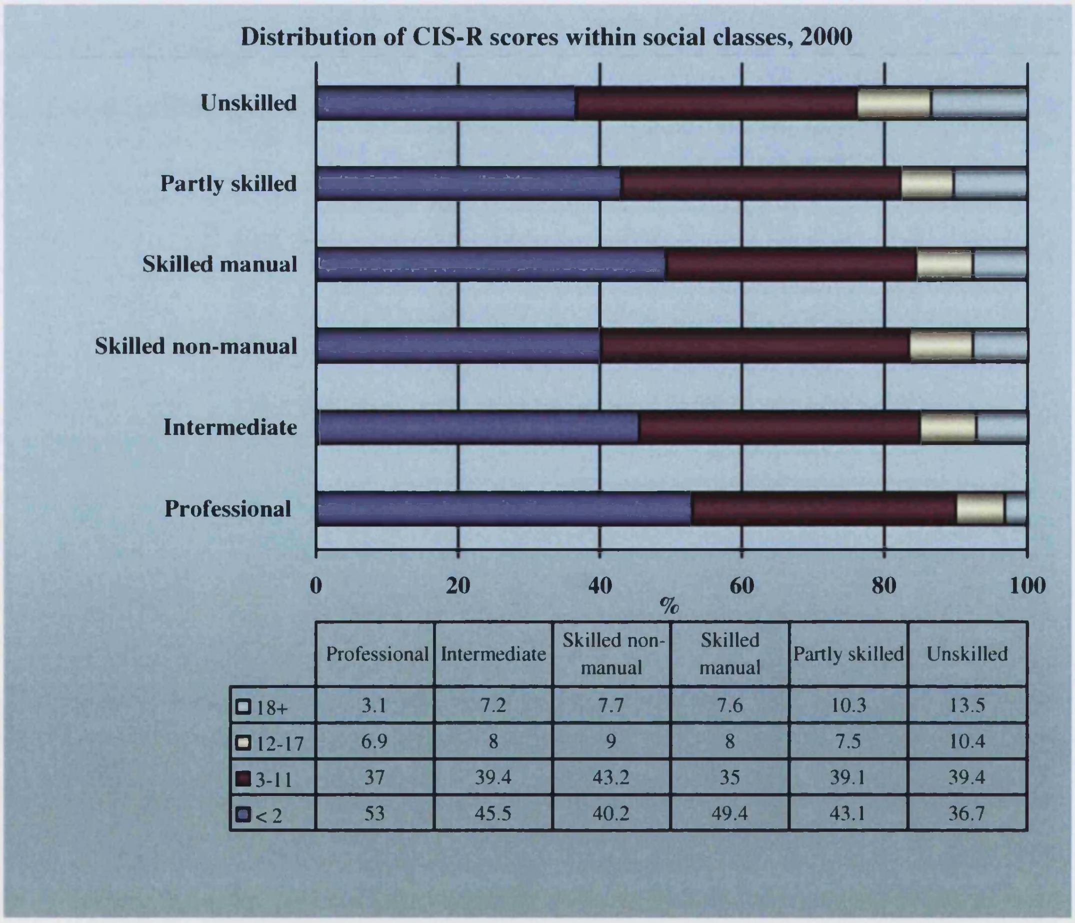
The two measures of 'normative' and 'felt' needs analysed are too aggregated to provide much insight into the actual distributional and equity issues in mental health. It was thought that it is useful to look at the distribution of common mental health problems in a more disaggregated way by dividing the CIS-R scores into four levels – less than 2 (no problems), 3-11 (CIS-R low), 12-17 (CIS-R mod) and 18 and more (CIS-R high). These levels do not represent any standard way of measuring psychopathology. They are simply the analytical tool constructed to distinguish different levels of mental health, though arbitrary. In Figures 7.7 and 7.8, the distribution of these four levels of CIS-R scores within each of the social classes presented for 1993 and 2000, respectively. Figure 7.7 illustrates that in 1993, the highest percentages of people with no mental health problems (CIS-R score of <2) were among the 'professional' and 'skilled manual' categories (46.4 and 45.6% respectively). 'Unskilled' and 'skilled non-manual' categories contained the highest percentages of those with CIS-R scores of 18+ (11.2 and 9.4 percent respectively), compared to only 3.4 % among the professional class. The 'partly skilled' category also had a relatively high percentage of people with scores of 18+ (9.2%). The 'professional' and 'unskilled classes' both had smaller percentages (6.5 and 6.8 respectively) of people with medium level scores of 12-17, compared to the other four social classes that are in between.



	Professional	Intermediate	Skilled non-manual	Skilled manual	Partly skilled	Unskilled
□ 18+	3.4	6.6	9.4	7.6	9.2	11.2
□ 12-17	6.5	7.5	8	7.3	8.6	6.8
■ 3-11	43.7	41.5	42.4	39.6	39.7	38.9
■ <2	46.4	44.5	40.2	45.6	42.5	43.1

Figure 7.7: CIS-R scores, 1993

In 2000, mental health of those in the ‘unskilled’ category appears to have become worse than in 1993 (Figure 7.8). There were fewer with no problems at all, 36.7 % compared to 43.5 % in 1993, and there were 10.4% with scores of 12-17 and 13.5% with scores 18+ compared to 6.8% and 11.2 %, respectively, for the two groups of scores in 1993. The percentage of those with no problems in ‘professional’ class, on the other hand, increased to 53% compared to 46% in 1993, and there were fewer with scores of 3-11 (37% compared to 44%) and 18+ (3.1% compared to 3.4%), although slightly more with scores of 12-17 (6.9% compared to 6.5%). ‘Intermediate’ and ‘partly skilled’ categories had higher percentages with CIS-R scores of 18+ in 2000. The ‘skilled non-manual’ category appears to have become slightly better off in terms of severity scores with lower percentage (7.7%) with scores of 18+ in 2000 compared to 9.4% in 1993.



	Professional	Intermediate	Skilled non-manual	Skilled manual	Partly skilled	Unskilled
□ 18+	3.1	7.2	7.7	7.6	10.3	13.5
🟨 12-17	6.9	8	9	8	7.5	10.4
🟥 3-11	37	39.4	43.2	35	39.1	39.4
🟦 < 2	53	45.5	40.2	49.4	43.1	36.7

Figure 7.8: CISR scores, 2000

Concentration curves and indices for the CIS-R low, CIS-R mod and CIS-R high are employed to illustrate the inequalities in the distribution of these three indicators by social class. Inequality unfavourable to lower social classes can be observed clearly for CIS-R high, for both 1993 and 2000 (Figures 7.9 and 7.10). Concentration curves for CISR-low and CIS-R mod lie close to the equality line in both the years, indicating no significant inequality in distribution of these indicators of morbidity by social classes.

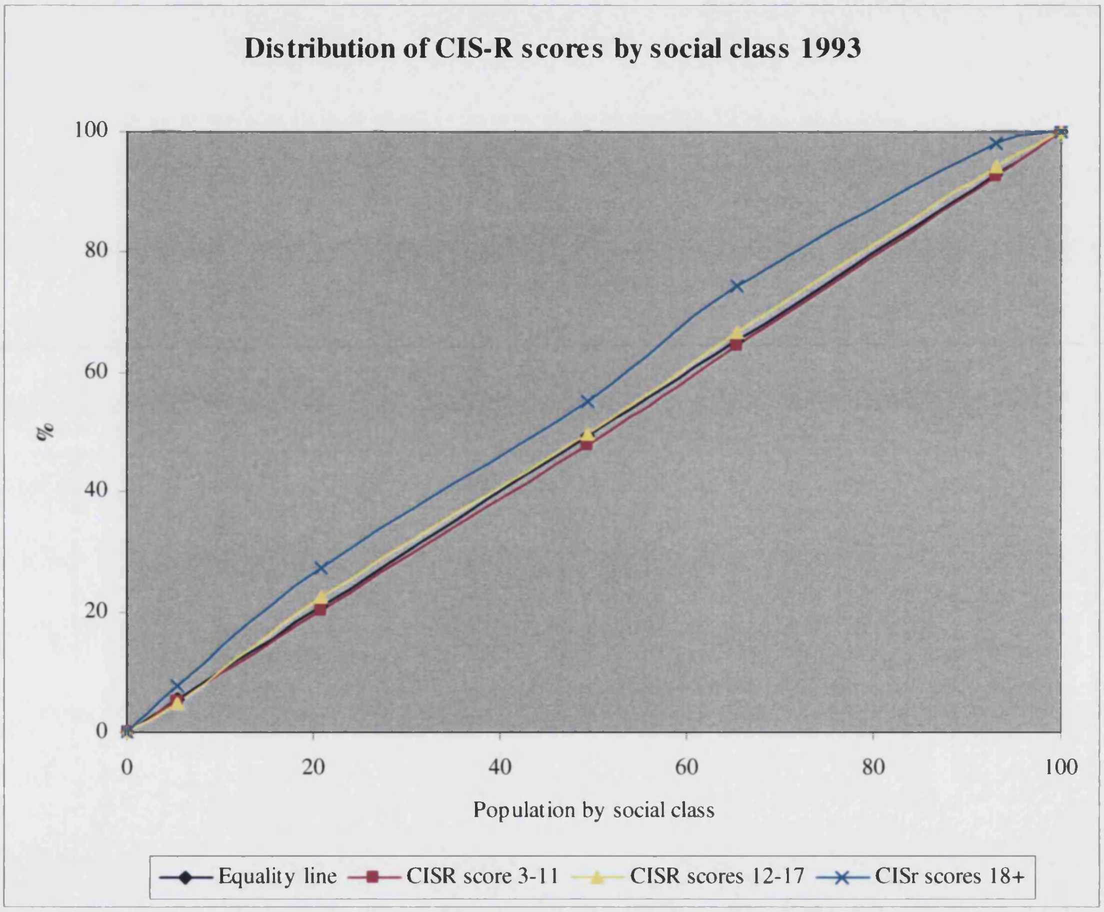


Figure 7.9: Concentration curves for CIS-R scores 1993

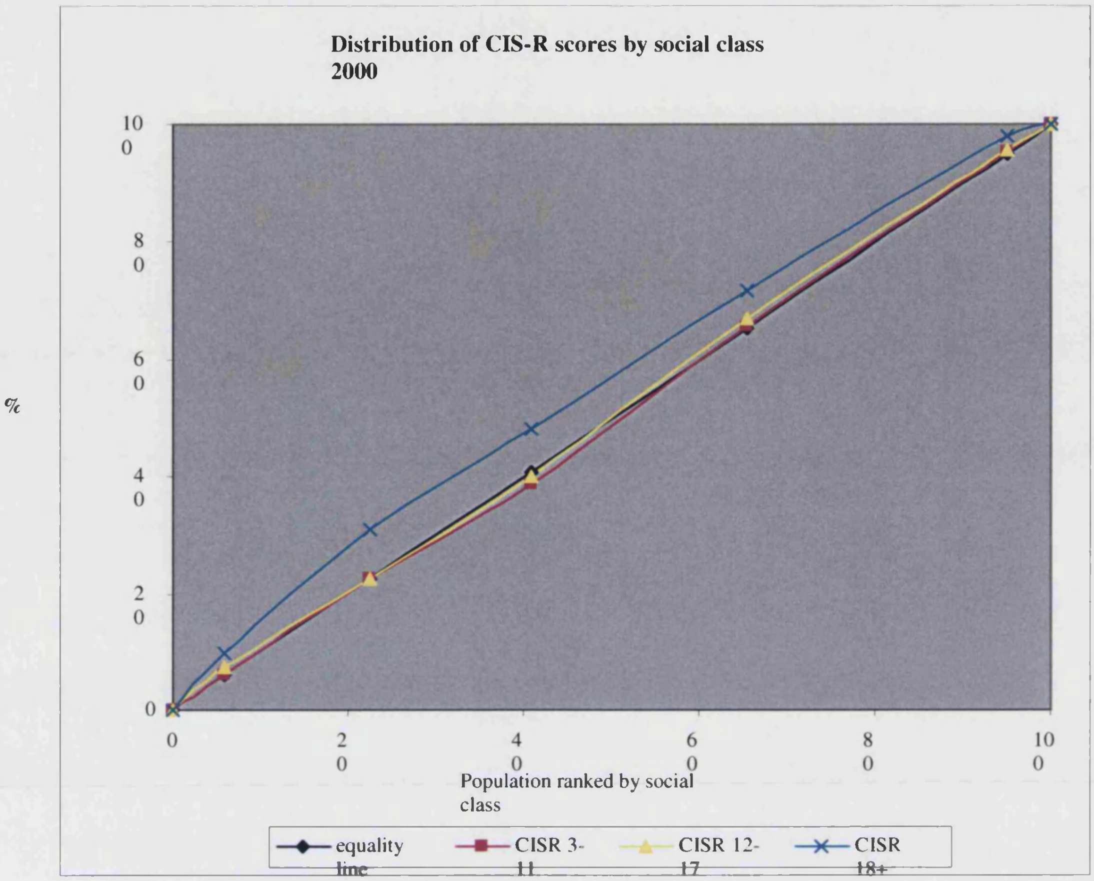


Figure 7.10: Concentration curves for CIS-R scores 2000

Unstandardised and standardised concentration indices for these three levels of scores are given in Table 7.11. It can be noted that all indices in the table are negative which indicate distributions unfavourable to lower social classes. However, not all the figures in the table are statistically significant. For CIS-R low standardised values are higher than the unstandardised values, indicating no real age-gender influence on these scores (and on mental health). The standardised index for 1993 is significant while the unstandardised index is barely significant. The indices for 2000 are close to zero suggesting no inequality but these results are not statistically significant. None of the indices for CIS-R mod are significant while all of the indices for CIS-R-high are clearly significant. Once again the standardised indices are larger than the unstandardised ones with the implication that all of the observed inequality is due to social class and related factors. The indices for 2000 are much lower than those for 1993. Therefore, although inequalities are unfavourable to the lower social classes, there is a marked reduction between 1993 and 2000 in the level of inequality for CIS-R high. The reduction comes mainly from lower percentage share of the problems among the skilled manual class, falling from 28% in 1993 to 17% in 2000.

Table 7.11: Concentration indices for CIS-R scores

	Concentration indices		
CISR Scores		**1993**	**2000**
CIS-R low	actual (t)	-0.01461 (1.89)	0.00219 (0.49)
	standardised (t)	-0.01646 (2.13)	0.00232 (0.52)
CIS-R moderate	actual (t)	-0.01506 (-0.69)	-0.01072 (-0.89)
	standardised (t)	-0.01846 (-0.33)	-0.01499 (-1.24)
CIS-R high	actual (t)	-0.10472 (-4.67)	-0.04997 (-4.09)
	standardised (t)	-0.11998 (-5.30)	-0.05448 (-4.48)

Further analysis was carried out using the major diagnostic categories of neurotic disorders. Tables 7.12 and 7.13 present the percentages of people with common neurotic disorders within each social class for 1993 and 2000. Mixed anxiety and depression (MAD) was the most prevalent disorder both in 1993 and 2000 and for all social classes in general. Two of the other most prevalent disorders were generalised anxiety disorder (GAD) and depression. Not surprisingly, in general, the 'unskilled' category had higher percentages of people suffering from all disorders compared to the other social classes in both the years. The 'skilled non-manual' category had the highest percentage figure for mixed anxiety and depression in 1993 and fairly high percentage in the year 2000 too. In general, percentages of those suffering from various neurotic disorders were higher among all social classes in 2000. The 'skilled non-manual' category was the only one which had lower prevalence for three out of the five disorders, in 2000 compared to 1993. The two disorders with higher percentage figures in 2000 for this class were mixed anxiety and depression (MAD) and phobias.

Table 7.12: Percentage distribution of neurotic disorders within social class, 1993

	% with neurotic disorders					
Social class	**Depression**	**GAD**	**MAD**	**OCD**	**Phobias**	**Panic disorder**
Unskilled	4.2	6.4	8.1	2.3	2.8	1.9
Partly skilled	3.2	5.9	8.2	1.9	3.0	0.9
Skilled manual	3.0	4.8	7.6	1.8	2.0	0.8
Skilled non-manual	3.4	5.4	9.3	2.0	2.4	1.1
Intermeidate	1.5	4.2	8.0	1.5	1.3	0.9
Professional	1.2	2.7	5.9	0.9	0.3	0.1

Table 7.13: Percentage distribution of neurotic disorders within social class, 2000

	% with neurotic disorders					
Social class	**Depression**	**GAD**	**MAD**	**OCD**	**Phobias**	**Panic disorder**
Unskilled	5.7	6.9	12.0	1.8	4.1	1.0
Partly skilled	4.0	6.9	8.1	1.7	3.2	1.2
Skilled manual	3.1	5.1	8.6	1.5	1.4	1.1
Skilled non-manual	2.8	4.0	9.7	1.4	1.6	0.6
Intermeidate	2.2	4.8	8.9	0.9	1.7	0.6
Professional	1.0	2.9	7.2	1.2	1.0	0.2

Figures 7.11 and 7.12 map out concentration curves for the major neurotic disorders studied. All disorders are unfavourable to lower social classes. Depression, GAD and Phobias show greater inequality (further away from the equality line) in 1993 and panic disorder also appears to show much inequality in 2000.

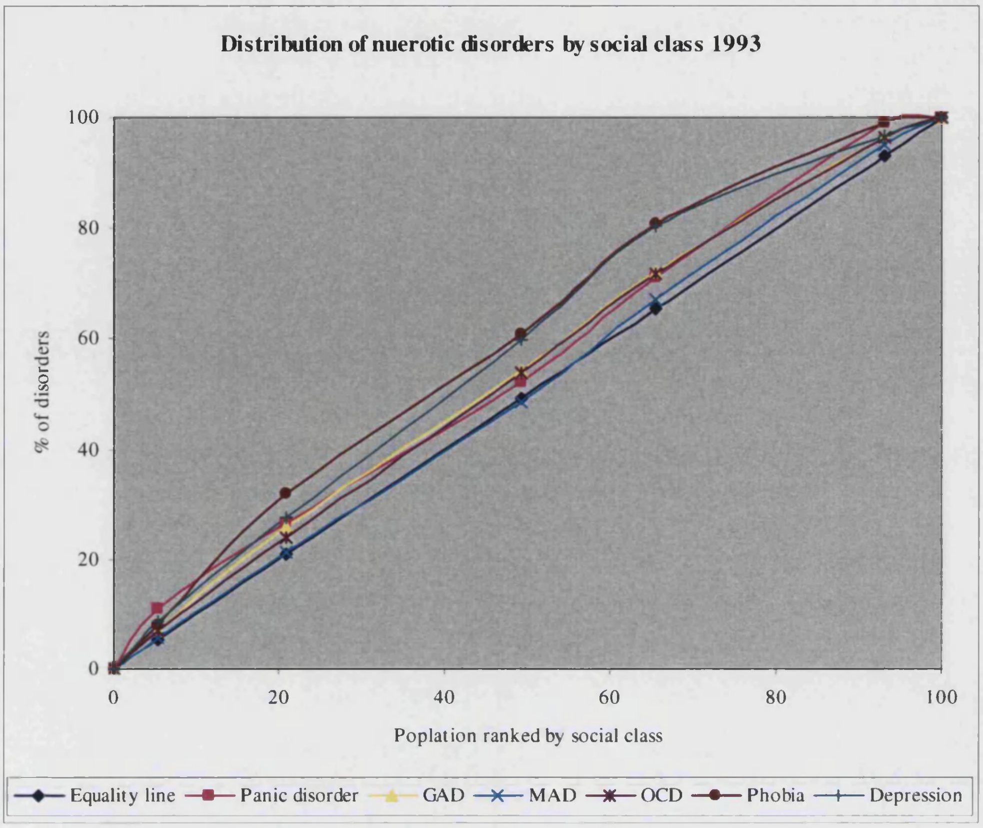


Figure 7.11: CCs for neurotic disorders, 1993

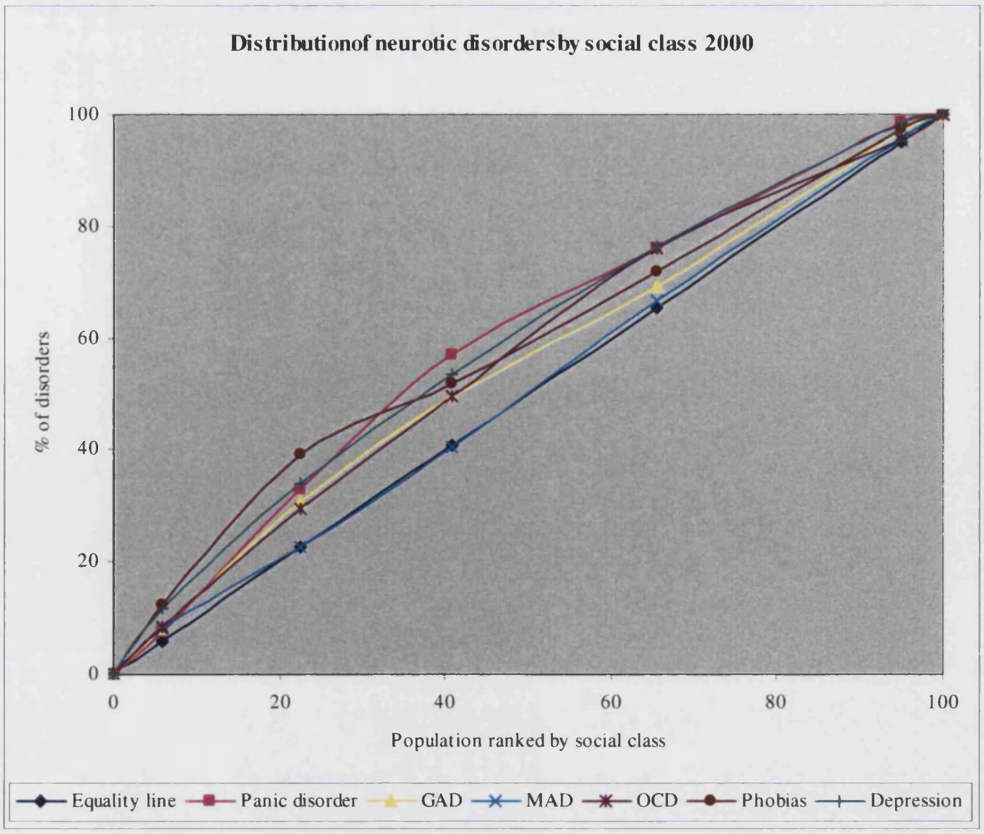


Figure 7.12: CCs for neurotic disorders, 2000

Table 7.14 presents the unstandardised and standardised concentration indices for the neurotic disorders for 1993 and 2000. All indices are negative and therefore unfavourable to the lower social classes. Standardised indices are higher than the unstandardised ones, suggesting that there are no age-gender effects on disorders. All indices except the CI for panic disorder are lower in 2000 than in 1993 which implies that social class-related inequality in mental health has reduced between the two years. It is, however, important to note that some of the estimated concentration indices are not significant. The overall result of reduction in inequalities holds though.

Table 7.14: Concentration indices for major neurotic disorders

Neurotic Disorders	**Concentration indices**		
		1993	**2000**
Depression	actual (t)	-0.1695 (-4.53)	-0.0327 (-3.29)
	standardised (t)	-0.1777 (-4.47)	-0.0374 (-3.73)
GAD	actual (t)	-0.0799 (-2.75)	-0.040 (-2.42)
	standardised (t)	-0.1042 (-3.51)	-0.050 (-3.00)
MAD	actual (t)	-0.1495 (-0.71)	-0.0081 (-0.73)
	standardised (t)	-0.0223 (-1.04)	-0.0119 (-1.06)
OCD	actual (t)	-0.0684 (-1.30)	-0.0532 (-1.79)
	standardised (t)	-0.0635 (-1.20)	-0.0533 (-1.80)
Phobias	actual (t)	-0.1626 (-3.72)	-0.0828 (-2.91)
	standardised (t)	-0.1576 (-3.56)	-0.0938 (-3.24)
Panic disorder	actual (t)	-0.0588 (-0.84)	-0.0786 (-2.16)
	standardised (t)	-0.0619 (-0.87)	-0.0884 (-2.34)

In Tables 7.15 and 7.16 the analysis is extended further by looking at the 14 CIS-R symptoms. It can be noted that the most common symptoms among all social classes are fatigue, sleep problems, irritability and worry. Depression and depressive ideas are also common among the all classes but the lower social classes have much higher proportions suffering from these symptoms than the 'professional' category, with the 'unskilled' category having a prevalence of almost twice that of the former. The 'unskilled' and 'skilled non-manual' classes also have higher prevalence of anxiety and obsessions than the other classes in 1993. The 'unskilled' also had higher prevalence of concentration problems and forgetfulness and worry about physical health. In general, for the 'unskilled' category the percentages reporting all symptoms except panic, obsessions and compulsions were higher in 2000 than in 1993.

Table 7.15: Percentages with neurotic symptoms within each social class, 1993

CIS-R symptoms	**Social class**					
	Professional	Intermeidate	Skilled non-manual	Skilled manual	Partly skilled	Unskilled
Somatic symptoms	5.9	8.3	9.2	6.8	8.0	9.3
Fatigue	25.8	27.4	27.9	27.4	29.7	26.5
Concentration/ Forgetfulness	5.8	9.0	9.3	7.8	9.2	10.4
Sleep problems	19.6	24.7	27.2	25.2	27.5	28.7
Irritability	18.8	19.1	22.5	21.3	22.0	23.3
Worry_Physical health	2.5	4.1	6.3	5.2	5.1	6.4
Depression	6.6	7.5	11.6	10.3	11.7	12.7
Depressive ideas	5.0	7.5	11.3	9.4	11.8	11.7
Worry	18.0	20.7	22.0	18.4	20.7	22.1
Anxiety	6.8	9.2	11.7	9.8	10.7	12.3
Phobias	3.2	4.4	6.1	5.1	7.1	6.6
Panic	0.4	2.0	2.9	2.6	3.4	4.5
Compulsions	3.5	5.1	7.5	6.3	9.0	6.2
Obsessions	9.6	9.4	11.1	9.1	9.7	10.2

Table 7.16: Percentages with neurotic symptoms within each social class, 2000

CIS-R symptoms	Social class					
	Professional	Intermeidate	Skilled non-manual	Skilled manual	Partly skilled	Unskilled
Somatic symptoms	3.1	8.2	7.3	6.4	6.7	11.4
Fatigue	20.5	28.3	29.6	27.0	29.2	37.1
Concentration/ Forgetfulness	6.4	10.0	10.2	9.8	12.2	12.7
Sleep problems	21.5	28.1	32.5	28.2	33.9	38.4
Irritability	15.5	18.8	20.1	18.0	21.7	23.5
Worry_Physical health	4.1	5.5	7.1	8.8	8.6	12.4
Depression	7.9	10.3	11.2	11.7	12.5	19.2
Depressive ideas	5.5	8.7	10.5	8.5	11.9	16.1
Worry	17.4	20.2	19.9	17.4	17.9	23.7
Anxiety	6.9	9.2	9.4	8.6	9.7	11.4
Phobias	2.6	4.6	4.8	3.7	6.5	7.8
Panic	0.7	1.8	1.6	2.6	3.2	4.3
Compulsions	1.0	2.5	3.5	3.3	4.8	5.9
Obsessions	4.3	5.1	5.8	5.4	7.6	8.8

7.5.2 Social class-related inequalities in the use of mental health services, 1993 and 2000

While the analyses of morbidity indicators reveal the extent of social class- related inequality in the distribution of mental health, the relation between morbidity and use of services is an important part of the equity analyses. Equity in the distribution of services can be assessed by looking at the use of services in relation to *need* for services. The method used to explain inequality in the use of health care is conceptually identical to the method used to explain inequality in morbidity. However, to express inequality as inequity, use of services is related to the need indicators and an index of horizontal inequity obtained, following the method explained in chapter 5.

‘Need’ in this study is represented by various morbidity indicators, as discussed in chapter 5. Use of services is a dummy variable scored one if the individual used any health, social care or voluntary services during the previous 12 months and zero otherwise. Use of services standardised for need differences is analysed using the indirect standardisation method. Need-adjusted distributions obtained and concentration indices for these distributions are estimated. Results of these estimations are presented in this section.

Table 7.17 gives a simple summary of those who made use of services among the two basic groups of need used – 'felt' and 'normative'. It can be noted that the proportion of people who used mental health services had decreased considerably in the year 2000 compared to 1993, for both the need categories. The reduction in the percentage of users with clinically assessed need is 20% compared to a reduction of 7% in the case of felt needs. The increased use of private health services by those in the upper social classes could be one of the reasons for the reduced use of services in 2000, as can be seen from the trends revealed in tables 7.18 and 7.19 below.

Table 7.17: Percentage of those who made use of mental health services by mental health morbidity categories

Year	Self -reported symptoms ('felt' need)	Clinically assessed ('normative' need)
1993	29.0	64.0
2000	22.0	44.0

In Table 7.18, use of services by social classes for the self-reported symptoms of mental illness is presented. It can be noted that the unskilled, partly skilled and skilled non-manual groups are more intensive users of services as compared to the other groups in both the years. While among the unskilled group, use of services relative to ‘need’ represented by symptoms had gone up in 2000, the opposite was true for the 'intermediate' and the ‘professional’ groups.

Table 7.18: Self- reported symptoms and use of services by social class, 1993 & 2000

Social class	1993		2000	
	ill (%)	used services (%)	ill (%)	used services(%)
Unskilled	5.5	6.6	6.8	9.9
Partly skilled	15.9	17.8	17.0	19.8
Skilled manual	27.5	27.4	16.6	15.5
Skilled non-manual	17.2	18.1	26.4	28.8
Intermediate	27.4	25.8	29.0	24.4
Professional	6.6	4.4	4.3	1.7

Table 7.19: Clinically assessed illness and use of services by social class, 1993 & 2000

Social class	1993		2000	
	ill (%)	used services (%)	ill (%)	used services(%)
Unskilled	6.6	7.2	8.8	11.4
Partly skilled	18.0	17.8	18.1	20.9
Skilled manual	27.3	28.3	17.5	16.7
Skilled non-manual	18.3	18.3	25.2	26.1
Intermediate	25.3	23.8	27.3	23.7
Professional	4.4	4.5	3.1	1.2

Similarly, in relation to 'need' represented by clinically assessed psychopathology, the top two classes, 'professional' and 'intermediate' had lower usage rate than required by the level of need and all other classes had higher usage rate than required (Table 7.19).

Figures 7.13 - 7.19 show concentration curves for use of services and different 'need' indicators for 1993. The gap between need and use represents the extent of inequity in use of services. It can be seen that the concentration curve for use of services is always above the equality line, suggesting that inequality in use of services is pro-poor, that is the lower social classes are more extensive users of services. What is interesting is that at low and moderate levels of 'need' represented by CIS-R score of 3-11 and 11-17, all groups appear to use more services than required. The concentration curve for usage is above the one for the 'need' indicator throughout in figures 7.13 and 7.14. In contrast, the concentration curve for 'need' represented by CIS-R scores of 18+ is above that for the use of services. The same applies to figures 7.16-7.19 which show 'need' represented by depression, GAD, Phobias and psychosis. Use of services is always below that required according to the need indicators. The extent of inequity varies for different need indicators. The concentration indices, given in Table 7.20 help us to compare the extent of inequity more precisely for the different need indicators and for the two years studied.

Concentration curves for use of services and need indicators, 1993

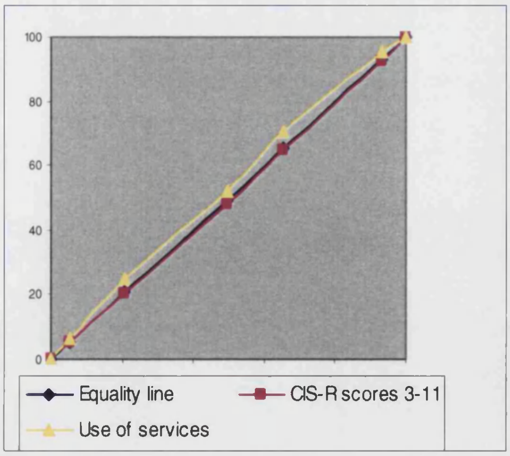


Figure 7.13: CCs for CIS-R low

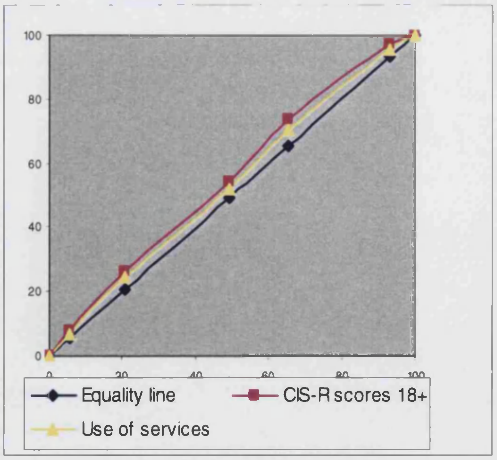


Figure 7.15: CCs for CIS-R high

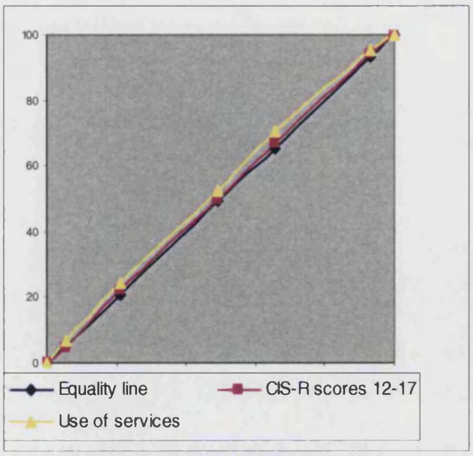


Figure 7.14: CCs for CIS-R mod

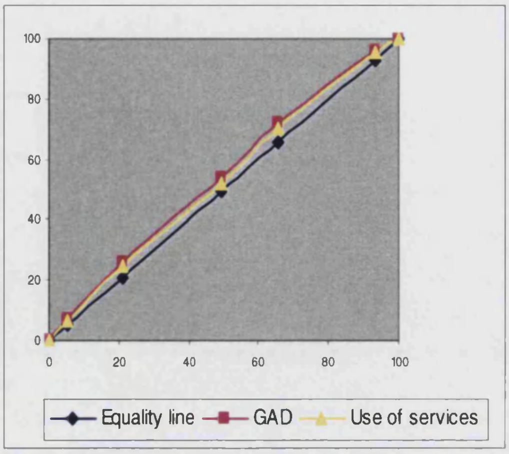


Figure 7.17: CC for GAD

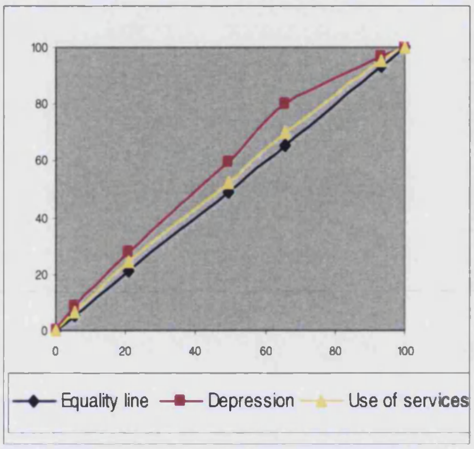


Figure 7.16: CCs for Depression

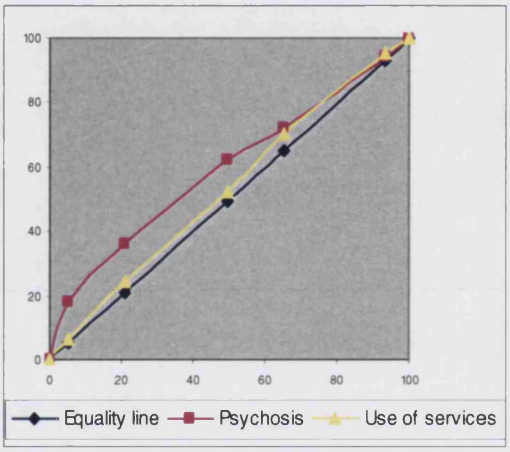


Figure 7.19: CCs for psychosis

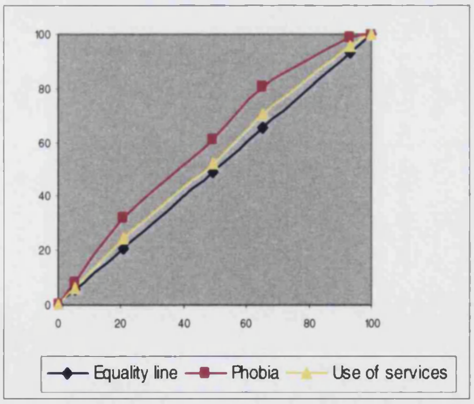


Figure 7.18:CCs for Phobia

Figures 7.20 - 7.26 show similar information for use of services and some of the need indicators for 2000. Use of services in relation to CIS-R scores reveals similar pattern as in 1993 with use more than need at low levels of scores and lower than need at scores of 18+. With need represented by disorders such as depression, phobias and psychosis, once again use of services is lower than the level of need, with concentration curve for use always below that for the need indicator. In the case of GAD, the two concentration curves cross each other which means that there is no strict dominance of use or need. The concentration indices in table 7.20 which gives a quantitative measure of the extent of inequality helps comparison across need categories.

Concentration curves for use of services and need indicators, 2000

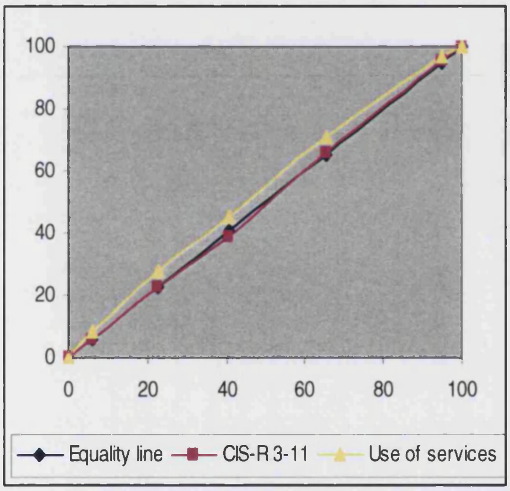


Figure 7.20: CC for CIS-R low

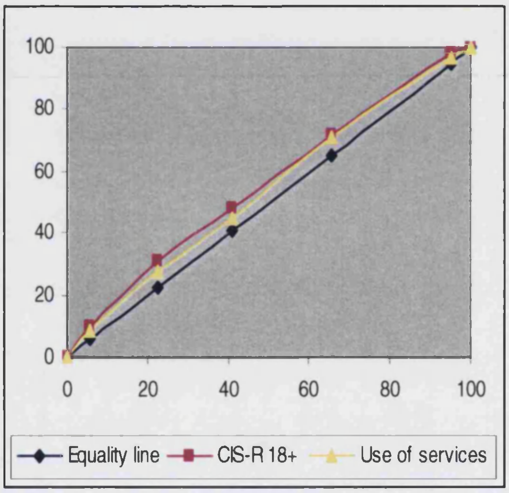


Figure 7.22: CC for CIS-R high

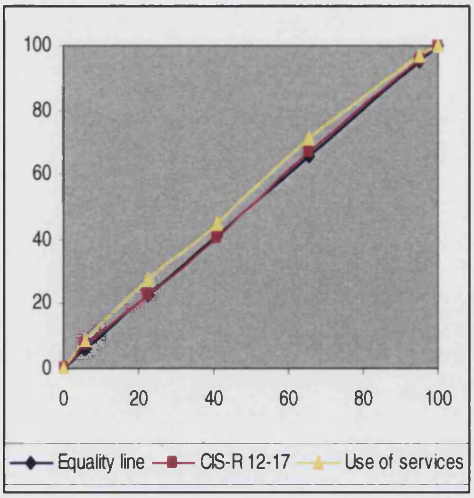


Figure 7.21: CC for CIS-R mod

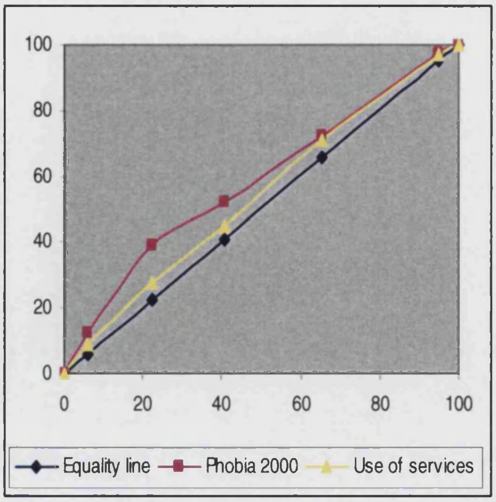


Figure 7.25: CC for Phobia

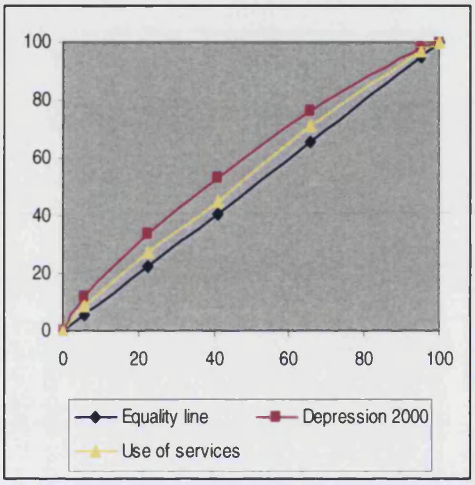


Figure 7.23: CC for depression

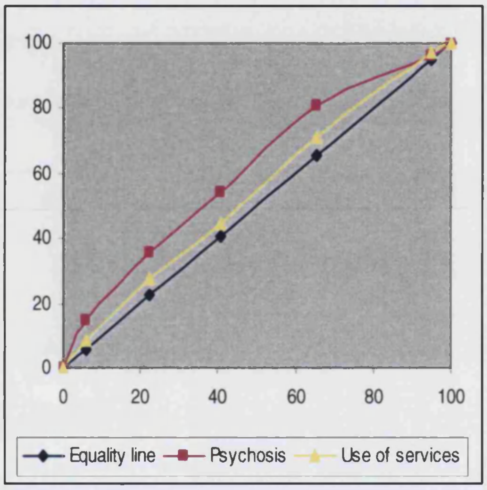


Figure 7.26: CC for psychosis

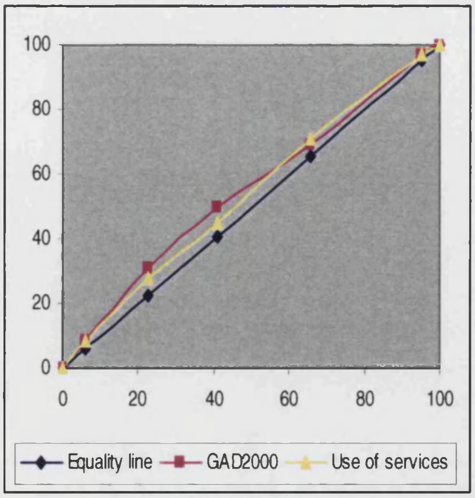


Figure: 7.24: CC for GAD

Table 7.20 shows the actual, need-predicted and need-standardised distributions for the probability of use of health services, by social classes for 1993. The indicator used in the prediction of needed care is 'normative need' - CIS-R scores 12+ and psychosis. Significant negative concentration indices for use of services indicate that those in lower social classes are more intensive users of services. While the concentration index for the actual distribution is -0.05, the index for the need-predicted distribution, also pro-poor, is slightly lower at -0.03. The horizontal inequity index (in the last column), which is the concentration index for the need-standardised distribution is -0.02, which is lower but still pro-poor. The lower social classes have higher levels of need but also have higher levels of utilisation of services. Inequity in the use of services is pro-poor.

Need-predicted distribution shows that the top two classes ought to use more services for the level of need reported and the opposite is true of the remaining four classes. For the 'professional' class, the probability of reporting a contact with the services is 2.2% lower than would be expected on average given their need and for the 'intermediate' category it is 0.5% lower. For the 'unskilled' and 'partly skilled' categories the probability of contacting services is respectively, 0.5% and 1.3% higher than expected given their need.

Need-standardised distribution can be interpreted as the distribution of utilisation that one would expect to observe, irrespective of the distribution of the 'need' variables. That is, the distribution that would be observed if all individuals had their own need but the same mean probability of utilisation of services as the entire population. Need-standardised distribution suggests a slightly different pattern of utilisation of services which reduces the magnitude of the horizontal inequity index, resulting in a less pro-poor distribution. The unskilled, partly skilled and skilled non-manual classes require less use of services than what was observed in the survey. The skilled manual, intermediate and professional groups require more services than they actually reported as using. It is difficult to say whether the upper classes actually make less use of the services or simply fail to report the use of services. Both these are possible due to the stigma that is generally attached to the use of mental health services and the upper classes being particularly sensitive to such stigma. Use of other indicators of need in the models did not make any difference to the estimates of horizontal inequity.

Table 7.20: Distribution of actual, need-predicted and need-standardised use of mental health services, 1993

	Probability of using services			
Social class	**Actual**	**Needed**	**Difference**	**Need-standardised**
		Predicted using probit	Actual minus predicted	Predicted using probit and controls
Unskilled	0.198	0.193	0.005	0.173
Partly skilled	0.189	0.176	0.013	0.181
Skilled manual	0.172	0.167	0.005	0.173
Skilled NM	0.182	0.179	0.003	0.171
Intermediate	0.154	0.159	-0.005	0.163
Professional	0.117	0.139	-0.022	0.146
Mean	0.169	0.168	-0.002	0.169
Concentration index (t-value)	-0.05991 (-4.41)	-0.0307 (-4.41)		-0.0292 (-2.49)

Note: Need variables used: 'Normative need' – CIS-R 12 + and psychosis

The distributions of actual, need-predicted and need-standardised use of mental health services for 2000 are presented in Table 7.21. Results are based on the same indicator of need as the one used in Table 7.20, the 'normative need'. Distributions are pro-poor as in 1993 suggesting more intensive use of services by lower social classes. Need-predicted distribution is much less pro-poor than the actual distribution, once again suggesting that although the lower social classes are more intensive users of services, when their needs are taken into account, the extent of overuse is reduced, represented by the lower concentration of -0.01 compared to -0.04 for the actual distribution. The difference between actual and need-predicted probabilities for the some social classes is much larger than in 1993. For example, for those in the 'unskilled' and 'partly skilled' categories, the probability of using services is 5.2 % and 2.3 % higher than expected, given their need. For those in the 'skilled manual' category the probability of use of services is 1.1% lower, and for the 'intermediate' and 'professional' categories it is respectively, 1.3% and 4.7 % lower than expected. Need-standardised distribution suggests a distribution that is less pro-poor (less unequal) than the actual distribution (CI being -0.02 compared to -0.04 for the actual distribution). The greater level of needs of the lower social classes explains some of the observed inequality in use but not all of it. The upper social classes need to use more of the services for their level of needs and the converse is true for the lower social classes. Once again, it is not clear if the lower level of utilisation by the upper classes is real or the result of not reporting.

Table 7.21: Distribution of actual, need-predicted and need-standardised use of mental health services, 2000

	Probability of use of services			
Social class	**Actual**	**Needed**	**Difference**	**Need-standardised**
		Predicted using probit	Actual minus predicted	Predicted using probit and controls
Unskilled	0.253	0.202	0.052	0.230
Partly skilled	0.210	0.187	0.023	0.201
Skilled manual	0.167	0.177	-0.011	0.167
Skilled NM	0.184	0.176	0.008	0.186
Intermediate	0.158	0.171	-0.013	0.165
Professional	0.111	0.158	-0.047	0.131
Mean	0.178	0.177	0.000	0.178
Concentration index (t-value)	-0.04129 (-5.30)	-0.0131 (-4.33)		-0.0282 (-3.93)

Note: Need variables used: Normative need- CIS-R 12+ and psychosis

7.5.3 Explaining inequity - decomposition of concentration indices – acceptable and unacceptable inequality

The inequalities in the use of services may be due to inequalities in the determinants of use other than the need factors. Social class is only one of the determinants, which influences the use of services. It is therefore useful to see how much of the measured inequality is due to social class and how much is due to other variables which are associated with social class and which may vary systematically with social class. To understand the causes of inequalities further, the concentration index for the use of services is decomposed and the relative contribution of inequalities within each of the potential determinants, to the overall inequality index are assessed.

Using the decomposition method explained in chapter 5 (Wagstaff *et al* 2003), the concentration indices for the use of services for both 1993 and 2000 were decomposed to analyse the contribution of need and other non-need factors to total inequality. Need-induced inequality has been described in the literature (Doorslaer *et al* 2003) as acceptable inequality while non-need related inequality is described as unacceptable inequality as these may be due to social class or other socio-economic factors.

In Table 7.22 results of decomposition of the concentration index for use of services for 1993 are presented. Elasticities of the determinant with reference to the use of services, concentration indices of the determinants themselves with reference to social class and the contribution of each of the determinants to the total inequality index for use of services are reported. A determinant will have greater contribution if it is more unequally distributed by social class or if it has greater elasticity (stronger effect) of use of services. The reference category is males 16-24, single, fully employed, living in own house in the North, From the group contributions presented in the last column, it can be noted that the major contributors to total inequality are the need indicators (-0.032 points), employment status (-0.144 points) and social class itself (-0.011). The contribution of all other groups of variables is quite small.

Table 7.22: Decomposition of concentration index for use of services, 1993

Variables	Elasticities	CI	Contribution	Sum
CI for use of services (actual)		**-0.0599**	**-**	**-0.0599**
Male25-34	0.0125	0.0231	0.0003	
Male35-44	0.0364	0.0877	0.0032	
Male45-54	0.0319	0.0233	0.0007	
Male55-64	0.0207	-0.0389	-0.0008	**0.0034**
Female16-24	0.0161	-0.1712	-0.0028	
Female25-34	0.0429	0.0146	-0.0006	
Female 35-44	0.0362	0.0762	0.0028	
Female 45-54	0.0566	0.0488	0.0027	
Female 55-64	0.0307	-0.0191	-0.0006	**0.0015**
CISR-low	0.2028	0.0156	0.0031	
CISR-moderate	0.2457	-0.0191	-0.0047	
CISR-high	0.3039	-0.1005	-0.0306	**-0.0322**
Social class	-0.0519	0.2068	-0.0107	**-0.0107**
White	-0.0277	0.0052	-0.0001	
African	-0.0009	-0.1459	0.0001	
Asian	-0.0111	-0.0911	0.001	**0.001**
Yorks	0.0043	-0.0357	0.0001	
Trent	0.0076	-0.0787	-0.0006	
EAnglia	0.0103	0.0596	0.0006	
NWthames	-0.0006	0.1463	0.0000	
NEthames	-0.0096	0.081	0.0000	
Wmidlands	-0.0098	-0.0649	0.0001	
Northwest	-0.0121	-0.0262	0.0003	
Wessex	0.0076	0.0289	0.0002	
Oxford	0.0047	0.0164	0.0000	
Swest	0.0019	0.0001	0.0000	
Mersey	0.0063	-0.0782	-0.0005	
Wales	0.0147	-0.1011	-0.0015	
Scotland	0.0039	-0.0788	-0.0003	**-0.0016**
No Qualfs	-0.0016	-0.2751	0.0004	
GCSC	-0.0085	-0.0667	0.0005	
Alevel	-0.0109	0.136	-0.0015	
Tchnrhnd	-0.0035	-0.0034	-0.0009	
Otheqlfs	0.0007	-0.0478	0.0000	**-0.0015**
Part-time employed	0.0279	-0.0534	-0.0015	
Unemployed	0.0254	-0.2147	-0.0054	
Econ Inactive	0.0891	-0.0839	-0.0075	**-0.0144**
Married	-0.0649	0.0412	-0.0027	
Widowed	0.0138	-0.103	-0.0014	
Divorced	0.0075	-0.0613	-0.0005	
Separated	0.0153	-0.0786	0.0012	**-0.0034**
Mortgage	0.0047	-0.3301	0.0049	
Rent house	0.0088	0.0118	0.0001	
LA house	0.0450	-0.3301	-0.0149	**-0.0099**

Table 7.23: Decomposition of concentration index for use of services, 2000

Variables	Elasticities	Concentration index	Contribution	Sum
CI (actual)		**-0.0413**	-	**-0.0413**
Male25-34	0.1146	0.0618	0.0007	
Male35-44	0.0132	0.0573	0.0007	
Male45-54	0.0232	0.0818	0.0019	
Male55-64	0.0099	-0.0624	-0.0006	
Male65-74	0.0015	-0.0191	0.0000	**0.0026**
Female16-24	0.0056	-0.1374	-0.0007	
Female25-24	0.0344	-0.057	-0.0020	
Female 35-44	0.0403	0.0451	0.0018	
Female 45-54	0.0264	0.0392	0.0010	
Female 55-64	0.014	-0.0763	-0.0011	
Female 65-74	0.0059	-0.1125	-0.0007	**-0.0027**
CISR-low	0.1228	0.0062	0.0007	
CISR-moderate	0.0723	-0.0112	-0.0008	
CISR-high	0.1227	-0.1191	-0.0146	**0.0147**
Social class	-0.0645	0.2031	-0.0131	**-0.0131**
White	0.0316	-0.0001	0.0015	
African	0.000	-0.0792	0.0000	
Asian	-0.0035	-0.1036	-0.0004	**0.0011**
Trent	0.0013	-0.1042	0.0001	
Wmidlands	-0.0032	-0.0574	0.0002	
Northwest	0.0039	-0.0338	-0.0001	
East	-0.0028	0.0429	-0.0001	
London	-0.0001	0.1149	0.0000	
South east	0.0031	0.0812	0.0002	
Swest	-0.0036	0.0245	-0.0001	
Wales	-0.0025	-0.019	0.0000	
Scotland	0.0028	-0.0676	-0.0001	**0.0001**
No Qualfs	-0.0107	-0.3311	0.0035	
GCSC	0.0044	-0.0733	-0.0003	
Alevel	-0.0027	0.0986	-0.0002	
Tchnrhnd	-0.0031	0.3803	-0.0016	**-0.0014**
Part-time employd	0.0078	-0.0756	-0.0006	
Unemployed	0.0001	-0.2064	-0.0001	
Econ Inactive	0.0963	-0.1294	-0.0125	**-0.0132**
Married	-0.0636	0.0278	-0.0018	
Widowed	0.0012	-0.1691	-0.0002	
Divorced	0.0100	-0.0444	-0.0004	
Separated	0.0100	0.0291	0.0003	**-0.0021**
Mortgage	0.0095	0.1149	0.0011	
Rent house	0.0013	0.0178	0.0000	
LA house	0.0307	-0.3492	-0.0107	**-0.096**

The effect of a determinant on the probability of use of services is represented by the elasticity of the variable. The elasticity for the need indicators is high and that is as it should be. Among males, the age-group 35-44 has the greatest user elasticity of services and among the females it is the age-group 45-54 which has the strongest effect on the use of services. The elasticity for females in the age-group 25-34 is also high compared to the other age-groups. Social class has negative elasticity which means the probability of use of services has an inverse relationship with social class rank. Those with A level qualifications have greater user elasticity than others. Those who are economically inactive have greater elasticity of use than the unemployed or part or full-time employed. Elasticity of use is negative for the married but positive for all other categories of marital status. User elasticity for those living in local authority housing is much higher than for those living in other kinds of housing.

Table 7.23 presents similar results of decomposition of the concentration index for use of services for 2000. The sum of contribution of the groups of demographic, socio-economic and need factors to total inequality are presented as was done for 1993 in Table 7.22. The results for contribution and elasticity of variables follow patters very similar to 1993. The same variables - need indicators, employment status and social class - are the major contributors to the total inequality in the use of resources. The economically inactive and those living in local authority housing have higher positive user elasticity than many other determinants. Those with no educational qualifications and the married have negative elasticities that are stronger than other categories in their respective groups. Regions do not have any significant effect on the use of services.

In Table 7.24, the contribution of need and non-need factors to the total inequality index in 1993 and 2000 are compared. The concentration index for actual use is only slightly lower in 2000 (-0.04 compared to -0.05 in 1993). However, inequality due to non-need factors had reduced between 1993 and 2000 (- 0.068 and -0.047 respectively) and inequality due to need factors also has reduced (-0.032 and -0.015 respectively). The factors that contribute most to inequity in the use of services are employment status, social class, housing tenure and need indicators. Marital status and age and gender also contribute slightly to total inequality. Ethnicity and regional variables do not add very marginal influence on the inequity index.

Table 7.24: The contribution of need and non-need factors to the total inequality indices for 1993 and 2000

	1993		2000	
Variables	**CI**	**Contribution**	**CI**	**Contribution**
CI (actual)	**-0.0599**	-	**-0.0413**	-
Need (CISR scores)	-0.135	**-0.032**	-0.124	**-0.015**
Social class	0.207	-0.011	0.203	-0.013
Male		0.003		0.003
Female		0.002		0.003
Ethnicity		0.001		0.001
Regions		-0.002		0.000
Ed Qualfs		-0.002		-0.001
Employment status		-0.014		-0.013
Marital status		-0.003		-0.002
Housing tenure		-0.010		0.010
All non-need		**-0.068**		**-0.047**

7.6 Conclusion

This chapter has compared the mental health situation in Britain at two points in time, 1993 and 2000, using the data from the two household surveys of psychiatric morbidity for these two years. Because of the many changes in policies and practices in the mental health field that took place between 1993 and 2000 and because of greater emphasis that most of the recent policy documents placed on equity, it was thought that an equity analysis using standardised methods would be useful. The concentration index approach was used for such analyses. As the income variable was deficient in the 1993 survey, informant's social class variable was used as an indicator of living standards in the estimation of inequality indices.

Several indicators of mental health morbidity were analysed to see if there was social class-related inequality in mental health and if there was any change between 1993 and 2000. All inequality indices are negative which indicated inequality unfavourable to the poor. The level of inequality in relation to neurotic disorders is not as marked as it is for psychosis in both the years. For all indices there is no significant age-gender effect that can explain the inequalities. This implies that all inequalities are due to social class or related factors. Examination of the group means, however, shows that the percentage of those suffering from neurotic disorders among all social classes except the 'professionals' has actually increased between 1993 and 2000. The disadvantages of low income, strenuous working environments, breaking family relationships, poor housing and environmental conditions, belonging to disadvantaged ethnic groups – could all contribute to increased levels of mental illness among the lower social classes.

Results indicate that there is evidence of improvement in the equity in mental health overall between the two years. Concentration indices for most of the indicators analysed were lower in 2000 than in 1993.

Equity in the use of mental health services was studied, using the same approach but standardising distributions for need. The concentration indices were negative indicating that lower social classes are more intensive users of services. However, when need for services were taken into account, the extent of the inequality was reduced, indicated by lower values of standardised indices. The result was true for all indicators of need. Inequity in the use of resources is thus pro-poor. This result holds for both 1993 and 2000. The indices were smaller in 2000 indicating that there was improvement in the equity situation in relation to use of mental health services.

The concentration indices were decomposed to examine the contribution of various factors to the total level of observed inequality in the use of services. The major contributors to inequalities were employment status and social class besides the need indicators in both 1993 and 2000. The decomposition results also provide information on the elasticities of the determinants in relation to use of services. The strongest influence on use of resources was for those in age-group 35-54 for males and age-group 45-54 for females. The economically inactive group had stronger positive effect on the use of services and also was responsible for major contribution to the total inequality index. The married had negative elasticity with respect to use of services compared to other marital status categories. Those living in local authority housing had greater elasticity of use compared to those living in own or privately rented accommodation.

These results are similar in both 1993 and 2000. Between the two years the contribution of all non-need factors to total inequality had reduced. which implies that equity in the use of services has improved between 1993 and 2000.

CHAPTER 8

Income-related inequalities in mental health and use of services by ethnic minorities in Britain

8.1 Introduction

While an emphasis on the influence of class, poverty and other economic differences on health of individuals dominates many political and academic discussions, age, race and gender have also become important in recent years. There is now far greater attention paid to the fine-grained detail of the ways in which aspects of social structure influence health risks (Blane *et al* 1997). As Wilkinson (2000) writes, it is clear now that social differentiation, rather than absolute levels of material and social resources, is important, as are the dynamics as well as the character of the social environment.

While inequalities in general health among the general population have been at the forefront of health-related research for many decades now, research relating to inequalities in mental health among ethnic minorities is limited. One of the main drawbacks for research in this domain has been the lack of relevant national-level data about ethnic minority groups. As Cochrane and Sashidharan (1996) pointed out, there was a dearth of general population surveys of minority ethnic groups in the UK. As a result studies were either localised in some specific geographic regions (or a particular city) or based on very small sub samples of ethnic minorities from general population surveys. Due to the very nature of such studies, results were often inconclusive and sometimes contradictory. Another drawback of research in this area was that considerable attention was given to only specific kinds of services or ethnic groups – e.g., depression among Asian women or secondary care and schizophrenia among the Black Caribbean population. Some ethnic minorities were completely neglected. For example, despite the fact that the distribution of psychopathology among the Irish in Britain is argued to be quite different from that of the native born, very few studies have included the Irish as a distinct group. The Fourth National Survey of Ethnic Minorities (FNSEM) (Madood *et al* 1997) too did not include the Irish as a distinct group.

The ONS survey of Ethnic Minority Psychiatric Illness Rates in the Community (EMPIRIC) conducted in 2000 sought to overcome these deficiencies. The survey provides, for the first time, a large sample of the ethnic minority population (including the Irish) with mental health problems, enabling useful research in this field.

In this chapter, income-related inequalities in mental health morbidity and use of mental health services among ethnic minorities in Britain are analysed using EMPIRIC data, concentrating on common mental health problems rather than psychosis, as relatively little is known about the common mental disorders among the ethnic minority groups. The concentration index approach, the standardised tool for measurement of income-related inequalities, described in chapter 5 is used for analysing within-group and between-group inequalities.

8.2 Ethnicity and mental health

The relationship of ethnicity and race to mental disorders has been the subject of much controversy. One reason is because causal relationships are difficult to establish due to data deficiencies of the kind just described, and also due to the research methods employed. However, one can hardly ignore the association of low income and social class with ethnic minority status. Traditional epidemiological approaches have often illuminated relationships between many social and psychological factors, but race and ethnicity have not been explicitly included in those models. Even with the traditional models explanations of causation are weakly developed (Rogers and Pilgrim 2003). Two main causal hypotheses put forward in the literature are the social causation theory and social selection theory. The former suggests that higher rates of mental health amongst those of lower social class are due to a greater exposure to environment and social stress such as living in poverty and deprivation in disintegrated and isolated communities characterised by high crime rates (Bebbington *et al* 1981; Brown and Harris 1978). The latter suggests that social class is affected by mental disorder. Given the clearly documented relationship between socio-economic status and health (Townsend and Davidson 1982; Blaxter 1987 and 1990; Davey-smith *et al* 1990; Benzeval *et al* 1995) and the relatively deprived position of many ethnic minority groups, it seems that any exploration of ethnic variations in mental health needs to seriously consider socio-economic effects.

Although interest in the health of ethnic minorities in Britain has been substantial since the 1980s, much of the work that was carried out in this field was in relation to general health and even those studies were weak in some respects as they were dependent on data that were far from adequate. Some of these works (e.g., Marmot *et al* 1984; Balarajan and Bulusu 1990; Balarajan 1996) were based on immigrant mortality statistics derived from national datasets. Some others based on nationally representative surveys of the general population (e.g, Benzeval *et al* 1992) could only draw provisional conclusions as the surveys did not have sufficiently large samples of ethnic minority people. Because of the highly concentrated geographical locations of particular ethnic groups in Britain, many regional studies covered only specific ethnic groups – e.g., Pakstanis in Bradford (Knight *et al* 1992) and Bangladeshis in East London (McKeigue *et al* 1988). However, in the 1990s there were attempts to collect better data on ethnic minorities (e.g., Census 1991; Rudat 1994; Madood *et al* 1997) which facilitated better research in this area.

Studies relating to the mental health of these groups suffered from similar deficiencies as studies relating to general health. In general, variations between ethnic groups reported in studies show lower rates of depression for people from the south Asian sub-continent than the white population (Cohrane and Bal 1989) and higher rates of psychosis for people of Afro-Caribbean (the term as was used in the study) origin. But due to the poor nature of data and methodological questions concerning ethnic health research, it has been pointed out that perhaps more than in any other area of health care and health services-related research, mental health has to be understood in a broader socio-political context (Cochrane and Sashidharan 1996). As Nazroo (1999) writes, the relative prevalence of mental illness among different ethnic groups in Britain is probably one of the most controversial issues in the health variations field. Mental illness is difficult to measure. Both the definition and the measurement of mental illness depend on the presence of clusters of psychological symptoms that indicate a degree of personal distress, or that lead to behaviours that cause such distress to others.

Results from previous studies relating to the mental health of ethnic minorities in Britain are often contradictory. Hospital-based research in Britain has consistently shown elevated rates of schizophrenia among African Caribbeans (term used in many early studies) compared with the white population. African Caribbeans are reported to be at least three times more likely than whites to be admitted to hospital with a first diagnosis of schizophrenia (Harrison *et al* 1988; Cochrane and Bal 1989; King *et al* 1994; Van Os *et al* 1996). Sharpley *et al* (2001) conclude, from a survey of the literature, that the African-Caribbean population of England is at increased risk of both schizophrenia and mania. The excess of the two psychotic disorders are probably linked: African-Caribbean patients with schizophrenia show more affective symptoms, and a more relapsing course with greater social disruption but fewer chronic negative symptoms than white patients. Brugha *et al* (2004), using Psychiatric Morbidity Survey 1993 data, found that the African-Caribbean group were at significantly increased risk of a psychotic disorder (odds ratio 4.55; after adjustment for risk factors, the odds of psychosis were lower - odds ratio 2.97). Despite the consistency of these findings that African Caribbeans have higher rates of psychosis, some commentators have not accepted the validity of these data and suggest that a higher incidence remains unproven and that there are serious methodological flaws with the research that has been carried out, flaws particularly resulting form the reliance of most work on hospital admission data (Sashidharan 1993; Sashidharan and Francis 1993). Rates of mental illness among south Asian populations on the other hand, have been shown, on balance, to be *lower* than those for the general population (Cochrane and Stopes-Roe 1981; Cochrane and Bal 1989; Gilliam *et al* 1989). However, high rates of suicide and attempted suicide among young south Asian women have been reported. These findings, however, are not entirely consistent. Some studies of overall psychiatric hospital admission rates suggest that south Asians have similar rates of admission (Carpenter and Brockington 1980; Dean *et al* 1981) as other groups. The lower rates may not also be consistent across types of disorder.

Using FNSEM data, Nazroo (1999) compared the prevalence of neurotic depression; suicidal thoughts and non-affective psychosis among ethnic minority groups and found that, compared to the white British group, for each of these outcomes the Caribbean group had higher rates, the Indian/African Asian and Pakistani groups had similar or slightly lower rates, and the Bangladeshi and Chinese groups had considerably lower rates. However, this pattern was not consistent for men and women. For the three Asian groups rates of neurotic disorders were low for women. For the Indian and Pakistani men they were higher than for the white British. For the Bangladeshi men it was similar to the white British. Even among the Black Caribbeans, men had higher rates of prevalence than women for psychosis. However, the higher rate of psychosis for this group was not as large as might have been expected on the basis of literature in this area. Rates of depression were higher for the Caribbeans compared to the white population, contrary to previous findings. There was no suggestion of higher rates of suicidal thoughts among the south Asian women. Among the socio-demographic factors contributing to a higher risk of mental illness, in addition to ethnicity, only social class showed relatively uniform effect across ethnic groups. Class was inversely related to mental health for all outcomes. Being married or cohabiting appeared to increase the risk of depression for the Caribbean group, while it reduced the risk for the white and south Asian groups.

Some other studies among the general population indicate that for both African-Caribbeans and south Asians, rates of psychiatric morbidity are lower than for the indigenous population (Bebbington *et al* 1991; Cochrane and Stopes-Roe 1981; Williams *et al* 1993). Evidence from the Fourth National Survey of Ethnic Minorities (Madood *et al* 1997) indicated that Pakistanis and Bangladeshis were the most disadvantaged ethnic minority groups, but they did not appear to have higher rates of any mental illness (Cochrane and Bal 1989). There were also findings that rates of anxiety, depression and suicide are lower among African Caribbeans than among the general population (Cochrane and Bal 1989; Gilliam *et al* 1989; Soni Raleigh and Balarajan 1992; Lloyd 1993). Brugha et al (2004), examining whether variations in the prevalence of neurosis and psychosis between ethnic minorities in Britain are explained by social disadvantage, found that none of the minority ethnic groups had significantly increased rates of neurosis.

These results are puzzling given the strong association between social and material adversity and prevalence rates for psychological distress in the population at large. Most of the evidence would appear to confirm that minority ethnic groups experience considerably greater levels of social and material adversity compared to their white counter-parts. Madood *et al* (1997) have shown that important differences exist between the socioeconomic positions of different ethnic minority groups. Indian or African Asians (i.e., those Indians whose families spent some time in East Africa) and the Chinese were in similar position to white respondents, while Caribbeans, Pakistanis and Bangladeshis were, to varying degrees, worse off in terms of social class, unemployment rate and quality of housing. In one study examining the impact of unemployment on British Asians, the unemployed group was found to have lower levels of psychological well-being and self-esteem compared to those in employment (Shams 1993; Shams and Jackson 1994). Brugha *et al* (2004) also found that ethnic grouping was strongly associated with unemployment, lone parent status, lower social class, low perceived social support, poverty (indicated by lack of car ownership) and having a primary social support group of less than three close others. (All these associations applied to the group of Afro-Caribbeans, but only some applied to the other groups.)

Whether the reported low rates of psychological distress found in some studies is a product of the inadequacy of case-finding techniques, which have relied on culturally biased measures, or if such under-reporting is indicative of a true underlying low prevalence rate, remains unclear (Cochrane and Sashidharan 1996). It has been recognised that under-diagnoses of mental health problems within south Asian communities is quite common (Mind 2007). Interestingly, where studies have attempted to depart from conventional case definition, for example using culturally appropriate definitions of mental distress (e.g., Beliappa 1991) greater levels of mental distress, consistent with the high levels of adversity found amongst minority ethnic groups have been identified. It has been pointed out that it is, therefore, possible that much of mental health morbidity will remain hidden in the general population unless an attempt is made to go beyond conventional categorisation of psychological disorders derived from current psychiatric practices.

Nazroo (2001) looked specifically at the relationship between social class and mental health of ethnic minorities and found that the Indian or African Asian group showed a clear socio-economic gradient in the risk of both indicators of mental illness and the expected gender difference – women having higher rates than men. However, Pakistani and Bangladeshi groups showed neither the gender difference nor the socioeconomic gradient. For the Caribbean group, although the annual prevalence of non-affective psychosis was higher compared with the white group, the difference was not as great as the three to five times higher rate that treatment statistics have suggested. All of the difference was a result of the higher rate among Caribbean women compared with white women. Rates for Caribbean men were the same as those for white men. Nazroo found no evidence to support the propositions suggested in some other studies that hospital admissions for first-onset schizophrenia are particularly high among Caribbean men born in Britain (Harisson *et al* 1988) and among young Caribbean men (Cochrane and Bal 1989). Contrary to evidence from treatment statistics for depression, he found that the Caribbean group has a 60% higher rate of depression than the white group. The difference was greater for men, with Caribbean men having twice the rate of white men. Socio-economic gradient was apparent in the Caribbean group for both of the mental health outcomes.

8.2.1 Use of services by ethnic minorities

Access to and the ease of use of health services are important potential sources of inequality in the health experience of different ethnic groups in Britain. If such inequalities do exist, they may have important influences on both the overall quality and adequacy of care received and the outcomes of that care. Consequently, ethnic variations in health may at least be partly attributable to or amplified by differences in health service use (Nazroo 1997).

Evidence from the literature, however, is once again not conclusive. For example, Gilliam *et al* (1989) found no evidence that ethnic minorities consult their GPs any less frequently than their white counterparts. However, the picture was almost reversed when it came to consultation rates for psycho-social problems. The group that was most likely to be diagnosed by the GP as having psychological disorder was white women, with women of African-Caribbean and Asian origin least likely to be identified as having significant psychological problems. Others, such as Lloyd (1992), were of the opinion that relatively little is known about access to primary care and the management of psychological disorders in ethnic minorities. Many studies that attempted to explore possible variations in health service use across ethnic groups have found that, on the whole, ethnic minority groups make greater use of the health services than the white majority. Rudat (1994) using Health and Lifestyle Survey data found that GP consultation rates were higher among the Pakistani and Bangladeshi groups than the general population. Similar results were also found by Balarajan *et al* (1989) using General Household Survey data, and McCormick and Rosenbaum (1990) and Carr-Hill *et al* (1996) using the third and fourth GP Morbidity Surveys.

Despite the evidence from these studies, there is generally concern that there may be considerable unmet need for psychological support among minority ethnic groups. GPs play an important role for people from minority ethnic communities, as they are frequently their first point of contact with the psychiatric system. But one has to understand that the differences in the use of health services can only be fully understood in the light of differences in need. Frequency of contact with GPs gives no indication of the frequency or quality of the psychiatric services received. Cochrane (1981), for example, found equivalent levels of morbidity in random samples of the Pakistani-born and white population of England, but a treated prevalence rate of less than half the white rate among the Pakistanis for non-psychotic disorders. Bhugra *et al* (2003) found that South Asians were more likely to ask for help but had longer delays in contacting psychiatric services. Applying the Mann-Whitney U-test revealed a mean rank of 79.76 days before seeking help for Asians compared with a mean rank of 44.51 days for whites. South Asians were also more dissatisfied with their GPs. Research from Mind shows that Asian mental health service users experience many problems, including inappropriate treatment and care. The provision of mental health services to people from South Asian communities is thus a subject of growing concern.

Another cause for concern is the well-cited evidence that there is over-representation of Black and Minority ethnic (BME) populations in the most restrictive parts of the mental health system. (Health Care Commission Mental Health Ethnicity Census 2005). Bhui and Bhugra (2002) point out that a substantial body of research indicates that, for people from Black and Asian ethnic minorities, access to, utilisation of and treatments prescribed by mental health services differ from those for white people; results also shown by Lloyd and Moodley (1992) and Bhui (1997). Bhui and Sashidharan (2003) are highly critical of the present system of care when they write that the existing services as a whole do not offer a system of care in which Black and ethnic minorities can expect to receive the least coercive treatment, nor do they guarantee that cherished cultural, spiritual and religious beliefs are even known by professionals, let alone accommodated into care plans. Similarly Cochrane and Sashidharan (1996) write that the evidence which attests to the discriminatory nature of psychiatric care in this country is incontestable. The negative experiences of mental health care for Black and other minority groups were first documented in the early 1960s when research pointed to the over-representation of Black people within institutional settings. Since then a wealth of data have emerged that clearly confirm that Black and other minority ethnic groups experience mental health care differently from white people, and that such discrimination extends to all aspects of care (Sashidharan 2001). Commander et al (1997) also point out that conventional epidemiological and clinical studies repeatedly point to the discriminatory nature of the psychiatric care received by them.

With so much controversy and conflicting evidence with regard to the provision of and use of mental health services, it can only be said that there is need for lot more research in this field.

8.3 Methods

This chapter is not really concerned with methodological developments for ethnic research, although some will emerge as empirical data are explored using more searching techniques than have generally been used in previous research. The primary aim here is a clearer understanding of the differences in mental health indicators among the ethnic groups in Britain (including the whites) which may be related to their economic positions in society, as there are noticeable differences in income distribution among these groups and this is likely to have some impact on their mental health and also on their utilisation of mental health services.

8.3.1 Measuring inequality: the concentration index

The concentration index approach discussed in chapter 5 and already employed in the empirical estimations in chapters 6 and 7, is used here in the examination of income-related inequality in mental health among ethnic minorities in Britain. To repeat what has already been written before, the index builds on the well-known Lorenz Curve and Gini coefficient which are widely used for measuring inequality in income distribution. This method provides a means of quantifying the degree of income-related inequality in a specific health variable. While the Gini coefficient measures inequality in income, the concentration index measures inequality in the health variable of interest in relation to the distribution of income. Therefore it captures the effect of both distributions – income as well as health.

The concentration index is defined with reference to a concentration curve which graphs on the horizontal axis the cumulative percentage of the sample, ranked by living standards, beginning with the poorest, and on the vertical axis the cumulative percentage of the health variable corresponding to each cumulative percentage distribution of the living standard variable. If everyone has exactly the same value of the health variable, irrespective of living standards, then the concentration curve will be a 45^0 line - the so-called line of equality. The concentration index (usually abbreviated to *CI*) is defined as one minus twice the area between the line of equality and the concentration curve (Wagstaff *et al.* 1991; Kakwani *et al.* 1997). If there is no income-related inequality, the concentration index will thus take the value zero. The index takes a negative value when the curve lies above the line of equality, indicating disproportionate concentration of the health problem among the poor, and a positive value when it lies below the line of equality, indicating disproportionate concentration of the health variable among the rich.

If we suspect that some mental health problems are correlated with age and gender, and that these two demographic variables may be unequally distributed across income groups, it is generally advisable to examine also the *standardised* health distribution using concentration indices. While studying inequalities in the use of services standardisation of the distributions for need will enable us to see if there is horizontal inequity in the use of services.

In this chapter, the standardized concentration indices are estimated using the indirect method of standardization described in chapter 5. Using the decomposition method suggested by Wagstaff, *et al* (2003), the income-related inequality index is decomposed in order to examine the relative contributions of other socio-economic and socio-demographic variables to total inequality.

8.3.2 Data and variables

Data for this study were taken from a representative sample of 3565 individuals from the ONS survey of Ethnic Minority Psychiatric Illness Rates in the Community (EMPIRIC) 2000, a cross-sectional survey of adults aged 16-74 years belonging to Black Caribbean, Indian, Pakistani, Bangladeshi or Irish ethnic groups, living in private households in England. White adults aged 16-74 years, selected from 1998 Health Survey of England respondents who had agreed to be re-contacted were also included in the sample. The overall aim of the EMPIRIC survey was to estimate the prevalence of psychiatric morbidity, as measured by standard screening instruments, among minority ethnic populations resident in England, and to compare prevalence rates between groups. The survey also aimed to examine the use of related services and to examine key factors that may be associated with mental disorder, and ethnic differences in the risk of its contraction. Topics covered in the survey included assessments of neurotic symptoms and disorders using the Clinical Interview Schedule - Revised (CIS-R) (Lewis A& Pelosi 1990), the Psychosis Screening Questionnaire (PSQ) (Bebbibgton & Nayani (1994) used to assess psychotic symptoms, use of services, social networks, carers, discrimination/harassment, SF12 Physical and Mental Health Summary Scales (Ware *et al* 1996; 1998), social functioning and chronic strains.

Morbidity and service use indicators

Morbidity

Morbidity measures analysed in this study are based on the CIS-R scores - the total CIS-R scores and scores of 12+, which are termed 'cases'. As CIS-R generates a total score that can be conceived as a measure of neurotic disorder along a continuum of severity, three levels of scores - low (2-11), moderate (12-17) and high (18+) are also analysed. In addition results for specific diagnostic categories of neurotic disorders – Generalised Anxiety disorder (GAD), Mixed Anxiety and Depression (MAD), Obsessive Compulsive Disorder (OCD), panic disorder, phobias and depression are also analysed. The concentration index, the measure of inequality is, however, presented only for the most significant indicator of neurotic disorders – CIS-R 12+ (or 'cases').

Use of services

The variable employed is use of any of the health care services during the previous 12 months. The services included are contacts with any type of doctor as outpatient or inpatient in a hospital, contacts with any type of nurse and contacts with counsellor or psychologist.

8.4 Analysis

8.4.1 Descriptive statistics

Table 8.1 shows the distribution of the sample by ethnic groups. The sample size was reasonable overall and for each of the ethnic groups included in the survey.

Table 8.1: Sample distribution by ethnic groups

Ethnicity	N (%)
White	745 (20.9%)
Irish	658 (18.5%)
Black Caribbean	617 (17.3%)
Indian	505 (14.2%)
Bangladeshi	492 (13.8%)
Pakistani	548 (15.4%)

Table 8.2 presents the clinical characteristics of the study sample. The overall mean of CIS-R-scores was 5.9. About 45 % of the sample had CIS-R scores of 2-11 (labelled CIS-R low). Those with moderate and high CIS-R scores (CIS-R 12 +) constituted 17% of the sample. Around 62 % of the sample thus reported symptoms with a score of two or more (the self-reported symptoms of mental illness). Proportions of the sample suffering from depression, mixed anxiety and depression, generalised anxiety disorders and phobias were 3.1%, 11.2%, 1.4% and 1.5%, respectively. There were 1.1% of the sample with obsessive compulsive disorder and 1.4% with panic disorder. Since the proportion of those with probable psychosis was very small (0.7%), I have not carried out further analysis of this sample.

Table 8.2: Clinical characteristics of the study sample

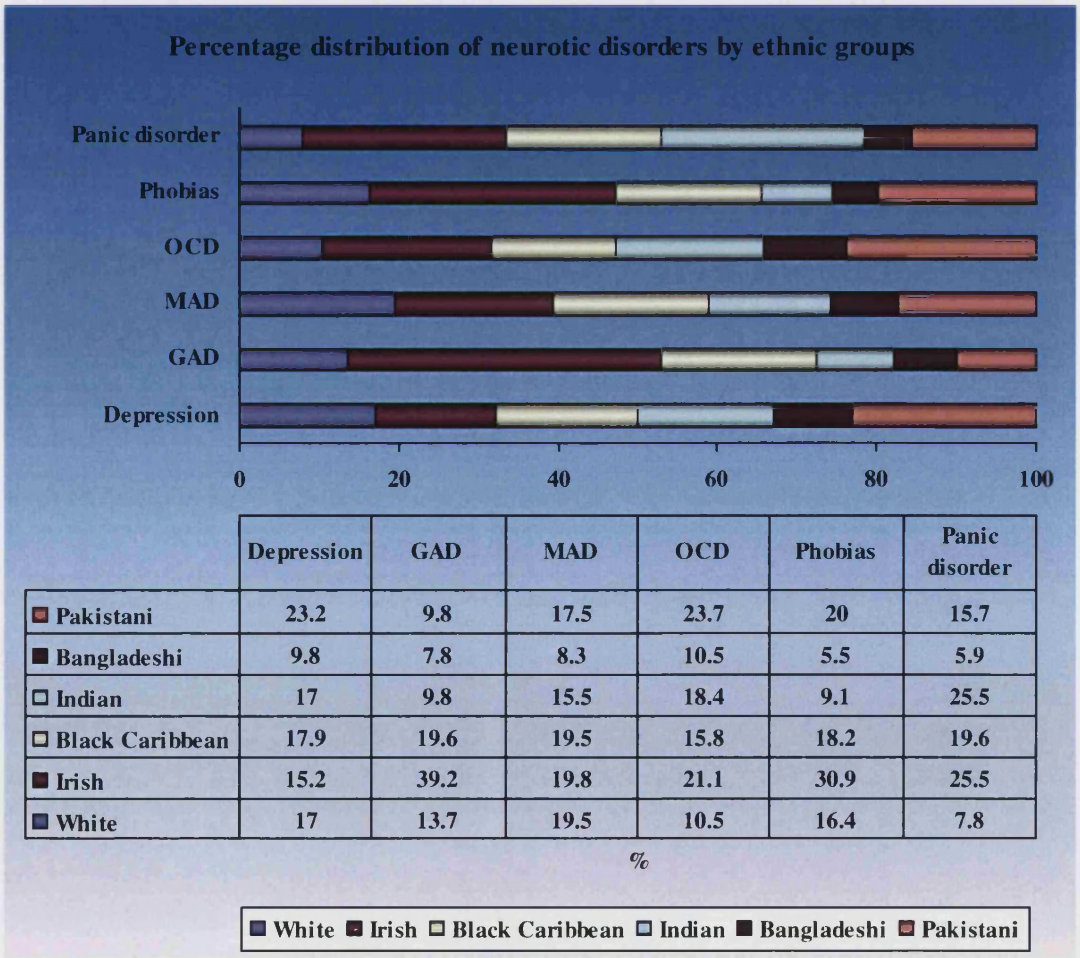
Variables	Statistics
Total CIS-R score	
Range	0-44
Mean	5.85
Median	3.0
	n (%)
Cases (CIS-R 12+)	614 (17.2%)
Positive on any psq screening Qs	285 (8.0%)
Positive on >3 psq screening Qs	25 (0.7%)
Depression	112 (3.1%)
MAD	400 (11.2%)
GAD	51 (1.4%)
OCD	38 (1.1%)
Phobias	55 (1.5%)
Panic disorder	51 (1.4%)
CIS-R low (2-11)	1,608 (45.1%)
CIS-R moderate (12-17)	287 (8.1%)
CIS-R high (18+)	327 (9.2%)
Self-reported illness symptoms (CIS-R 2+)	2,222 (62.4%)

The major indicators of mental disorders presented in Table 8.3 reveal interesting information, some contradictory to what is found in literature. In terms of the total CIS-R scores, the Irish and the Pakistani groups have higher mean scores than other ethnic groups. Indian and Black Caribbean groups have scores above the overall mean while the white and the Bangladeshi groups have scores below the overall mean. The percentage share of 'cases' is highest for the Irish (21%), closely followed by the Black Caribbean (19%), Pakistani (18%) and white (17.8%) groups. However, when we look at the share of those with CIS-R scores of more than 18, the groups with the largest burden are Pakistani (20.2%) and Black Caribbean (20.2%) followed by the Irish (19.3%). The share of Indians is slightly lower than that of the whites. It is to be noted that although Bangladeshis show low levels of mental illness in terms of all three indicators, the same cannot be said of the other Asian groups. The Pakistani group particularly has high levels of mental illness and the white and the Black Caribbean do not show high levels of mental illness as is generally believed and revealed in some other studies.

Table 8.3: Distribution of mental illness by ethnic groups

	Indicators of mental illness		
Ethnic groups	**Total CIS-R scores (mean)**	**Cases (CIS-R 12+) (%)**	**CIS-R 18+(%)**
White	5.53	17.8	16.2
Irish	6.52	21.0	19.3
Black Caribbean	6.45	19.1	20.2
Indian	6.06	15.6	15.9
Bangladeshi	3.71	8.3	8.3
Pakistani	6.52	18.2	20.2
Total	5.85	100% N=614	100% N=327

The distribution of neurotic disorders in Fig 8.1 reveals that there are no obvious systematic patterns. The highest proportions of people with depression and obsessive compulsive disorder are among the Pakistanis. Generalised anxiety disorder and phobias are the highest among the Irish. Panic disorder is higher among the Indians and the Irish than other groups. Bangladeshis have the lowest proportion of all disorders. The Black Caribbean do not account for high levels of any of the disorders compared to other ethnic groups. Among the sample population, the most common neurotic disorder was mixed anxiety and depression, with each of the ethnic groups (except Bangladeshis), sharing a relatively similar morbidity burden ranging from 15.5% among Indians to 19.8% among the Irish. The least common disorder is OCD.



	Depression	GAD	MAD	OCD	Phobias	Panic disorder
Pakistani	23.2	9.8	17.5	23.7	20	15.7
Bangladeshi	9.8	7.8	8.3	10.5	5.5	5.9
Indian	17	9.8	15.5	18.4	9.1	25.5
Black Caribbean	17.9	19.6	19.5	15.8	18.2	19.6
Irish	15.2	39.2	19.8	21.1	30.9	25.5
White	17	13.7	19.5	10.5	16.4	7.8

Figure 8.1: Distribution of neurotic disorders by ethnic groups

8.4.2 Mental health problems by ethnic groups and gender

Analysis of EMPIRIC data revealed that among whites, more males suffer from depression, GAD, phobia and panic disorder than females and the opposite is true for MAD and OCD (see tables 8.4 and 8.5). Among the Irish, more women than men suffer from depression, GAD, OCD and phobias. MAD and panic disorders are quite high among Irish men. Among Black Caribbean men depression, GAD and panic disorder are higher than among women. Indian women have higher prevalence of depression, GAD and panic disorder than men. MAD and OCD are higher among Indian men compared to the women. Among the Bangladeshis men have higher prevalence than women of all neurotic disorders except GAD. Among Pakistanis, more women suffer from depression, MAD and panic disorder whereas the prevalence of OCD and phobias is higher among men.

Table 8.4: Percentage distribution of neurotic disorders by ethnic groups for males

	% with neurotic disorders					
Ethnic groups	**Depression**	**GAD**	**MAD**	**OCD**	**Phobias**	**Panic disorder**
White	18.6	15.4	15.1	6.7	16.7	8.7
Irish	14.0	34.6	22.3	20.0	29.2	30.4
Black Caribbean	18.6	26.9	15.8	6.7	12.5	21.7
Indian	16.3	3.8	20.1	20.0	8.3	17.4
Bangladeshi	14.0	7.7	11.5	20.0	8.3	13.0
Pakistani	18.6	11.5	15.1	26.7	25.0	8.7
Total N	100 % 43	100% 26	100% 139	100% 15	100% 24	100% 23

Panic disorder is consistently high among males in all ethnic groups. Irish women have high levels of neurotic disorders in general. Depression is higher among the males in both white and black populations but is not so for the Irish. Among Asian women, Indian and Pakistani women have higher rates of depression than men. Some or the other form of anxiety disorder is high among Asian men. Asian women, especially the Bangladeshi women have fewer neurotic disorders than Asian men.

Table 8.5: Percentage distribution of neurotic disorders by ethnic groups for females

	% with neurotic disorders					
Ethnic groups	**Depression**	**GAD**	**MAD**	**OCD**	**Phobias**	**Panic disorder**
White	15.9	12.0	21.8	13	16.1	7.1
Irish	15.9	44.0	18.4	21.7	32.3	21.4
Black Caribbean	17.4	12.0	21.5	21.7	22.6	17.9
Indian	17.4	16.0	13.0	17.4	9.7	32.1
Bangladeshi	7.2	8.0	6.5	4.3	3.2	0
Pakistani	26.1	8.0	18.8	21.7	16.1	21.4
Total N	100 % 69	100% 25	100% 261	100% 23	100% 31	100% 28

8.4.3 Factors influencing probability of having a mental health problem and use of services

Many factors can affect the probability of an individual suffering from mental health problems. As a first step, I estimated a simple probit model to assess the impact of various factors on the probability of observing CIS-R score of 12+ ('cases').

Table 8.6: Probit results for the probability of having CIS-R 12+

Variables	Coefficient	Z
Income	-0.061	-1.64
Males 16-34	**-0.292**	-2.26
Males 35-54	0.068	0.59
Females 16-34	-0.087	-0.75
Females 35-54	**0.231**	2.11
Females 55-74	-0.019	-0.17
Irish	**0.237**	2.78
Black-Caribbean	**0.198**	2.12
Bangladeshi	-0.196	-1.62
Indian	**0.270**	2.83
Pakistani	**0.201**	1.98
Urban	-0.096	-0.98
Semi-urban	-0.114	-1.34
No qualifications	-0.014	-0.16
O level	0.072	0.83
A level	0.106	1.03
Other qualifications	0.093	0.83
Other higher qualifications	0.012	0.12
Single	**0.144**	1.95
Divorced/Separated	**0.251**	2.78
Widowed	0.028	0.19
Unemployed	0.123	0.89
Retired	-0.039	-0.34
Economically inactive	**0.281**	4.27
North West	-0.245	-1.01
Yorkshire & Humberside	-0.125	-0.49
West Midlands	-0.308	-1.28
East Midlands	-0.081	-0.33
East Anglia	-0.125	-0.44
South west	**-0.729**	-2.04
South east	-0.365	-1.52
London	-0.373	-1.57

Evidence from previous health-related research provides pointers toward factors that may potentially influence such probabilities. Demographic and socio-economic factors included in the probit analysis were age, gender, ethnicity, income, employment status, marital status, educational qualifications and area of residence (e.g., rural) and the region (Health Authority) in which the respondent resides. Results are given in table 8.6. The reference category is white male aged 55-74, with university degree, married, employed, living in rural area in the North region.

The factors that show significant effects on the probability of having a 'case' (high-lighted in bold in Table 8.6) are males 16-34, females 35-54, Irish, Black Caribbean, Indian, Pakistani, single, divorced/separated, economically inactive and living in the south west. Not surprisingly, being a member of any ethnic minority group, except Bangladeshi, has a significant positive effect on the probability of having mental health problems. It is interesting that the effect of ethnic groups stands out clearly in the list of all potential influences on mental health. Being single and divorced or separated also increases the probability of being a 'case'. Females in the age-group 35-54 also are more likely to have mental health problems. Being economically inactive is also not good for the mental health of individuals.

In Table 8.7, probit estimates for the probability of using services are presented. Notable among the significant factors are the three ethnic groups - Indian, Pakistani and Bangladeshi. Being a member of these groups has a positive influence on the probability of use of services. Other significant factors with positive influence on the probability of use are the need indicators represented by CIS-R score levels, having no qualifications, being widowed, being unemployed and being economically inactive. Males aged 16-54 and being 'single' have a negative influence on the probability of use of services. Regional variables do not show significant differences. Females aged 16-54 also have negative influence, though the results have low level of significance.

Income has a negative influence on the probability of having a mental health problem (Table 8.6) and a positive influence on the use of services (Table 8.7). The low level of significance for this variable in both estimations may be due to the fact that the true effect is affected by the correlation of income with other factors included in the model such as employment status and ethnicity. However, it is important to note that the influence of income on mental health and the use of services is contradictory, suggesting the existence of income-related inequalities and possible inequities. In the next section, this aspect is explored further by analysing income-related inequalities among the ethnic groups.

Table 8.7: Probit results for the probability of use of services

Variables	Coefficient	Z
Income	0.038	1.11
CIS-R low	**0.108**	1.98
CIS-R Moderate	**0.362**	3.64
CIS-R High	**0.551**	5.16
Males 16-34	**-0.640**	-5.42
Males 35-54	**-0.510**	-4.62
Females 16-34	-0.178	-1.54
Females 35-54	-0.190	-1.73
Females 55-74	0.191	1.61
Irish	0.091	1.19
Black-Caribbean	0.131	1.56
Bangladeshi	**0.492**	4.49
Indian	**0.323**	3.68
Pakistani	**0.338**	3.61
Urban	0.152	1.67
Semi-urban	0.091	1.16
No qualifications	**0.160**	1.98
O level	0.067	0.87
A level	0.092	1.02
Other qualifications	0.024	0.24
Other higher qualifications	0.049	0.53
Single	-0.189	-2.87
Divorced/Separated	-0.077	-0.82
Widowed	**0.412**	2.31
Unemployed	**0.329**	2.45
Retired	0.128	1.11
Economically inactive	**0.247**	3.83
North West	-0.031	-0.12
Yorkshire & Humberside	-0.026	-0.09
West Midlands	-0.029	-0.11
East Midlands	-0.131	-0.49
East Anglia	0.026	0.09
South west	-0.193	-0.59
South east	-0.057	-0.22
London	-0.091	-0.35

8.4.4 Income-related inequalities in mental health problems by ethnic groups

The descriptive statistics in section 8.4.2 revealed that there are differences in the prevalence of mental disorders among the different ethnic groups in the UK. Those differences, however, do not reveal if there are inequities in the distribution of ill-health within and across groups. That is, they do not indicate whether those in certain ethnic groups and income groups experience higher levels of illness compared to the rest of the UK population or whether any of the observed levels of disorders are due to confounding demographic or other variables. It is, therefore, useful to study the distribution of mental health problems by income quintiles among these ethnic groups taking into account the demographic composition of income groups as well as any other socio-economic variables which may be correlated with the socio-demographic variables. Analysing morbidity (and use of services) by income groups using the concentration index approach will enable us to understand if the burden of these disorders is unequally spread within and across ethnic groups and if such inequality is associated with the socio-economic status of individuals.

First of all, an understanding of how the sample population is distributed in terms of standard of living is essential. As can be seen from Figure 8.2, the distribution of the sample population by income (equivalised household income) has a similar pattern among the white and Irish populations with major proportions in the higher income quintiles and very small proportions in the bottom two quintiles. In contrast, some non-white ethnic groups (Bangladeshi and Pakistani) have higher proportions in the bottom two quintiles and very small proportions in the upper quintiles. Indian and Black Caribbean samples also have larger proportions in the bottom quintiles than the white populations.

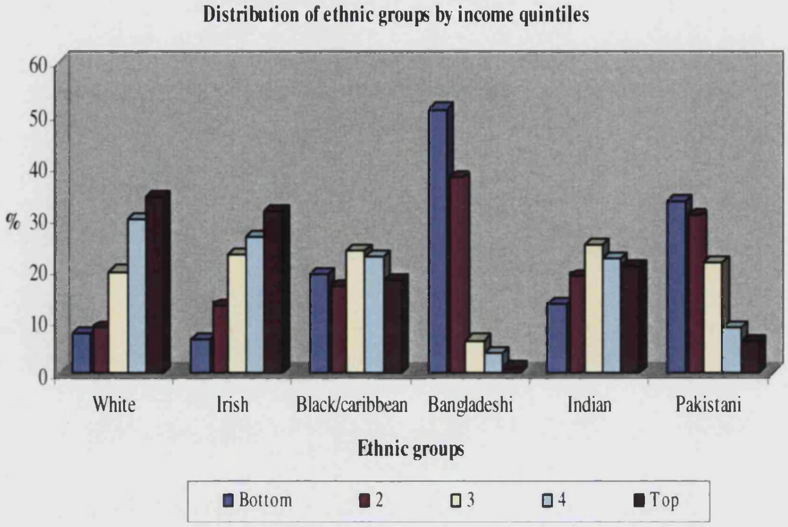


Fig 8.2: Distribution of the sample population by income quintiles and ethnicity

Measurement of income-related inequalities - the concentration indices

The concentration index approach is used for the estimation of income-related inequality in morbidity. Concentration curves and indices for the ethnic groups studied are presented to see whether and to what extent differential income position affects each of ethnic groups differently. Income-related inequalities are analysed both within each of the ethnic groups and between these groups.

In presenting within-group inequalities, individuals belonging to a particular ethnic group are ranked according to their income and the distribution of ill-health and use of services by income quintiles within that group are represented by concentration indices for that group. While this kind of analysis is interesting in itself, what may be even more interesting are the inequalities between these groups that are defined by their income levels with reference to each other. Thus in presenting between-group inequalities, all individuals belonging to all ethnic groups are considered as a homogeneous group while ranking them according to their incomes. The distributions of ill-health and use of services are then analysed using concentration indices for the separate ethnic groups with reference to the income ranks from the single income distribution. These results represent the positions of the ethnic groups relative to each other both in terms of income and in terms of mental health variables.

8.4.4.1 Within-group inequalities in mental health indicators

Figure 8.3 graphs *within-group inequalities in mental health* for the different ethnic groups. It can be seen that all ethnic groups except the Bangladeshis and Indians have concentration curves above the equality line, indicating inequality in mental health that is unfavourable to the lower income groups. Among the Bangladeshis, surprisingly inequality is unfavourable to the higher income groups. This result, however, needs to be read with caution as this is in relation to the distribution of income within this ethnic group where there are very few in higher income groups by national standards. (The effect can be seen clearly in figure 8.4). Among the Indians there appears to be a concentration of mental illness among the middle income groups which is reflected in a curve that crosses the equality line closer to the middle of the distribution.

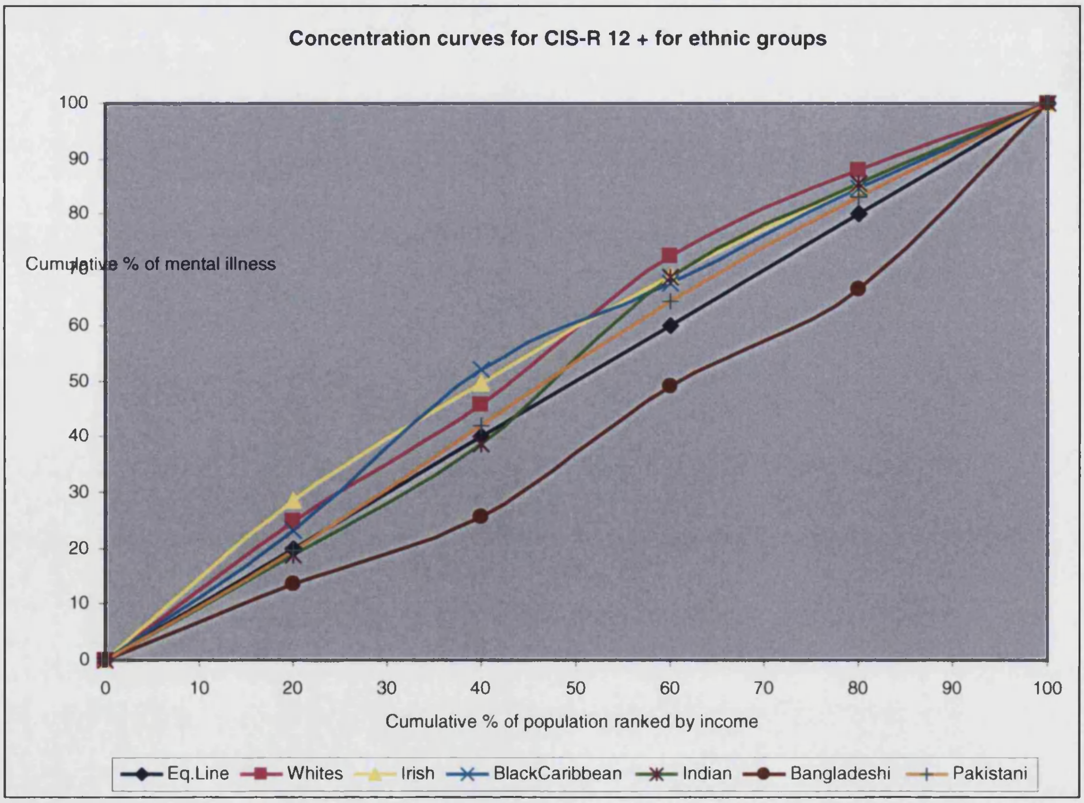


Fig 8.3: Concentration curves for within-group inequality in 'cases' (CIS-R 12+)

In Table 8.8, within-group concentration indices (CI) for two mental health morbidity indicators: 'cases' (CIS-R 12+) and CIS-R 18+ are presented. For 'cases', the CIs are negative for all groups (except the Bangladeshis), suggesting inequality unfavourable to the poor. The greatest level of within-group inequality is for the Bangladeshis (though unfavourable to the rich). Among the groups that have inequality unfavourable to the poor, within-group inequality is the highest for the Irish, followed by the whites, the Black Caribbean and the Pakistanis. The CI for Indians is not significant. CIs for morbidity were standardised for age-gender to see if any of the observed inequality is due to the demographic composition of the ethnic groups. As can be seen from the actual and standardised CI, there is very little difference between the two for most of the groups, suggesting that there is no strong age-gender effect on mental health and that almost all of the inequality can be attributed to income and related factors. Only in the case of Bangladeshis, the standardised index is slightly lower than the unstandardised index, suggesting that some of the inequality observed may be due to the demographic composition of this group. Use of other control variables, in addition to the demographic variables did not produce any significant changes in the results for standardised indices.

Table 8.8: Within-group concentration indices for CIS-R 12+ and CIS-R 18+

	Concentration indices			
Ethnic groups	**'Cases' (CIS-R 12+)**		**CIS-R 18+**	
	Actual (t-statistic)	**Standardised for age-gender (t-statistic)**	**Actual (t-statistic)**	**Standardised for age-gender (t-statistic)**
White	-0.1267 (-2.40)	-0.1268 (-2.43)	-0.2321 (-2.64)	-0.2313 (-2.65)
Irish	-0.1297 (-2.94)	-0.1370 (-3.12)	-0.1860 (-2.39)	-0.1996 (-2.61)
Black Caribbean	-0.1133 (-2.39)	-0.1158 (-2.45)	-0.2008 (-2.71)	-0.2178 (-2.94)
Indian	-0.0294 (0.57)	-0.0033 (-0.06)	-0.0949 (-1.36)	-0.0396 (-3.27)
Bangladeshi	0.1878 (2.44)	0.1712 (2.23)	0.3031 (2.83)	0.2858 (2.59)
Pakistani	-0.0477 (-1.04)	-0.0595 (-1.30)	-0.0109 (-0.16)	-0.0269 (-0.41)
All	-0.0502 (-2.45)	-0.0625 (-3.08)	-0.1159 (-3.75)	-0.1305 (-4.24)

When we look at more severe cases of neurotic disorders (CIS-R 18+), the overall inequality index more than doubles for most groups and is unfavourable to the poor. Bangladeshi once again have a high level of inequality which is unfavourable to the rich within that group. All other ethnic groups have inequality unfavourable to the poor. Interestingly, the highest level of inequality unfavourable to the poor is for the whites, followed by the Black Caribbeans, the Irish and the Indians. The CI for the Pakistanis is not significant. Standardised indices are only slightly lower for the whites but the difference is a bit more marked for Indians and Bangladeshis suggesting that some of the observed inequality may be due to the demographic variables. In the case of the Irish and the Black Caribbeans standardised CIs are higher than the actual inequality indices, suggesting almost all of the inequality is due to income and related factors.

In general, pro-poor inequality in mental health morbidity is quite significant among the white, Irish and Black Caribbean communities. Income-related inequality within each of the three Asian communities – Indian, Bangladeshi and Pakistani - is less clearly defined in comparison to the other three ethnic groups studied.

8.4.4.2 Within-group inequalities in the use of services

Using the methods discussed in chapter 5, actual, need-predicted and need-standardised (need-corrected inequality) concentration indices were estimated. The concentration indices for within-group *inequalities in the use of mental health services* are presented in Table 8.9. Actual use within groups does not show significant inequality for most groups which is also reflected in the overall inequality index which is pro-poor. The poor make use of services more than the rich but the question to ask is whether use is in proportion to the needs of the different groups.

Table 8.9: Within group concentration indices for use of services

Ethnic groups	Concentration index for use of any service		
	Actual (t-statistic)	Need predicted probability of use (t-statistic)	Need standardised (t-statistic) HI = (Actual – Needed use)
White	-0.0093 (-0.64)	-0.0149 (4.18)	0.0055 (0.39)
Irish	-0.03650 (2.45)	-0.0218 (-4.53)	-0.0148 (-1.07)
Black Caribbean	-0.0138 (-0.98)	-0.0218 (-4.37)	0.0064 (0.43)
Indian	0.0122 (0.87)	-0.0122 (-3.79)	0.0244 (1.76)
Bangladeshi	0.0069 (0.49)	0.0013 (0.34)	0.0061 (0.45)
Pakistani	-0.0148 (-1.12)	-0.0015 (-0.49)	-0.0133 (-1.03)
All	-0.0301 (-5.29)	-0.0041 (-3.13)	-0.0261 (-4.68)

Notes

1. HI =Horizontal Inequity
2. Need variables used for standardisation= CIS-R scores 2+

The main points from Table 8.9 are the following:

- For the white population actual use is pro-poor. That is, the poor are more intensive users of services than the rich. But need-predicted probability is even more pro-poor, suggesting that actually they need to use more services than they currently use, given their level of needs. Need-standardised CI, which is a measure of the horizontal inequity (HI) in the use of services, is pro-rich which means that when we take into account the need for services, the rich actually use more services than they need. It should be noted, however, although the actual use and HI results are not significant, the highly significant pro-poor result for need-predicted use does suggest that the actual distribution is not ideal, given the distribution of need.

- Among the Irish, the HI is pro-poor which indicates that the lower income groups actually use more services than actually predicted by their level of need.
- Among the Black Caribbeans the need-predicted probability of use (significant) is higher than actual use. HI is pro-rich, (though not significant) and has the same interpretation as for the whites given above.
- Results for the Indians are similar. Need-predicted use for Indians is pro-poor and significant and HI is pro-rich, inequality favouring the rich, i.e., when we take into account the need for services, the rich actually use more services than they need.
- The result for Bangladeshis (pro-rich) is not significant which means that no clear relationship between income and use of services was observed in the sample.
- For the Pakistanis, actual use is pro-poor and since the need-predicted use is not significant, it is difficult to interpret the HI which is also pro-poor.

These within-group inequality indices, though useful, do not present the real differences in income-related inequalities that may be present between the ethnic groups. Controlling for other non-need variables in the estimation of concentration indices did not have significant impact on the results.

8.4.4.3 Between-groups inequalities in mental health

The within-group inequality results in Table 8.8 and Figure 8.3 are interesting but give us a partial picture of the problem of inequalities in Britian. In Figure 8.4, *between-groups inequalities in mental health* are presented. That is all individuals are now grouped together and ranked by their income. This shows the relative disadvantages of different ethnic groups in society. The figure traces the concentration curves for all ethnic groups for the most important indicator of neurotic disorders, CIS-R 12+. As can be seen the concentration curves for the white population and the Irish lie below the line of equality indicating concentration of ill-health among the higher income groups while the opposite is true for the Pakistanis and the Bangladeshis. The concentration curve for the Indians crosses the equality line indicating the concentration of ill-health among the middle income group. Among the Black Caribbeans although the lowest quintile does not appear to have a disproportionate share of mental illnesses the distribution of ill-health becomes unfavourable to the poor from the second quintile onwards. The effect of lower income is worse for the mental health of populations if they are Black Caribbean, Pakistani or Bangladeshi than if they are white, Irish or Indian.

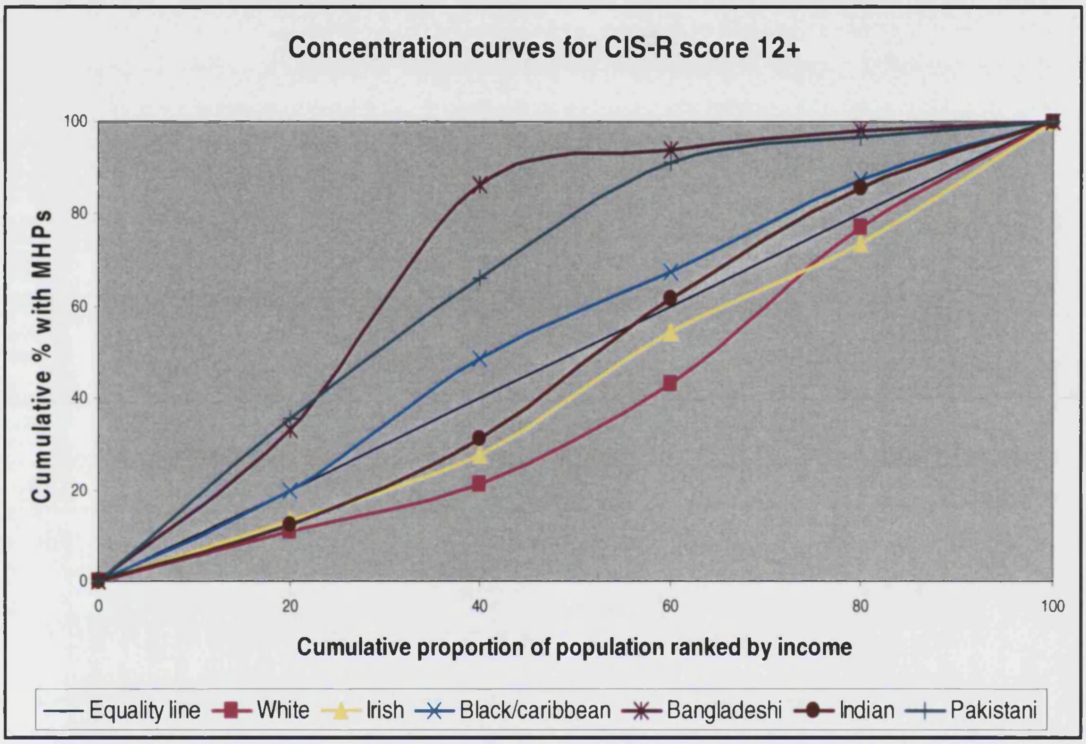


Fig 8.4: Concentration curves – between-groups inequality for 'cases' (CIS-R 12+)

These results are reflected in the concentration indices shown in Table 8.10, which presents *between-group* concentration indices for 'cases' and also for the use of services. The negative CI for Bangladeshis, followed by the Pakistani and Black Caribbean groups in the table reveal the huge differences in mental health problems experienced by those in lower income groups among these three ethnic groups compared to the other three ethnic groups.

Table 8.10: Between-groups inequalities for 'cases' and for use of 'any service'

Ethnic groups	Concentration index		
	CIS-R 12+	Any service	HI (Any service-CIS-R 12+)
White	0.1912	0.2872	0.0960
Irish	0.1224	0.2216	0.0992
Black Caribbean	-0.0936	0.0028	0.0964
Indian	0.0368	0.0836	0.0468
Bangladeshi	-0.4456	-0.5444	-0.0988
Pakistani	-0.3576	-0.3180	0.0396
All groups	-0.0507	-0.0301	0.0206

Tables 8.11 – 8.16 reiterate the results shown in Figure 8.4 by detailing how most of the common mental disorders are concentrated among the lower income groups in the Black Caribbean, Bangladeshi and Pakistani populations, and among the higher income groups among the white and Irish populations. The interesting result for the Indian population is shown in Table 8.14, where all disorders are concentrated among the third income quintile.

It is interesting to note that among the white British population, four of the six neurotic disorders studied have higher prevalence among the upper income quintiles (Table 8.11). The result is particularly noteworthy for depression and panic disorder, though the numbers (N) are small.

Table 8.11: Percentage distribution of neurotic disorders by income quintiles for the Whites

	% with neurotic disorders					
Income quintiles	**Depression**	**GAD**	**MAD**	**OCD**	**Phobias**	**Panic disorder**
Bottom	15.8	28.6	7.7	25	44.4	0
2nd	10.5	0	11.5	25	0	25
3rd	21.1	42.9	20.5	25	33.3	25
4th	42.1	28.6	34.6	25	11.1	0
Top	10.5	0	25.6	0	11.1	50
Total N	19	7	78	4	9	4

Table 8.12: Percentage distribution of neurotic disorders by income quintiles for the Irish

	% with neurotic disorders					
Income quintiles	**Depression**	**GAD**	**MAD**	**OCD**	**Phobias**	**Panic disorder**
Bottom	17.6	10	12.7	37.5	17.6	23.1
2nd	11.8	30	15.2	0	29.4	0
3rd	23.5	35	21.5	50	23.5	23.1
4th	23.5	10	20.3	12.5	17.6	15.4
Top	23.5	15	30.4	0	11.8	38.5
Total N	17	20	79	8	17	13

Among the Irish too, there is higher prevalence of neurotic disorders among the top four quintiles compared to the bottom quintile (Table 8.12).

Table 8.13: Percentage distribution of neurotic disorders by income quintiles for the Black Caribbean

	% with neurotic disorders					
Income quintiles	Depression	GAD	MAD	OCD	Phobias	Panic disorder
Bottom	25	30	17.9	33.3	20	30
2nd	20	20	30.8	33.3	40	20
3rd	30	20	14.1	16.7	20	40
4th	15	20	21.8	0	20	10
Top	10	10	15.4	16.7	0	0
Total N	20	10	78	6	10	10

Among the Black Caribbean, prevalence is higher among the bottom three quintiles (Table 8.13).

Table 8.14: Percentage distribution of neurotic disorders by income quintiles for the Indian

	% with neurotic disorders					
Income quintiles	Depression	GAD	MAD	OCD	Phobias	Panic disorder
Bottom	26.3	20	8.1	14.3	0	7.7
2nd	10.5	20	22.6	0	0	15.4
3rd	31.6	40	29.0	57.1	80	38.5
4th	21.1	0	22.6	28.6	20	30.8
Top	10.5	20	17.7	0	0	7.7
Total N	19	5	62	7	5	13

Among the Indian population, prevalence of all disorders is concentrated among those in the third quintile (Table 8.14).

Table 8.15: Percentage distribution of neurotic disorders by income quintiles for the Bangladeshi

	% with neurotic disorders					
Income quintiles	Depression	GAD	MAD	OCD	Phobias	Panic disorder
Bottom	18.2	50	33.3	0	33.3	66.7
2nd	72.7	50	51.5	75	33.3	33.3
3rd	9.1	0	6.1	25	33.3	0
4th	0	0	6.1	0	0	0
Top	0	0	3.0	0	0	0
Total N	11	4	33	4	3	3

Among the Bangladeshi, prevalence is concentrated among the bottom two quintiles (Table 8.15). This result is not surprising as there are few in the top quintiles in this group.

Table 8.16: Percentage distribution of neurotic disorders by income quintiles for the Pakistani

	% with neurotic disorders					
Income quintiles	Depression	GAD	MAD	OCD	Phobias	Panic disorder
Bottom	38.5	60	35.7	22.2	27.3	37.5
2nd	34.6	0	27.1	44.4	45.5	25
3rd	19.2	40	27.1	22.2	27.3	25
4th	3.8	0	5.7	11.1	0	12.5
Top	3.8	0	4.3	0	0	0
Total N	26	5	70	9	11	8

Among the Pakistanis, once again, prevalence is concentrated among the bottom two quintiles (Table 8.16).

8.4.4.4 Between-group inequalities in the use of services

Figures 8.5 which traces the *between-groups inequalities in the use of services* shows pro-poor inequality for the Pakistani and Bangladeshi populations while pro-rich inequality for all other groups. The group that clearly has unmet needs is the Black Caribbean as their concentration curve for mental illness in Figure 8.4 indicates a level of need for services which is not matched by the concentration curve for use of services in Figure 8.5.

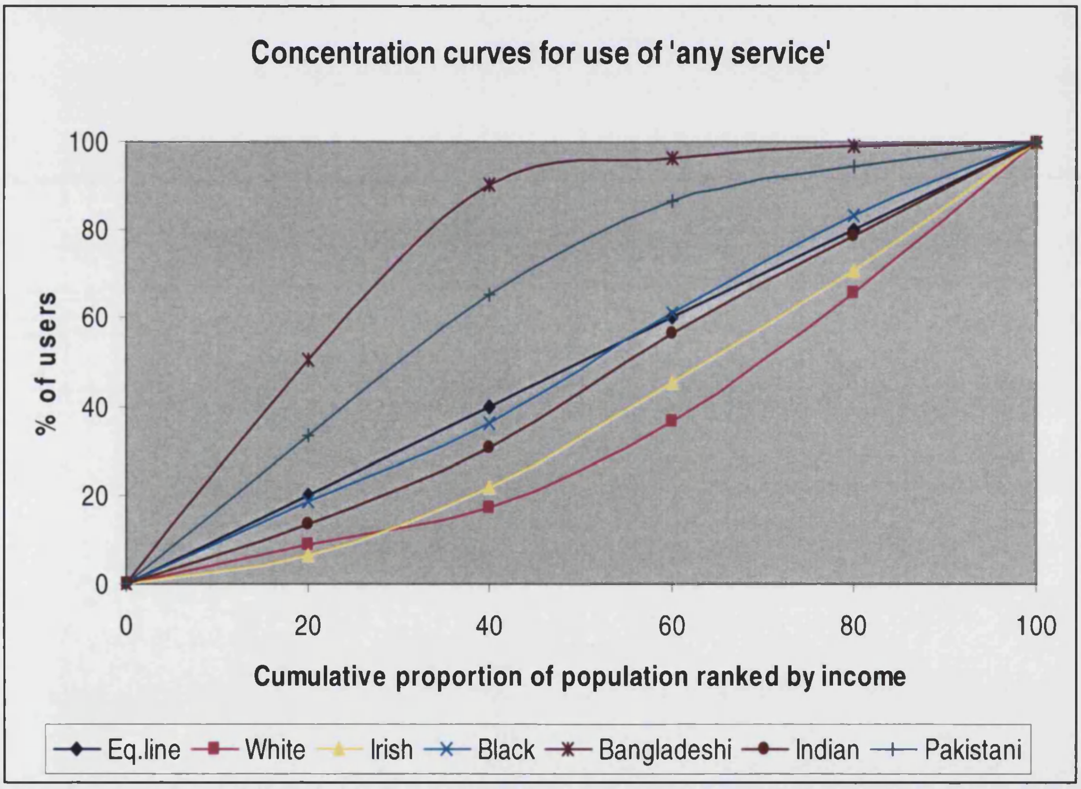


Fig 8.5. Between-groups inequalities in use of mental health services

The index of horizontal inequality (HI) in Table 8.10 gives us an indication of the distribution of unmet needs between the ethnic groups. The horizontal index of inequality (Table 8.10) is pro-rich for the Black Caribbean and Pakistani groups while the distribution of mental illness is unfavourable to the poor. For the Black Caribbeans, although actual use of services shows no income-related inequality, when need is taken into consideration, the pro-rich HI inequality indicator suggests that the poor receive less services than they need. For the Pakistanis, although both need and use of services are pro-poor, the pro-rich HI index shows that there is unmet need for the poorer groups as they do not receive services in proportion to their needs. The Bangladeshi group has high level of pro-poor inequality both in terms of the need variable and the use of services and the HI inequality is also pro-poor, although the index in much smaller than for actual use of services. HI is pro-rich for the white, Irish and the Indians, even after taking into account the need (CIS-R 12+), which indicates that the rich use more services than actually needed in relative terms.

Overall there is pro-rich horizontal inequality in the use of services (except for the Bangladeshi group). The highest level of pro-rich HI is among the Irish, followed by the Black Caribbean and the white populations. Among the Asian groups, Indians have higher level of pro-rich inequality than the Pakistanis.

8.4.5 Decomposition of concentration indices

Inequalities in mental health and use of services stem in part from inequalities in the determinants of these variables. Income is only one of those determinants. To understand the causes of inequalities further, the concentration indices can be decomposed and the relative contribution of inequalities within each of the potential determinants to the overall inequality index assessed. The decomposition analysis is useful for policy purposes as it helps us to separate the effects on inequality of various factors, and thus to suggest areas where policies to reduce inequalities may be targeted.

Table 8.17 shows decomposition results for the mental health variable, ‘cases’. The results are for the whole sample. The column ‘contribution to CI’ reveals the contribution of each of the determinants considered in the model to the overall concentration index of -0.051 for CIS-R 12+. The column 'concentration index' represents the distribution of the variable itself with reference to income. A determinant will have a greater contribution if it is more unequally distributed by income or if it has a greater elasticity, i.e., a stronger effect on the variable of interest.

Table 8.17: Decomposition results for CIS-R12+

Concentration Index for CIS-R 12+ = -0.051				
Variables	**Elasticity**	**Concentration index**	**Contribution to CI for CIS-R 12+**	**Group contribution (sum)**
Income	-0.637	0.473	-0.030	**-0.030**
Males 16-34	-0.599	-0.074	0.005	
Males 35-54	0.016	0.143	0.002	**0.007**
Female 16-34	-0.035	-0.121	0.004	
Female 35-54	0.079	0.077	0.006	
Female 55-74	-0.005	-0.007	0.000	**0.01**
Irish	0.062	0.264	0.016	
Black-Caribbean	0.047	0.001	0.000	
Indian	0.053	0.086	0.005	
Bangladeshi	-0.032	-0.555	0.018	
Pakistani	0.047	-0.326	-0.015	**0.024**
Urban	-0.042	-0.236	0.010	
Semi-urban	-0.083	0.099	-0.008	**0.002**
No qualifications	-0.000	-0.319	0.000	
GCSC	0.019	0.043	0.001	
A level	0.016	0.179	0.003	
Other qualifications	0.012	-0.110	-0.002	
Other high qualifications	0.000	0.310	0.000	**0.002**
Unemployed	0.008	-0.418	-0.003	
Retired	-0.007	-0.078	0.001	
Economically Inactive	0.127	-0.317	-0.040	**-0.042**
Single	0.050	-0.098	-0.005	
Widowed	0.001	-0.094	0.000	
Divorced/separated	0.033	-0.063	-0.002	**-0.007**
North west	-0.049	-0.224	0.011	
Yorks/Humberside	-0.010	0.017	0.000	
West midlands	-0.081	-0.085	0.007	
East midlands	-0.013	0.090	-0.001	
East Anglia	-0.005	0.301	-0.001	
South west	-0.012	0.234	-0.003	
South east	-0.127	0.268	-0.034	
London	-0.171	-0.116	0.020	**-0.001**
Total				**-0.050**
Residual				**-0.001**

It can be seen from group contributions shown in the last column that the two major contributors to income-related inequality in mental health are employment status and marital status. Inequality in income distribution itself accounts for only -0.03 points. Reducing the numbers of unemployed and economically inactive persons is likely to have the greatest impact on reducing the overall inequality in mental health. With a contribution of -0.04 units, the economically inactive group ought to be a high priority group. Policies directed toward single and divorced or separated people may also be important.

All ethnic minority groups except the Bangladeshis have positive effect (as shown by elasticity) with reference to the mental health variable. However, due to the positive concentration index for the Irish and the Indians and almost zero index for the Black Caribbean group, the combined contribution of all ethnic minority groups to the overall inequality index is positive, thus having the effect of noticeably reducing the CI index for the mental health variable (CIS-R 12+) in comparison to the Whites. This is not surprising given the result found earlier that the greatest level of income-related inequality in more severe mental health problems is for the Whites. A closer examination of the results indicates that among the ethnic minorities, the Pakistani group appears to be the one that needs to be targeted if the aim is to reduce inequalities unfavourable to the poor in mental health. It was seen earlier that the Pakistanis have high levels of common mental health problems. Among the regions, contribution of South East to the inequality unfavourable to the poor in mental health is quite high (-0.034 units). South West also contributes slightly to the inequality index, accounting for -0.003 units. Those living in semi-urban areas also contribute more towards overall inequality. Females aged 35-54 have a strong positive effect on the mental health variable. The contributions of most other variables are quite small.

Table 8.18 presents decomposition results for the use of services variable. It was shown in Table 8.10 that overall there is pro-poor inequality in the use of services and that the horizontal index of inequality is pro-rich. Decomposition analysis shows that most of the determinants considered contribute to pro-poor inequality. That is, those in lower income groups are more intensive users of services. However, the need variables do not show such tendency for pro-poor inequality. The combined contribution of the three need variables to the overall inequality in the use of services is zero. Given that there is noticeable pro-poor inequality in the distribution of moderate and severe neurotic disorders (CI for CIS-R moderate is -0.003 and CI for CIS-R high is -0.116), this result is an indication of the presence of horizontal inequity in use of services. Thus the decomposition analysis reiterates the result that although lower income groups use more services, their use is not in proportion to their extent of need, resulting in the pro-rich horizontal index of inequality that was presented in the previous section. It is also interesting to note that the need variable CIS- R low is associated with high elasticity of use and a positive concentration index representing a pro-rich distribution of the variable. This could be suggestive of the different ways in which minor problems are perceived or reported by the rich and the poor and also the associated utilisation behaviour by those in different income groups. It is possible that those in lower income groups set their threshold of tolerance at higher levels than the rich and hence may not report minor problems. It is also possible that they do not seek help even if they have minor problems or perceive barriers which make them reluctant to use services for minor problems.

The determinants that contribute most to pro-poor inequality in the use of services are ethnicity (-0.017 units) and employment status (-0.010 units). Among the ethnic groups, the Bangladeshis and Pakistanis contribute most to the pro-poor inequality in use of services, a result consistent with what was presented in the previous section. It can also be noted that the three Asian groups have higher elasticity of use compared to the rest. Unemployed, retired and economically inactive groups contribute to the pro-poor inequality, with the economically inactive group accounting for the highest level of effect both in terms of elasticity (0.024 units) and contribution to inequality (-0.007) in the set of employment status variables. Contribution of income is negligible. All other determinants have small contributions to the overall inequality. There is a small residual of 0.002 points, not explained by the determinants used in the model. The important point is that ethnicity contributes to inequality even after adjusting for income, employment and other socio-economic factors.

Table 8.18: Decomposition results - Service use

Concentration index for use of services = -0.030				
Variables	**Elasticity**	**Concentration index**	**Contribution to CI for use of services**	**Group contribution (Sum)**
Income	0.002	0.473	0.001	**0.001**
CIS-R-low	0.026	0.068	0.002	
CIS-R-mod	0.011	-0.003	0.000	
CIS-R-high	0.016	-0.116	-0.002	**0.000**
Males 16-34	-0.042	-0.074	0.003	
Males 35-54	-0.038	0.143	-0.005	**-0.002**
Female 16-34	-0.011	-0.121	0.001	
Female 35-54	-0.014	0.077	-0.001	
Female 55-74	0.001	-0.007	0.000	**0.000**
Irish	0.007	0.264	0.002	
Black-Caribbean	0.009	0.001	0.000	
Indian	0.019	0.086	0.002	
Bangladeshi	0.025	-0.555	-0.014	
Pakistani	0.020	-0.326	-0.007	**-0.017**
Urban	0.223	-0.236	-0.005	
Semi-urban	0.019	0.099	0.002	**-0.003**
No qualifications	0.017	-0.319	-0.006	
GCSC	0.005	0.043	0.000	
A level	0.004	0.179	0.001	
Other qualifications	0.001	-0.110	0.000	
Other high qualifications	0.002	0.310	0.001	**-0.004**
Unemployed	0.005	-0.418	-0.002	
Retired	0.007	-0.078	-0.001	
Economically Inactive	0.024	-0.317	-0.007	**-0.010**
Single	-0.019	-0.098	0.002	
Widowed	0.003	-0.094	0.000	
Divorced/separated	-0.003	-0.063	0.000	**0.002**
North West	0.001	-0.224	0.000	
Yorks/Humberside	0.001	0.017	0.000	
West Midlands	0.001	-0.085	0.000	
East Midlands	0.003	0.090	0.000	
East Anglia	0.001	0.301	0.000	
South West	-0.001	0.234	0.000	
South East	0.001	0.268	0.000	
London	-0.004	-0.116	0.001	**0.001**
Total				**-0.032**
Residual				**0.002**

In general, females do not contribute to the overall inequality but males account for -0.002 units of the total inequality index. Those living in urban areas have high positive elasticity of use and they contribute -0.005 units to the total pro-poor inequality. Those who have *no* educational qualifications have higher positive elasticity of use in comparison to those *with* qualifications and they make a contribution of -0.006 units to the overall inequality index. Contribution from the regional indicators is negligible.

8.5 Conclusions

A number of factors may play an important role in determining ethnic variations in health and in their use of services. As Smaje (1995) pointed out there are many possibilities one should consider while analysing results of research relating to the health of ethnic minorities. The variations one observes among these groups can either be artefacts resulting from the way data have been collected or a result of cultural differences between ethnic groups. They may be a consequence of biological/genetic differences in risk among these groups or health-related selection into a migrant group or the consequences of migration itself. They may even be a direct result of racism or the result of the relationship between socio-economic status and both health and ethnicity. Nazroo (1997), pointing out the limitations of his own research, warned that information on symptoms collected in surveys may depend on possible differences between social groups in how these questions are interpreted and responded to. It is possible that an assessment of whether a particular symptom is severe enough to be worth mentioning will vary across social groups. Answers to such questions, consequently, may also produce misleading conclusions about differences between these groups. These points illustrate the difficulty in terms of making comparisons across ethnic groups: differences in responses may be a reflection of differences in the way these groups interpret and respond to the questions, as well as differences in their access to health care and the type of treatment received. The points about different cultural expressions, experiences and lack of cross-cultural validation of research instruments have been made time and again by many (Kleinman 1987; Cochrane and Sashidharan 1996; Nazoo 2003; Bhui and Sashidharan 2003). These very valuable qualitative studies provide us with insights into what is important in ethnic research. While recognising that these issues are all important and relevant, the research reported in this chapter has not attempted to deal with all these issues as they are beyond the scope of the present thesis.

Points that emerge

Some points that have emerged from the analysis are:

- When we look at *within-group* income-related inequalities for common neurotic disorders (cases), in general, inequality unfavourable to the poor in mental health morbidity is quite significant among the Irish, white and the Black Caribbean communities, the index of inequality being highest for the Irish. Income-related inequality within each of the three Asian communities – Indian, Bangladeshi and Pakistani - is less clearly defined in comparison to the other three ethnic groups studied. There appears to be no age-gender effect on these indices.
- When we look at more severe cases (CIS-R scores of 18+), inequality unfavourable to the poor is highest for the whites, followed by the Black Caribbean, Irish and Indian groups. Standardised CIs are lower for the Indian and Bangladeshi populations, suggesting some age-gender effect on the observed inequality.
- There is no significant *within-group* income-related inequality in the use of services among all groups, except for the Irish (which is pro-poor). Need-standardised use is pro-rich for the whites, Black Caribbean and the Indians.
- When we look at *between-group* inequalities for the 'cases', Bangladeshi, Pakistani and the Black Caribbean groups have pro-poor inequality and the other three ethnic groups have pro-rich inequality.
- *Between-group* horizontal index of inequality (need-standardised) in the use of services is pro-rich for the Irish, Black Caribbean, White, Indian and Pakistanis. The highest level of inequality (HI) is for the Irish, followed by the Black Caribbean and the whites.

- In addition to the ethnic groups, the factors that contribute most to inequalities in mental health are the employment status and marital status. The ethnic group that contributes most to the negative inequality index for mental health (unfavourable to the poor) is the Pakistani. The economically inactive also account for a significant contribution to the concentration index.
- The three Asian groups – Indian, Bangladeshi and Pakistani are more intensive users of services. Those with no qualifications and those who are economically inactive are also more intensive users of services compared to others. Bangladeshi and Pakistani groups contribute most to the pro-poor inequality in the use of services. However, since use of services is not in proportion to the extent of needs, there is evidence of horizontal inequity in the use of services in general.

CHAPTER 9

Income, health and health care utilisation in the U.K.

9.1. Introduction

The aim of this chapter is to analyse the links between income, general health and health care utilisation behaviour using longitudinal data from the British Household Panel Survey. The emphasis is to frame the analysis as a social phenomenon, so that the dynamics of individual health production in the social context can be understood. The study estimates the relationships between income, health and health care utilisation with the three variables influencing each other with lag effects.

The three mental health surveys that were used for the analysis of inequalities in mental health in chapters 6, 7 and 8 were cross-sectional and hence it was not possible to study causal pathways between income and mental health. Many of the factors associated with general health are also likely to be associated with mental health. In general, a model that links income, general health and health care utilisation behaviour is therefore likely to be relevant for mental health as well. Because longitudinal data on general health were readily available, a chapter that examined the causal pathways for general health was thought to be useful. Some factors like stigma are unique to mental health and also difficult to measure in surveys as there are no reliable proxies that can represent it. However, stigma can be included in the theoretical model as a factor that influences the decision to seek mental health care as it influences the utility or disutility of becoming known to the system and wider society as a mental health service user. If a theoretical basis that allows its inclusion in a model of health is developed, it may lead to further developments in measuring it for empirical analysis. Therefore in this chapter a digression was made by including a theoretical and empirical model that studied the causal pathways between *general* health, income and health care utilisation behaviour using the British Household Panel survey data for three years. The aim was to understand the dynamics of the health problem generating social and economic conditions. The assumption is that the model is applicable to mental health as well, possibly with necessary adjustments for the inclusion of variables that represent the special features of mental health.

While differences in income exist in all known societies, what many find unacceptable is the evidence of class differences in the utilisation of health care even when it is free at the point of delivery. Investigation into class gradients in health and health care in the U.K. gained importance when evidence of such a gradient was first brought to light by the Black Report (Townsend and Davidson 1980). Almost twenty years later, the Acheson Report (1998) indicated that things are no better and in some cases worse, despite the provision of health care, by and large, free at the point of delivery.

Researchers in many countries have noted a positive correlation between income and health (Lynch et al., 2004; Coburn 2004; Kennedy et al., 1998; Feinstein 1993; Adler et al., 1993) which exists for psychological as well as physical health (Stronks et al., 1998; Ettner 1996; Kessler and Cleary 1980), in both sexes and at all ages and for most of the major causes of death (Najman et al., 2004; Machenbach and Howden-Chapman, 2003; Blane et al, 1992), and may even be increasing with time (Pappas et al 1993; Kaplan 1996). Nonetheless, the issue whether income causes health or is merely correlated with it is far from clear from the literature. Research on the causal networks underlying the occurrence of inequalities in health remains sparse (Gunning-Schepers and Stronks, 1999; Birch 1999). While economists theorise that individuals are responsible for their health and health care utilisation as they make voluntary choices to invest in education, training and health (Grossman, 1976), the sociological literature suggest that individual decisions to use health care need to be viewed in a social context and that the strong mutual influences between health care utilisation, health status and income are essentially a social phenomenon (Navarro, 2004; Power and Mathews 1999; Heggerty and Johnson 1996). Finding the causality between income and health is complicated by the fact that health is the outcome of a dynamic process and it is hard to separate out income as the sole cause or effect of health. In addition, health being an unobservable variable (and only proxies can be used) it is not always easy to establish its effect on income.

Utilisation of health care is one of the factors facilitating good health. As it is closely linked to health and income, a proper understanding of how individuals make this decision, is important. While some studies have found significant effects of income and socio-economic factors on utilisation of medical care facilities (Gerdham 1997; Windermeijr and Silva 1996; Van Doorslaer and Wagstaff 1993), literature also bears evidence to the inequalities that exist in the health care system itself. For example, medical facilities in the more affluent areas tend to be more richly endowed, in relation to need (May 1975; Tudor Hart 1971; Weiss and Greenlick 1970), better off individuals tend to receive more general practitioner and hospital care (Blaxter1976, 1984); doctors tend to spend more consultation time with, and are likely to investigate more thoroughly, patients who are their social peers (Cartwright and O'Brien 1976). It has also been pointed out that differences in physician contact cannot be attributed entirely to differences in levels of illness or family income (Newman 1975) and that the utilisation decision by individuals is a result of some complicated process of balancing the benefits and costs of utilisation and is not guided simply by health status or other enabling factors.

In this chapter I aim to study the inter-relationships between income, health and health care utilisation behaviour among adults in the UK. The chapter is organised as follows. Section 9.2 presents the theoretical model that links individual income, health and health care utilisation behaviour. The empirical model derived from this model is dealt with in section 9.3. Section 9.4 describes the data while section 9.5 discusses the econometric estimation of the model and the results obtained. Section 9.6 concludes.

9.2. The Economic Model

A simple model is presented here to explain the links between individual income, health and health care utilisation behaviour.

It is assumed that at any time *t* individuals have labour and non-labour income:

$$Y_t = wL + R \tag{9.1}$$

where w is the wage rate; L is hours of work and R, non-labour income. Non-labour income will partly depend on assets (property and interest income) but for many it will primarily be transfer income e.g., government transfers such as pension payments, income-related support payments or health related payments like disability benefits. The wage rate and the hours of work are likely to vary with individual circumstances e.g., age, gender, education and type of job and also likely to vary with health state since productivity of work and hours of work may be influenced by health state, H. Hence we may write,

$$wL_t = f(H_t, H_{t-1}, H_{t-2}, \ldots, d) \tag{9.2}$$

where d is a vector of all demographic variables and t is current time period. Present as well as past health status influences the number of hours an individual can offer in the labour market and also the wage rate which depends on the productivity of the individual.

The influence of income on individual health can work through many variables since health status of an individual is influenced by many factors, some amenable to individual control like lifestyle, diet and exercise, and others like age, gender and genetics which cannot be influenced by individual action or behaviour. Many of the controllable factors are related to income, either directly, e.g., housing and type of job, or indirectly, like education. Moreover, some factors will have interaction effects, e.g., the effect of age on health status is likely to depend on income. Often the influence of these factors on health can occur with time lags. Medical care, preventive or curative, will also influence the health of an individual. Preventive care, e.g., early diagnosis through screening programmes, can have significant effect for health in later years. However, the use of preventive and curative care can be related to income and social class.

It is assumed that good health in the current period t leads to higher productivity leading to higher income in the next period. But since health at time t depends on income, health care and also health endowment at times $t-1$, $t-2$ etc., income at time t which results from health at $t-1$ will also depend on the lagged values of income, health care and health endowment at times *t-2, t-3* etc. Hence it is possible to argue that latent health, H^*, evolves dynamically. Let this dynamic structure where income and health are related be represented by the relationship

$$Y_t = f(H_{t-1}, x) \tag{9.3}$$

$$H_{t-1} = f(HC_{t-2}, Y_{t-2}, z_{t-1}) \tag{9.4}$$

Individual heterogeneity arising from demographics such as age, gender and other factors are included in the vectors x and z. Vector z contains variables influencing health and x, those influencing income directly. The two vectors x and z may overlap.

While income and health are in the form of constraints that an individual faces, the individual has choices which are motivated by preference maximisation. The choice of interest in the model is the decision to seek health care. If utility depends on health and income, costless medical care at time t will generate benefits in future for the individual when $\partial H_t / \partial HC_{t-1} > 0$ and $\partial Y_t / \partial H_{t-1} > 0$. In the UK system, although health care is free at the point of use, demand is partly rationed through waiting lists so that supply constraints plus the expert opinion of the referral agency, e.g. the GP, determine who receives health care. In addition, there are direct time costs of travel to the delivery point and then queuing at the delivery point. There may also be some limited monetary costs such as prescription costs and travel costs. The decision to seek health care is then a trade-off between the expected future benefits (observable and unobservable) and the present costs to the individual. If we consider that one of the costs in the case of mental health will be the intangible cost of stigma, then the argument applies equally well to a model of mental health that the decision to seek mental health care may be a trade-off between the expected future benefits and the present and future costs to the individual (and the family).

Let us say, utility depends on expected future health state, expected future income and (negatively) on present hours of work. Ideally the model should consider more than one future time period as benefits of health care may extend to many years. But to keep the model simple, utility is assumed to depend only on the next period's health and income and defined as

$$U_t(H_{t+1}, Y_{t+1}, L_t) = (\ln H_{t+1})(\ln Y_{t+1}) - \delta \ln L_t \qquad (9.5)$$

where δ may be a function of demographic or individual specific non-controllable factors. If there is a fixed time cost of τ units of time to the individual who seeks health care expressed as a proportion of their work time, then the individual can be in one of two states:

(i) to receive health care: in which case utility is given by

$$U_t = (\ln H_{t+1}^{HC_t})(\ln Y_{t+1}^{HC_t})\delta \ln_t L(1+\tau) \qquad (9.6)$$

(ii) not to receive health care: in which case utility is given by

$$U_t = (\ln H_{t+1}^{NC_t})(\ln Y_{t+1}^{NC_t}) - \delta \ln_t L \qquad (9.7)$$

Individual expectations of future income and future health are formed using information available at the previous period. If, for example, the utilisation of health care in the past *(t-2)* has had benefits (over costs) in the next period *(t-1)*, the individual is likely to repeat the behaviour under similar circumstances. Following the tradition of so-called naive models of expectations (Maddala 1989), let

$$H_{t+1}^{HC_t} = H_t^{HC_{t-1}} \qquad (9.8)$$

and

$$Y_{t+1}^{HC_t} = Y_t^{HC_{t-1}} \qquad (9.9)$$

And similarly for the no health care (NC) cases.

A decision to use health care will be made by the individual if the utility from use of health care is greater than the utility from non-use of health care as in inequality (9.10) below.

$$(\ln H_{t+1}^{HC_t})(\ln Y_{t+1}^{HC_t})\delta \ln L_t (1+\tau) > (\ln H_{t+1}^{NC_t})(\ln Y_{t+1}^{NC_t}) - \delta \ln L_t \qquad (9.10)$$

9.3 The econometric model

The dynamics of individual production of health and income outlined in the previous section make it essential to study this at a minimum of three time periods. This study therefore explores the links between health problems, the observable proxy for latent health, H_t^* and income, Y_t and health care, HC_t , as a three period model. The three periods could, for example, be adolescence, adulthood and old age, or simply three consecutive years in an individual's life. The latter option is assumed in the empirical estimations in this study.

A system of three equations represents the preferred model. The dependent variables of interest are income, health and health care utilisation.

1. *Income equation:* Income, Y, is a continuously observed endogenous variable.

2. *Health equation*: The structural equation for health is formulated in terms of latent health, which is not observed. If latent health, $H^* < H'$ where H' is some threshold level representing good health, we observe a dummy variable, the presence of a health problem, HP. $HP = 1$ if $H^* < H'$, 0 otherwise.

3. *Health care utilisation*: The equation for health care utilisation is derived from an underlying utility function. Health care utilisation is represented by a dummy variable HC, defined as visit to a GP or a hospital in a year. $HC = 1$ if the level of utility from utilisation of health care, U^{HC} is greater than the utility from non-utilisation of health care, U^{NC}.

Using the dynamic relationship in equations (9.3) and (9.4), the stochastic equation for health in the current period is written as

$$H_t = exp\,[\Sigma(\alpha + \gamma HC_{t-1})\,z_t\,]\,(Y_{t-1})^{\beta}\,u_t\,' \qquad (9.11)$$

where HC_{t-1}, a dummy variable represents health care utilisation in the previous period; Y_{t-1} is income in the previous period and the z are factors such as age, place of residence, employment status, educational qualifications, ethnic origin, marital status, smoking and environmental factors which affect health. u' is a random variable reflecting shocks in health status which are likely to vary with income and some of the z.

The stochastic income equation is written as

$$Y_t = a\,(H_{t-1})^b\ exp\,(\Sigma cx_t)\,\varepsilon_t' \qquad (9.12)$$

where the x are exogenous individual-specific variables such as age, gender, education and region which influence income directly. ε' is a random variable that reflects shocks to income. The impact of these on income may vary with the health status and some of the x. The assumption in the model is that health effects on productivity of work, the hours of work offered by an individual and resulting wages will be evident with a time lag.

Since true health state is a latent variable and therefore an unobservable attribute of the choice for health care utilisation, for econometric estimation of the model it has to be substituted out. Substituting (9.11) in (9.12), we have the "reduced form" income equation

$$\ln Y_t = a + b\ln(\Sigma\alpha + \gamma HC_{t-2})\,z_{t-1} + b\beta\ln Y_{t-2} + c\ln x_t + bu_{t-1} + \varepsilon_t \qquad (9.13)$$

From equation (9.10) an individual's decision to use health care at time t is

$HC_t = 1$ if

$$(\ln H_{t+1}^{HC_t})(\ln Y_{t+1}^{HC_t})\delta\ln L_t(1+\tau) > (\ln H_{t+1}^{NC_t})(\ln Y_{t+1}^{NC_t}) - \delta\ln L_t \qquad (9.14)$$

The statistical model is driven by the probability that choice of HC is made, which is

$Pr\,(HC > NC)$

For empirical estimation if we assume that the u_i are independently and normally distributed (IN 0, σ^2), we have a probit model for the decision to use health care.

Depending on whether health care is used or not, an individual's health in the next period will be given by

$$H_{t+1}^{HC_t} = \exp(\Sigma\alpha + \gamma) z_t (Y_{t-1})^{\beta} u_t^{'} \tag{9.15}$$

$$H_{t+1}^{NC_t} = \exp(\Sigma\alpha) z_t (Y_{t-1})^{\beta} u_t^{'} \tag{9.16}$$

The empirical estimation of the health equation (11) in terms of the proxy variable, the dummy for the presence or absence of a health problem *(HP)*, is given by the equation for the probability of observing a health problem

$$Pr(HP=1) = Pr\,(\,u_t > exp\,[\Sigma(\alpha + \gamma HC_{t-1})\,z_t\,]\,(Y_{t-1})^{\beta} \tag{9.17}$$

which gives a probit equation for the presence of a health problem.

9.4. Data

British Household Panel Survey (BHPS) data from the first three waves of the survey, for the years 1991, 1992 and 1993 were used in the estimation of the empirical model. The BHPS is an annual survey of each adult (aged16+) member of a nationally representative sample of more than 5000 households, making a total of approximately 10,000 individuals. The same individuals are re-interviewed in successive waves. The sample for the present study was 7702 cases which were common to all three waves and had valid data for the variables of interest. The data from the BHPS was supplemented by secondary sources of data on the supply of health care facilities and population statistics for the regions in order to match individual-level data from the BHPS to the Health Authority Regions the sampled individuals resided in. Information on the number of GPs was taken from the GMS Basic Statistics, 1993 for England and Wales and from the Scottish Health Statistics, 1991 for Scotland. Population figures were taken from the Key Population and Vital Statistics for local and health authority areas, 1992 for England and Wales and from the Census 1991 Report for Scotland.

Variables used in the study

The main variables used in this study were the following:

Income -The income measure used in the study is the sum of annual labour income and values of pension, benefits, other transfer payments received and the income from savings and investment of an individual in the reference year, as reported by the individual.

Health care - A dummy variable set equal to one if the individual had visited the GP or the hospital for health problems on their own account, in the reference year (excludes visit to the hospital for child birth).

Health problems - A dummy variable set equal to one if the individual reported as having had a health problem in the reference year. Problems included any of those with arms, legs, seeing, hearing, skin conditions, allergies, chest, breathing problems, heart and blood, stomach, liver, kidney, diabetes, nerves, anxiety, depression, alcohol, drugs, epilepsy, migraine, chronic headache or other.

Screening - A dummy variable set equal to one if the individual had had any diagnostic check-up or health screening in the reference year - includes blood pressure check, chest or other x-ray, cholesterol test, smear, breast screen, and other checks excluding eye and dental.

Job hours - This variable refers to the number of weekly hours an individual reported as the usual working hours.

Heating - A dummy variable set equal to one if the household the person is living in had central heating.

GP - Number of general practitioners in the local authority districts per 1000 population aged 15 years or over as on 1 October 1993. This variable is used as a measure of the supply of health care facilities in the region where the individual resides.

Ownership of Car - Household the person lives in owns car for use excluding those used exclusively for work. Two dummy variables were defined referring to ownership of 1 and 2 or more cars. Ownership of car is expected to reduce the time cost of seeking health care as it reduces travel time. It may also pick up income and social class effects on health and health care utilisation.

Ownership of house - A dummy variable set equal to one if the individual owns the house he/she is living in. This variable is expected to capture environmental and social class effects on health and health care utilisation.

Job status - Job status of the individual at the time of the wave 3 interview. Categories refer to those used in the BHPS questionnaire and comprises of 10 categories, each defined as a dummy variable in the analysis, expected to influence both income and health.

Qualifications - Highest educational qualifications attained by the individual at the time of wave 3 interview. Twelve different qualifications were defined, each as a dummy variable. This variable is expected to influence income, health and health care utilisation.

Ethnic group - Ethnic group the individual belongs to is used to capture the income and health effects and health care utilisation behaviour of different ethnic groups.

Marital status - Marital status of the individual at the time of wave 3 interview. It is expected that marital status influences both income and health and therefore health care utilisation behaviour as well.

Change variables - These are variables measuring changes in individual circumstances between waves. Changes in job status, marital status and migration between regions are expected to influence income as well as health and therefore health care utilisation.

Regions - The Health Authority (HA) region the individual resides in was used as an independent variable in the analysis to see if regional variations in environmental factors have an impact on income, health or health care utilisation.

Happiness - Since health is unobservable, the general practice is to use some proxy measures like self-assessed health or self-reported health problems. While using the latter as the proxy for the unobservable health, it was also important to have some measure of the individual perception of own health in studying the health care utilisation behaviour. The self-assessed health measure was found to have some inconsistencies as cross tabulations revealed that those who had rated their health as excellent had some severe health problems too. Hence a measure of the happiness or positive outlook on life was created by combing the objective and the subjective measures of health.

Happy - A dummy variable set equal to one if the person had reported health problems but considered him/herself as *Healthy.*

Sad - A dummy variable set equal to one if the person had reported no health problems but considered him/herself as Not *healthy.*

Smoker - A dummy variable whose value was set equal to one if the individual had reported as being a smoker in all the three waves of the BHPS.

Table 9.1 shows the proportion of the sample who reported having health problems in the preceding 12 months and those who made use of health services and health screening facilities.

Table 9.1: Proportion of the sample having health problems and using health care and health screening services in the British Household Panel Survey, 1990-93

Variable	1990-91	1991-92	1992-93
Health problems	53%	55%	53%
Used health services	76%	74%	68%
Used health screening	72%	56%	50%

Of the study sample of 7702 individuals, nearly 68% had made use the health care facilities (other than for child birth) during the reference period (12 months prior to interview). It is interesting to note that of those who used health care facilities in all three years, only 65 per cent had self-reported health problems. About 83 per cent of the users in 1993 had been users in the previous two periods too. Of those who reported that they had suffered from health problems in wave 3 of the BHPS, 76 percent had had health problems in wave 1 (1990-91) and 81 percent had reported health problems in wave 2 (1991-92).

Table 9.2: Proportion of the sample with health problems and use of health care in the BHPS, 1993

Income (£s)	Health problems	Used health care
0-8,000	60.3%	55.5%
8,001-16,000	24.9%	27.5%
16,001-25,000	10.4%	11.7%
25,001-40,000	3.1%	4.1%
> 40,000	1.3%	1.2%

Table 9.2 shows the proportion of the sample with health problems and those who made use of health care facilities by income groups. It is interesting to note that those in the lowest income group accounted for about 60% of those sick but only 56 per cent of the users of health care facilities. The trend is reversed for all other income groups except the highest, each accounting for a greater share of the users than those sick. This trend first observed by Le Grand (1978) still seems to hold and definitely is worth taking note of. Le Grand's work was then criticised on the grounds that the indicator of use of facilities he had used in his analysis, the percentage of public expenditure on health going to the socio-economic groups which was compared with the group's share of illness, may not reflect actual use of services for several reasons. The measure used in Table 9.2 above is the self-reported use of health care facilities against self-reported health problems and the trend is still there and therefore makes the need to investigate this inequality important.

9.5. Estimation and results

Estimation of the model involved three steps:

1. The reduced form income equation (9.13) was estimated using Ordinary Least Squares (OLS) to identify the regressors *x*.
2. The probit equation was estimated for predicting the probability of using health care wherein health and income were substituted out, so that this equation too was in the reduced form. Regressors therefore included the vectors *x* and *z*.
3. The structural equation for health (9.11) was estimated in terms of the dummy variable for the presence or absence of a health problem, equation (9.17), using a two-stage estimation procedure where predicted probabilities of the use of health care from the probit results were plugged into the likelihood function:

$$\begin{aligned}\Pr(\text{Hlthproblm93}=1) = {} & \Pr(\text{Hlthproblm93}=1|\text{Hlthcare92}=1)\Pr(\text{Hlthcare92}=1) + \\ & \Pr(\text{Hlthproblm93}=1|\text{Hlthcare92}=0)\Pr(\text{Hlthcare92}=0)\end{aligned}$$

The reference case in all estimations was: a white male, residing in the Health Authority region Mersey, having no educational qualifications, self-employed and married.

9.5.1 Income Equation

Table 9.3 gives the results of the estimation of the reduced form income equation. Results show that income is positively correlated with age, educational qualifications, being employed, residing in the London area and West Midlands, the number of children and marital status and negatively influenced by changing region, being female, unemployed, retired, disabled, student and certain other types of jobs. Being Indian or Caribbean also has a negative influence on income. Number of hours of work and lagged utilisation of health care seem to have a positive influence on income. These variables together explain 67% of the variation in incomes. These empirical results support the theoretical model by showing significant influence of many of the demographic variables and also health care utilisation which is lagged by two time periods, though with low level of significance.

Table 9.3: Results of the OLS regression: Income equation

Variables	Coefficient	t-ratio	Variables	Coefficient	t-ratio
Constant	0.389	2.25			
Female	-0.577	-12.45	Caribbean	-0.489	-1.78
Age	2.970	21.97	Indian	-0.759	-3.74
Higher Degree	2.030	12.30	Widowed	0.416	5.09
Univ Degree	1.746	20.15	Divorced	0.281	3.10
Teaching QF	1.527	11.74	Livcouple	0.273	3.15
Other high QF	1.521	22.71			
A levels	1.449	18.07	Child1	0.192	2.96
O levels	1.348	21.64	Child4+	0.561	2.95
Nursing	1.366	9.38			
Commrcial	0.998	8.76	WMidlnds	0.100	1.40
Cse	1.374	11.38	NEthams3	0.125	1.47
Apprentice	0.824	6.09	NWthams3	0.276	2.46
Other QF	1.354	5.30	SEthams3	0.167	1.88
Employed	0.245	2.09			
Unemployed	-0.469	-4.23	Dregion2	-0.420	-2.72
Retired	-0.303	-3.60			
Student	-0.649	-7.03	Hltcare1	0.054	1.18
Disabled	-0.962	-5.51			
Gvttrng	-1.189	-2.29			
Otherjob	-1.308	-2.64			
Jobhrs	0.057	1.84			

R-squared = 0.67191 F=424.20[0.00000] N=7702

9.5.2 Health Care Utilisation Equation

An individual's decision to use health care was estimated using probit in *Limdep* statistical software (Greene 1995). The model predictions were good in that overall 79.3% of the cases were predicted correctly. Results of the binomial probit model are given in table 9.4. They show that females have a higher probability of using health care compared to the males. Living in the Southwest and Yorks increases the probability of using health care. Higher qualifications increase the probability of health care utilisation. The supply variable, GP has a positive influence, indicating as supposed in the theory, a fall in the time price leading to increased demand when supply is greater or the existence of a supply-induced demand. Age, being a housewife, a student, having four or more children, all have positive influence. Being unemployed in the previous period increases the probability of health care utilisation. Break in marriage has a positive influence on utilisation. Income, lagged by two time periods has a negative influence on the probability of health care utilisation. This too corresponds with the theoretical supposition that income in time *t-2* leads to better health in time *t-1* leading to higher income and health in time *t* and hence reduced need for health care, while job hours in wave 1 has the opposite effect. It appears with a positive coefficient indicating the negative effect on health of longer hours of work, leading to poor health in wave 2 and also in wave 3 and hence greater utilisation of health care. Past health problems and preventive health care (screening in waves 1 and 2) also lead to increase in the probability of using health care. Past health care utilisation also has positive influence, which corresponds to the theoretical supposition that those who had utilised health care in the past (and found beneficial health and income effects) are more likely to do so in the current period under similar circumstances. The influence of ethnicity is not very clear. Having been a smoker in all three periods has a positive influence on health care utilisation. Being happy or sad show the expected result. Those who are 'happy' have a negative influence whereas the 'sad' have a positive influence on the probability of using health care. Having three children and long hours of work reduces the probability of health care utilisation, again offering evidence of the importance of time price involved in seeing a GP or going to a hospital.

Many interaction variables also are significant with the expected signs. Most of these interaction variables are the demographic and region variables interacted with past health problems, which again supports the theory in that present health care utilisation behaviour is related to past experiences, i.e., those who had problems in the past and presumably had used health care, have a higher probability of doing so in the present as well, assuming that they experience some health problems and the need for health care, in the present. Those who had migrated between waves 2 and 3 and had health problems in wave 2 have a lower probability of using health care. This is to be noted against the positive coefficient associated with most of the regions interacted with health problems in wave 2, which could be a confirmation of the view that when people move to a new area, they have a lower likelihood of using health care at least for some time due to the need to find a new practitioner with whom they may feel comfortable.

Table 9.4: Results of the binomial probit model: Health Care Equation

Variables	Coefficient	t-value	Variables	Coefficient	t-value	Variables	Coefficient	t-value
Constant	-4.6347	-7.236	Hltcare1	0.3498	8.211	Wesxprb2	0.3319	2.031
Female	0.2756	6.399	Hltcare2	0.6738	15.966	Oxfdprb2	0.3928	2.366
Age	1.4095	5.996	Income1	-0.0266	-1.224	Nwprb2	0.4959	3.719
						Swthprb2	0.3913	2.589
Higher Degree	0.5129	3.392	Screening1	0.1014	2.434	Scotprb2	0.3493	3.040
Univ Degree	0.4168	5.371	Screening2	0.1333	3.347	Wmidprb2	0.2660	2.520
Teachng QF	0.3909	3.329				Trntprb2	0.2496	2.478
Other High QF	0.4000	6.634	Pakistani	0.9040	2.151	Chl3jbhr	-0.0552	-1.668
Nursing	0.5397	3.717	Black	-1.1673	-1.865	Smokprb2	0.1541	2.016
Alevels	0.3274	4.682	North	-0.1540	-1.593			
Olevels	0.2172	3.988	Yorks	0.1950	2.502			
Cse	0.3831	3.684	Swest	0.1326	1.773			
Apprentice	0.2960	2.442	Swthams	-0.1894	-1.749			
Unemployed	0.1387	1.589	Dregion1	0.1659	1.231			
Student	0.1131	1.646	Drg2prb2	-0.2612	-1.302			
GPs	0.3873	1.597	Rtprblm1	0.3557	4.838			
Car	0.1003	2.028	Dsprblm1	0.7508	2.187			
Child4+	0.3832	2.203	Dsprblm2	-0.6559	-2.011			
Jobhrs	0.0240	1.823	Caribprb1	-2.7248	-2.332			
			Caribprb2	2.5486	2.168			
Breakmarriage	0.2428	1.753	Blckprb2	1.3541	1.583			
Smoker	0.1597	1.824	Divoprb1	-0.3114	-1.651			
Happy92	-0.1941	-3.492	Divoprb2	0.3354	1.762			
Health problm1	0.1028	2.195	Nortprb2	0.3325	2.264			
Health problm2	0.1067	1.387	Anglprb2	0.4512	2.572			

Frequencies of actual and predicted outcomes

	Predicted		
Actual	0	1	Total
0	1320	1186	2506
1	412	4784	5196
Total	1732	5970	7702

Predicted probabilities and elasticities

It is important to note that the parameters of the probit model (like those of any non-linear regression model), are not necessarily the marginal effects. The derivatives (marginal effects) of the probabilities with respect to a particular independent variable in probit estimation vary with the values of x. However, they generally produce a reasonable approximation to the change in the probability that Y equals 1 at a point such as the regressor means. While the marginal effects give the effects of changes in any of the explanatory variables on the probabilities of any observation belonging to either of the two groups, they are scale dependent. Therefore in order to have a unit-free measure of responsiveness we estimate elasticities which are given by

$$\beta_j \, \Phi(Z_i) * x_{ij} / \Phi(\beta' x)$$

The predicted probability of using health care was estimated for different sub samples in the model. These were then used to estimate elasticities with respect to the continuous variables, income, age, job hours and the supply variable, for these sub samples at the mean value of the regressors in the particular sample. The results of these estimations are given in table 9.5. *Predicted probabilities* for some specific samples show a gradient with respect to educational qualifications. Other notable results are the higher probability of using health care facilities for white females in comparison to white males, white males in comparison to non-white males, non-white females in comparison to white females, and employed in comparison to the self-employed.

For all sub samples analysed, income elasticity is negative and less than one, i.e., a 1% increase in income is associated with a less than one per cent fall in the probability of using health care. White men are relatively more income elastic in their demand for health care than white women. Similar trends are revealed for the self-employed men versus the employed; those with no educational qualifications versus those with qualifications; non-white males versus white males and females. Among the non-white populations, the fall in the demand for health care associated with increase in incomes is more marked for females than for the males. Thus, although higher income is generally associated with a fall in the demand for health care, the proportionate responses vary with the characteristics of the individuals.

Table 9.5: Predicted probabilities and elasticities for the health care equation

			Elasticities			
Sample	Predicted Pr(HC=1)	Income	Age	Jobhrs	GP	N
Full	0.66541	-0.126168	2.679808	0.409872	0.02381	7702
Female	0.82845	-0.068006	1.635748	0.012142	0.23019	3876
White female	0.82786	-0.068190	1.643204	0.012145	0.23084	3759
Nonwhite female	0.84686	-0.622313	1.408510	0.011898	0.20966	117
White, female, Employed	0.80036	-0.080493	1.784275	0.023881	0.26189	1824
White, female, employed,noqlfs	0.73282	-0.099141	2.427910	0.028510	0.33587	370
White, female, employed,olevel	0.78885	-0.083917	1.848031	0.025657	0.27332	483
White, female, emplyd,othrhigh	0.84903	-0.064911	1.370516	0.020078	0.20727	242
White, female, selfemployed	0.78683	-0.083057	1.946365	0.000424	0.27666	144
White male	0.46234	-0.206191	3.855956	0.040852	0.64304	3695
White, male, Employed	0.63563	-0.147002	3.004019	0.046445	0.44177	1684
White, male, selfemployed	0.60529	-0.158183	3.377951	0.000857	0.47581	392
White, male, employed,noqlfs	0.54839	-0.177072	3.847969	0.057381	0.53939	279
White, male, employed,olevel	0.59871	-0.157933	3.197121	0.050390	0.48057	327
White, male, emplyd,married	0.80058	-0.079594	1.816438	0.023015	0.26114	1211
White, male, unemployed	0.61193	-0.142424	3.148422	0.020413	0.46906	223
White, male, unemplyd,noqlf	0.55859	-0.156646	3.647888	0.016886	0.52883	74
Nonwhite	0.63445	-0.136066	2.592054	0.026799	0.44594	248
Nonwhite male	0.39623	-0.229011	3.668621	0.046223	0.73279	131

Age elasticity is positive and greater than one, i.e., a one percent increase in age is associated with greater than one percent increase in the probability of using health care. Elasticity of demand for health care with respect to age is higher for white males compared to white females and non-white males. Males and females with no qualifications have a higher age elasticity of demand for health care than those with qualifications. Self-employed individuals have a higher age elasticity of demand than the employed. Unemployed males with or without qualifications have greater age elasticity of demand for health care than employed males.

Longer job hours have a positive association with the probability of using health care but with elasticity less than one. White males are relatively more elastic in their demand for medical care than white females with reference to hours of work; self-employed are relatively less elastic in their demand than the employed, both among white males and white females.

The supply variable, the number of GPs in the region, has a positive association, with elasticity less than one. A one percent increase in the number of GPs in the area results in less than one percent increase in the demand for health care. White males show a greater elasticity of demand for health care than white females when supply is greater. This result is even more marked for non-white males than white males. Higher qualifications make women relatively less elastic in their demand compared to those with no qualifications. Self employed men and women have higher elasticity of demand for health care compared to the employed, when supply is greater.

One important point that emerges from an examination of these elasticities is that time price is an important factor in the individual's decision to use medical care, which is clear from the elasticities of the self-employed versus the employed and males versus the females with respect to income, job hours and the supply variable.

9.5.3 Health Equation

Equation (9.17) was estimated using self-reported health problems in wave 3 as the proxy for unobserved health. Predicted probability of health care utilisation from the probit estimation was used and the likelihood function for the probability of having a health problem was estimated using non-linear optimisation method in *Limdep*. Then the predicted probability of having a health problem and elasticities with respect to the continuous variables were estimated for some specific sub-samples. Results of these estimations for users and non-users of health are given in Tables 9.6 and 9.7.

Predicted probabilities for the sample of health care users shows that all females and white females have a higher risk of being ill than all males and white males respectively. Employed white females with no qualifications have a higher probability of having health problems than those with qualifications. Higher levels of educational qualifications are associated with lower probability of illness for both males and females among the whites. Self-employed men and women have a higher probability of being ill. White divorced males have a much higher probability of having problems compared to the married. Non-white females have a lower probability of being ill than white females and the same is true for non-white males in comparison to white males. Those who were smokers throughout the study period have a very high probability of being ill as are those who were divorced or widowed between waves 2 and 3.

For the sample of non-users of health care, the predicted probabilities of having health problems (given in Table 9.7) are generally lower which could be because this sample consists mainly of healthy individuals. Those with the highest risk of becoming ill are the retired white males and females. The lowest probabilities are for non-white males followed by white males. Self-employed men and women in this sample too have a higher risk of becoming ill than the employed. Higher qualifications reduce the probability of having health problems. Divorced white males have a higher risk of having health problems than the married, and unemployed men have a slightly higher level of risk than the employed. Smoking and break in marriage have lower probabilities of illness in this sample compared to those in the sample of users of health care.

Table 9.6: Estimated predicted probabilities and elasticities for selected sub samples, for those who used health care, HC=1

		Elasticities			
Sample	Predicted Pr(HP=1)	Income	Age	Jobhrs	N
Full	0.72957	-0.239171	-4.448241	-0.01637	5196
Female	0.74514	-0.218962	-4.242056	-0.014253	3072
White female	0.74784	-0.216957	-4.191414	-0.014125	2974
White, female, employed	0.60560	-0.3365497	-5.958283	-0.368356	1410
White, female, employed,noqlfs	0.69956	-0.251763	-4.953596	-0.026336	275
White, female, employed,olevel	0.59070	-0.345787	-6.102402	-0.039128	364
White, female, employed,alevel	0.55102	-0.379953	-6.384349	-0.042936	146
White, female, employed,unidgr	0.54577	-0.403958	-6.691164	-0.042256	131
White, female, emplyd,otrhigh	0.55534	-0.384014	-6.48379	-0.043962	204
White, female, selfemployed	0.62360	-0.314175	-5.89832	-0.00150	103
White, female, unemployed	0.71601	-0.314175	-5.89832	-	79
Nonwhite female	0.65654	-0.2845563	-5.156761	-0.018398	98
Nonwhite,female, employed	0.68648	-0.2793135	-4.871820	-0.030107	42
Male	0.70623	-0.2705578	-4.787508	-0.019719	2124
White male	0.70831	-0.2691583	-4.764721	-0.019561	2058
White, male, employed	0.49021	-0.4650527	-7.622401	-0.054223	1051
White, male, selfemployed	0.63037	-0.3426028	-5.882170	-0.006997	224
White, male, employed,noqlfs	0.60947	-0.3532833	-6.175648	-0.041922	174
White, male, employed,olevel	0.47081	-0.4746599	-7.692694	-0.055715	203
White, male, employed,alevel	0.41779	-0.5352765	-8.536172	-0.065495	141
White, male, emplyd,married	0.51930	-0.4462068	-7.372065	-0.052157	736
White, male, emplyd,divorcd	0.76866	-0.2176747	-3.929121	-0.014252	87
White, male, unemployed	0.63459	-0.1669717	-5.491372	-0.017090	131
Nonwhite	0.64923	-0.2966063	-5.293229	-0.020904	164
Nonwhite male	0.63826	-0.3150647	-5.500344	-0.024782	66
Full, smokeall	0.75216	-0.2196558	-4.048573	-0.015284	1159
Full,Brekmar3	0.79413	-0.1824108	-3.578348	-0.009923	126

Table 9.7: Estimated predicted probabilities and elasticities for selected sub samples, for those who did not use health care HC=0

			Elasticities		
Sample	Predicted Pr(HP=1)	Income	Age	Jobhrs	N
Full	0.081563	-0.389351	8.7235943	-0.026715	2506
Female	0.36342	-0.206589	6.4752498	-0.013543	804
White female	0.36021	-0.207568	6.5146703	-0.013449	785
White, female, employed	0.26982	-0.254163	7.4321453	-0.026505	414
White, female, employed,noqlfs	0.26538	-0.2482257	7.8647042	-0.026476	95
White, female, employed,olevel	0.22885	-0.2741635	7.8708136	-0.029170	119
White, female, selfemployed	0.30543	-0.233552	7.136328	-0.002081	41
White, female, retired	0.59920	-0.126973	4.547750	-0.001121	144
Male	0.02999	-0.488741	9.034231	-0.034192	1702
White, male	0.03207	-0.483129	9.029440	-0.033872	1637
White, male, employed	0.21910	-0.303440	8.061601	-0.033672	633
White, male, selfemployed	0.31571	-0.253293	7.009006	-0.004684	168
White, male, employed,noqlfs	0.28188	-0.267842	7.530490	-0.030870	105
White, male, employed,olevel	0.17537	-0.325999	8.605621	-0.036716	124
White, male, employed,alevel	0.19099	-0.314787	8.243754	-0.035687	90
White, male, emplyd,married	0.26014	-0.287925	7.701461	-0.031997	406
White, male, emplyd,divorcd	0.33187	-0.241643	7.025472	-0.015658	41
White, male, unemployed	0.23347	-0.268204	7.763333	-0.035687	92
White, male, retired	0.63851	-0.122925	4.156701	-	145
Nonwhite	0.02129	-0.512729	8.692138	-0.037491	84
Nonwhite male	0.00437	-0.631363	8.418506	-0.422497	65
Full, smokeall	0.28123	-0.251621	7.340557	-0.017588	449
Full,Brekmar3	0.31478	-0.237374	7.166046	-0.017069	34

Elasticities: An interesting observation is with respect to the age elasticity, which is negative and greater than one for all sub-samples among the utilisers, while it is positive and greater than one for all sub samples among the non-utilisers. A one percent increase in age is associated with greater than one percent fall in the probability of becoming ill for those who have been users of health care in the past and the converse is true for those who have not been users of health care. This perhaps goes to suggest (or confirm) that health care does have beneficial effects and that this becomes more important with age.

For the sample of health care utilisers, the income elasticity of having health problems is negative and less than one. Health of the males is more responsive to changes in income than the health of the females, both among white and non-white populations. Higher qualifications are associated with greater elasticity of health in relation to income. The health of the employed males is more responsive to changes in income than that of the self-employed and the unemployed. The health of married white males is more responsive to changes in income than that of the divorced males and of those with broken marriages. Income elasticity of health for the sample of non-utilisers of health care follows quite similar patterns for males and females. Non-white males have greater income elasticity of health than white males. White retired males and females have a less elastic health response to income. Income elasticity of health for white employed males is greater than that for the self-employed, the unemployed and the retired. Those with no qualifications have less income-elastic health than those with qualifications both among males and females.

Elasticity of health with respect to job hours is negative and less than one, for both the utilisers and non-utilisers of health care, which is contrary to the expectation that longer hours of work increase the probability of having health problems. But there are clear differences for the self-employed versus the employed, both among males and females, in the sample of utilisers of health care. That is, for the self-employed, increased hours of work (though may result in higher income) lead to a negligible fall in the probability of having health problems as compared to the employed. Quite similar patterns emerge for the sample of non-utilisers of health care.

9.6 Conclusion

The empirical results support the theoretical suppositions reasonably well.

1. Income is influenced by demographic variables that have a direct impact on income like age, qualifications, gender, job status, ethnic origin, marital status, job hours and the number of children, and also by those which influence income through their influence on health, mainly health care utilisation which is lagged by two time periods.

2. Health is influenced by demographic variables and environmental variables like the availability of central heating at home, health-related habits such as smoking, and income which is lagged by two time periods, health care utilisation in the previous two time periods as well as health problems in the past, use of preventive health care in the previous time periods, job hours and job status, especially being unemployed in the past, and also psychological well-being as in the previous period.

3. The influence of income on health and health care utilisation appears with a time lag. Similarly the influence of health on income appears with time lags.

4. The importance of time price is revealed by many proxies. In the light of the low significance of regional variables (which rules out regional differences in the provision of facilities and utilisation behaviour) and the public provision of health care in the UK, the evidence of this time price effect does indicate that 'access' in terms of 'equal real costs' may not be equal to all.

These results have shown that longitudinal data and a robust analytical framework can be useful tools for understanding the complex relationships of many social and economic variables that affect health and health care utilisation behaviour of individuals in different societies. The theoretical and empirical models presented in this chapter indicate how – potentially - a model of mental health could be developed to analyse causal pathways between income, social class, ethnicity and other factors and mental health. If longitudinal data similar to the BHPS were to become available for mental health, such analysis could be undertaken in future research for a better understanding of mental health-generating social mechanisms, and so could be a useful guide to policy making in this field.

CHAPTER 10

Summary and Conclusions

The thesis set out to explore equity issues in the mental health field in Britain by developing a conceptual structure to define equity in mental health and analysing data from three national psychiatric morbidity surveys to measure inequalities and inequities in both mental health and the use of services. Standard methods were used for measuring income-related and social class-related inequalities with reference to many indicators of mental health which represent 'normative' or 'felt' needs for services. By relating use of services to needs, inequity in mental health services was also examined. Analyses of income-related inequalities and equity were carried out with reference to the general population and also with reference to the minority ethnic groups in Britain. Changes in the social class-related inequalities and equity for the general population between 1993 and 2000 were examined to see if the many policy and practice changes that took place since the beginning of the 1990s in the health and social care sectors had exerted any impact on equity in mental health. To understand the links between living standards, health and health care utilisation patterns further, data from a longitudinal survey on *general* health (due to the lack of such longitudinal data on mental health) were examined using robust theoretical and empirical models, under the assumption that much of the approach that would be needed for mental health would be similar to that used for general health.

The key issues or themes that emerged from the literature and empirical studies carried out as part of this thesis are discussed here under the following headings:

- *Conceptual developments*
- *Empirical findings*
- *Implications for policy and further research*

10.1 Conceptual developments

Developing a definition and principle of equity applicable to mental health

From the review of literature on equity in mental health covered in chapters 2 and from the review of mental health policies in Britain it was clear that the importance of the principle of 'equity and fairness' in relation to mental health and the distribution of mental health care resources has always been recognised by the government and many other stakeholders. However, very little research has been carried out to see how the principle of equity should be defined in relation to mental health, or on how to develop a concept that can be operationalised in practice. For example, the concept of 'equity' in mental health has so far not been translated into a quantitative outcome measure, upon which the evidence-based medicine approach crucially depends. It was therefore felt that there is a need for better exposition of what equity principles are relevant for discussion in relation to mental health and to develop a reasonable theory that can support empirical estimates of quantitative measures of equity.

From a review of the vast literature on the theories and principles of distributive justice - which covered various fields of study such as philosophy, ethics, economics and medicine - many principles and attributes were identified which might be relevant in different circumstances when considering equity in general or mental health. The need to integrate many principles and approaches to inform public policies relating to the equitable distribution of health care resources is apparent. Chapters 3 and 4 identified the main principles, theories and concepts that were relevant, first with reference to general health and then in relation to mental health. Many of these are common to both general and mental health but some of the unique characteristics of mental health (such as the attendant stigma, and the use of compulsion in treatment) mean that some of these principles may or may not be relevant for distributive justice in this narrower context. The major points that emerged from the review on the basis of which a theory of equity in mental health was constructed were:

- Needs are the proper basis for deciding distributive justice in this field.
- Needs which can be translated into 'claim rights' should be identified.

- The Rawlsian Maximin principle - i.e., distributing resources so as to benefit the least well-off more in terms of health - should be recognised in practice.
- The concept of a decent minimum also appears to warrant more attention.
- Resource egalitarianism in the sense of equality of basic capabilities (Sen 1982) is important.
- When personal resources (or capabilities) are unequal, compensation should be made for the differences in these resources.
- Defining the role of 'need' and 'capabilities' in attaining positive mental health may be an initial step in developing a proper basis for equity analysis in this field.

The bases for a theory of equity in mental health are shown in table 10.1.

Table 10.1: The bases for a theory of equity in mental health

Major theories	**Principles**	**Concepts**
Rawls - Maximin Sen – Basic capability	Needs Claim rights	Positive mental health Basic capabilities Needs
Equal probability of attaining positive mental health		

Three concepts identified as central to the development of the conceptual basis for equity analysis in mental health were positive mental health, capabilities and needs. These three concepts were linked together to develop a theory of equity in mental health. Equity was defined as 'equal probability' of reaching the desired end, 'positive mental health' for all. The importance of equalising basic capabilities for the achievement of this goal was highlighted. Distinguishing between different need categories was shown to be an important part of moving towards the goal of equalising basic capabilities. The main arguments of the equity in mental health theory in chapter 4 were that:

- Equity in mental health can be defined as 'equal probability' of reaching the desired end, 'positive mental health' for all.
- Positive mental health is essential for the achievement of basic vital goals of decent living (survival).
- Mental illness curtails an individual's mental ability to reach the basic vital goals. Hence mental illness is capability-deprivation in the same way as is poverty.
- Deprivation of basic capability in relation to mental health may result from factors such as stigma, social oppression (sometimes leading to state oppression), lack of financial resources, human right abuse or ignorance.
- When it is possible to remedy such capability-deprivation through appropriate interventions, society has the responsibility to provide such interventions.
- Everyone has a 'claim right' to enjoy positive mental health. Recognising the factors that may cause capability-deprivation and making concerted efforts to equalise capabilities or make necessary compensations when it is not possible to equalise capabilities, should be the aim of equity in public policy.
- Curtailment of basic capabilities should be the (rough) guide to the 'need' for mental health care or relevant alternatives.

It was proposed that in order to follow these principles of equity, the *need* for mental health care will have to be defined more broadly than merely by symptoms recognised in a medical model of mental health. The medical model identifies what may be termed as *normative need.* This is to be contrasted with *felt need* and *economic need.* Efficiency objectives in health care decisions require the satisfaction of *economic needs* alone, while equity objectives point toward the importance of expanding the domain of *economic needs* so that they cover *normative needs* and *felt needs* as well. An equitable mental health policy is defined as one which will ensure that everyone will have an *equal probability* of reaching a certain desirable level of *positive mental health*, irrespective of gender, ethnicity, wealth, region, educational qualifications or other differential factors affecting individual circumstances and lifetime opportunities for health and wealth.

With this theory of positive mental health, empirical analysis of equity had to relate use of services (expressed needs) to normative as well as felt needs and also compare these across population groups. Two specific aspects of the equity problem were studied in this thesis, namely (a) income and social class-related inequalities, and (b) ethnicity-related inequalities, both in relation to mental health and in the use of mental health care services. Results of these analyses were presented in chapters 6-8.

10.2 Empirical findings

10.2.1 Income and social class-related inequalities in mental health among the general household population

The literature on inequalities in mental health does not give us a consistent picture on the associations between socio-economic variables and mental health problems, or the direction and strength of associations in the UK and other countries. Differences in the concepts and methods used in assessing mental health and in measuring the severity of mental health problems and also differences in the methods of analysing inequalities may explain the inconsistency in results from different studies. Although there have been attempts to develop standardised instruments for assessment of needs for mental health services, studies on inequalities in the use of mental health services have to date not used robust statistical methods that allow analysis of use of services in relation to such needs. In general, there have been no attempts to use standardised and well-validated methods for measuring inequalities or for the quantification of inequalities using currently available methods which facilitate comparison over time and across regions or other relevant classifications of data.

In the three empirical works presented in chapters 6-8, the extent of inequities and inequalities in mental health was explored using the concentration index approach (World Bank 2003) which allows for quantification and hence comparison of equity where essential.

In chapter 6, evidence of income-related inequalities in mental health was observed among the general household population of Britain in 2000, for all measures of mental health morbidity studied. The extent of inequality for severe mental health problems was found to be much higher than that reported in previous research for general health. While inequalities unfavourable to the poor were evidenced for all measures of mental ill-health, there appeared to be no discernible demographic pattern that may explain these inequalities. The result that most of the observed inequality was found to be due to individual income, and implicitly therefore to factors associated with income, suggests that what we have is potentially 'avoidable' inequality. Concentration indices standardised for the demographic composition of the sample were generally higher than the unstandardised indices, except for CIS-R low and some symptoms such as phobias, compulsions, obsessions and sleep problems. This implies that if everyone had the same (mean) age-gender effects as the entire population, the distribution of more serious mental health problems would be more unequal than what was actually observed in the sample. One important implication of the higher standardised indices is that all of the observed inequality is due to income and none due to unavoidable demographic characteristics. Another implication could be that the more severe mental health problems are not correlated with age and gender in any systematic way. For few symptoms (phobias, compulsions, obsessions and sleep problems) the standardised index was lower than the unstandardised one, suggesting that although those in lower income quintiles experience these symptoms more than would be expected, some of the inequalities observed for these symptoms may be due to the age-gender composition of the sample and the quintiles.

Probable psychosis was found to be associated with the highest level of income-related inequality with a concentration index of -0.439. This index of inequality is rather high in comparison to the inequality indices for all other indicators of mental health examined in this study or any reported in the literature on inequalities in general health. The inequality index for the standard measure of neurotic disorders, 'cases', was -0.106, not as high as the index for probable psychosis but, nevertheless, quite high. Neurotic disorders with comparably high levels of income-related inequality were panic disorder, phobias and depression. All concentration indices (except the index for CIS-R low) are higher than the most recent concentration index for inequality in *general* health in the

UK, which is that reported in Van Doorslaer and Koolman (2004) to be -0.0129 for self-reported *general* health in 1996.

Comparing the results found in this study with those of other researchers is not straightforward because most previous studies have not quantified inequality in the same way, or have used different clinical measures. The only other study that reports an estimated concentration index for mental health in the UK is by Wildman (2004). Using BHPS data for waves 1 and 7, he reported that the concentration index for mental health in the UK was -0.022 in 1991 and -0.016 in 1997. These results are not strictly comparable to the ones presented in this study because of the different mental health variable used in his analysis: his analysis is based on the GHQ, which is a more limited measure of mental health than the CIS-R.

It is difficult to draw precise comparisons with the results from previous studies which report a relationship between mental health indicators and socio-economic status due to the different methods, concepts and unstandardised approaches used. Moreover, socio-economic status is a complex concept which can be represented by many different indicators. The literature contains examples of studies that have used several different variables to measure socio-economic status, including the (UK) Registrar General's Social Class measure, educational attainment, income, wealth and standard of living (represented by access to a car or housing tenure). While most previous studies have tested for the association of socio-economic status with mental health, none of these developed a quantitative summary measure of inequality. In this study *quantitative* measures of inequality for several different standardised indicators of mental health have been provided. This quantitative measure of inequality enabled comparison of income-related inequality for different diagnostic groups, which has not been attempted by any previous study. These distinctions, as well as the one between self-reported mental health problems and clinically assessed problems, will be useful in understanding further the equity issues in mental health.

In chapter 7 the mental health situation in Britain at two points in time, 1993 and 2000 was compared, using data from the household surveys of psychiatric morbidity for these two years. Because of the many changes in policies and practices in the mental health field that took place between 1993 and 2000 and because of the greater emphasis that most of the recent policy documents placed on equity, I examined whether there was any observable change in equity in mental health between the two years. The concentration index approach was used for the comparative analyses of social class-related inequalities. It was necessary to use the Registrar General's social class variable as an indicator of living standards in the estimation of inequality indices instead of income (which was used in chapter 6 and 8) because information on the income variable was deficient in the 1993 survey for a large proportion of the sample.

Indicators of mental health morbidity, similar to those used in chapter 6, were analysed to see if there was social class-related inequality in mental health and if there was any change between 1993 and 2000. All inequality indices were negative, indicating inequality unfavourable to the lower social classes. The level of inequality in relation to neurotic disorders was not as marked as it was for psychosis in either year. For all indices there was no significant age-gender effect that can explain the inequalities, a result similar to that found in chapter 6, implying that all inequalities are due to social class or related factors. Examination of the group means, however, showed that the percentage of those suffering from neurotic disorders among all social classes except the 'professionals' had actually increased between 1993 and 2000.

What is important is that this chapter allowed direct comparison of the distribution of morbidity (using concentration indices) among social classes between the two years. Results of the comparisons indicated that there is evidence of improvement in equity in mental health overall between the two years. Concentration indices for most of the indicators analysed were lower in 2000 than in 1993. The experience of mental health problems had become significantly less inequitable over the seven-year period.

The results from this empirical work suggests that the many changes in policy and practice in the mental health care system that took place between the two years appears to have had some impact in reducing overall inequality in the use of services and, more importantly, in the need-related inequalities in the use of services.

10.2.2 Ethnicity and mental health and income-related inequalities

In chapter 8, income-related inequalities in mental health morbidity and use of mental health services among ethnic minorities in Britain were analysed using data from the survey of Ethnic Minority Psychiatric Illness Rates in the Community 2000 (EMPIRIC). The concentration index approach was used for analysing within-group and between-group inequalities among these groups. The analyses concentrated on common mental health problems rather than psychosis, as relatively little is known about the common mental disorders among the ethnic minority groups. There were also practical difficulties for extending the analyses to psychosis as data on psychosis were less robust, since (a) psychosis is harder to measure, (b) it was harder to recruit people with psychosis in to these surveys (or any surveys), (c) psychosis is less prevalent (only 0.7% in EMPIRIC) and therefore leads to less reliable analyses, and (d) a higher proportion of people with psychoses are in hospitals or institutions than the proportion of people with common mental disorders, and so - because I have only examined non-institutional survey data - there is a risk of bias.

A number of factors may play an important role in determining ethnic variations in mental health. The variations can either be artefacts resulting from the way data have been collected, or a result of cultural differences between ethnic groups, or may be a consequence of biological/genetic differences in risk among these groups, or the consequences of migration itself. They may even be a direct result of racism or the result of the relationship between socio-economic status and both health and ethnicity (Smaje 1995). Information on symptoms collected in surveys may depend on possible differences between social groups in how these questions are interpreted and responded to. It is possible that an assessment of whether a particular symptom is severe enough to be worth mentioning will vary across social groups. Answers to such questions, consequently, may also produce misleading conclusions about differences between these groups (Nazroo 1997). These points illustrate the difficulty in making comparisons across ethnic groups, since differences in responses may be a reflection of differences in the way these groups interpret and respond to the questions and differences in their access to health care and the type of treatment received. The point about different cultural expressions, experiences and lack of cross-cultural validation of research instruments has been made time and again (Kleiman 1987; Cochrane and

Sashidharan 1996; Nazoo 2003; Bhui and Sashidharan 2003). These very valuable qualitative studies provide us with insights into what is important in ethnic research.

However, the approach in this thesis was quantitative analyses of income-related inequalities and it was beyond the scope of the thesis to include qualitative research as well. The analyses looked at five ethnic minority groups – Black Caribbean, Irish, Indian, Pakistani and Bangladeshi groups - in comparison with the white majority. The main points that emerged from the analysis were the following:

- When we look at within-group income-related inequalities for common neurotic disorders (cases), in general, inequality unfavourable to the poor is quite significant among the Irish, white and the Black Caribbean communities, with the index of inequality being highest for the Irish. Income-related inequality within each of the three Asian communities – Indian, Bangladeshi and Pakistani - is less clearly defined in comparison to the other three ethnic groups studied. As in chapters 6 and 7, no age-gender effect was observed that could explain the differences in the indices among the groups

- For the more severe cases (CIS-R scores of 18+), inequality unfavourable to the poor is highest for the whites, followed by the Black Caribbean, Irish and Indian groups. Standardised concentration indices were lower for the Indian and Bangladeshi populations, suggesting some age-gender effect on the observed inequality among these groups.

- When we look at between-group inequalities for the 'cases', Bangladeshi, Pakistani and the Black Caribbean groups have inequality unfavourable to the poor and the other three ethnic groups have inequality unfavourable to the rich.

- Compared to the white majority, the poor belonging to three of the ethnic minority groups - Bangladeshi, Pakistani and the Black Caribbean – had worse experiences of mental health problems, with the distribution of ill-health being unfavourable to them.

10.2.3 Inequalities in the use of services

No evidence of inequity in the use of services was found from the empirical work undertaken for this thesis. Those in lower income groups are generally more intensive users of services, even when their level of relative needs is taken into account. The concentration indices for use of services among the general household population, both unstandardised and standardised, were negative, which suggests that lower income groups are more intensive users of services (see chapter 6). The higher income groups generally are much less likely to use services than expected, given their level of needs. Standardised results with control variables included, however, suggest that there is no horizontal inequity in the use of services. That is, when needs and other factors that influence use of services are taken into account, there is no discernible inequality in the use of services that is unfavourable to the lower income groups. There was no significant difference in the results whether standardisation was for 'normative needs' or for the indicator of 'felt needs'.

The previous literature offers inconsistent findings with regard to inequalities in the use of services. Due to the different methods, concepts and unstandardised approaches used in previous studies, and due to the different context in which use of services was analysed, it is not possible to make any comparisons with the present study. Moreover, no previous study has estimated income-related inequalities using the method used in this thesis or quantified inequalities using any standard measure. Therefore, the results presented in this thesis are unique in that they provide an estimate of the income-related inequalities and also of potential inequity in the system by comparing use of services with need indicators.

In chapter 7, the concentration indices for the use of mental health services were once again negative, indicating that lower social classes are more intensive users of services. However, when distributions were standardised for need, i.e., when need for services was taken into account, the extent of the inequality was reduced, indicated by lower values of standardised indices. This result was true for all indicators of need and for both 1993 and 2000. Inequality in the use of mental health services had become marginally less inequitable over the seven-year period. The actual and need-predicted concentration indices for 1993 were -0.05 and -0.03, respectively. The horizontal index of inequity (HI), which is the need-standardised concentration index, was -0.02. The unstandardised, need-predicted and need-standardised indices for the year 2000, were0.04, -0.01 and -0.02, respectively. The indicator of need used for these standardisations was the measure of 'normative need'. However, that result was true for any indicator of need. Inequity in the use of services was thus favourable to the poor both in 1993 and 2000. The indices were slightly lower in 2000 indicating that there was improvement in equity in relation to use of mental health services.

Decomposition of the concentration indices to examine the contribution of various factors to the total level of observed inequality in the use of services revealed that the major contributors to inequalities were need, employment status and social class. This was the case in both 1993 and 2000. The decomposition results also provide information on the elasticities of the determinants in relation to use of services. The strongest positive influence on use of resources was for those aged 35-54 (males) and those aged 45-54 (females). The economically inactive group had a stronger positive effect on the use of services and also was responsible for a major contribution to the total inequality index. Those who were married had a negative elasticity of service use compared to other marital status categories. Those living in local authority housing had greater elasticity of use compared to those living in own or privately rented accommodation. These results are similar in both 1993 and 2000.

What is interesting to note is that between 1993 and 2000, inequality due to the need factors had reduced. The contribution of need indicators to the inequality index was -0.032 in 1993 and about half that, -0.015 in 2000, which implies that equity in the use of services had improved between 1993 and 2000. The contribution of all non-need factors to total inequality had also reduced during the same period from -0.068 points to -0.047 points. This is not good from an equity point of view, as the basic principle of equity in the use of services is that use should not be related to factors unrelated to need. Among the non-need influences, one factor whose contribution to total inequality has increased between the two years is social class. However, since the overall inequality is actually favourable to the poor and this has marginally reduced between 1993 and 2000, there is less cause for concern than if the indices were favourable to the rich or if inequity had increased between the two years.

In chapter 8 it was found that there was no significant *within-group* income-related inequality in the observed use of services for any of the ethnic groups, except for the Irish (favourable to the poor). Need-standardised use was pro-rich for the whites, Black Caribbean and the Indians. That is, the rich used services more than what is required given their level of needs. *Between-group* horizontal index of inequity (need-standardised) in the use of services was favourable to the rich (pro-rich) for the Irish, Black Caribbean, White, Indian and Pakistanis. The highest level of horizontal inequity (HI) was for the Irish, followed by the Black Caribbean and the whites. The horizontal index of inequality was pro-rich for the Black Caribbean and Pakistani groups while the distribution of mental illness was unfavourable to the poor. For the Black Caribbeans, although actual use of services showed no income-related inequality, when need was taken into consideration, the pro-rich HI inequality indicator suggested that the poor receive less services than they need. For the Pakistanis, although need was concentrated among the poor and use of services was favourable to the poor (pro-poor inequality), the pro-rich (positive) HI index showed that there is unmet need for the poorer groups as they do not receive services in proportion to their needs. The Bangladeshi group had high level of morbidity unfavourable to the poor but also pro-poor inequality in the use of services. The HI inequality was also pro-poor (poor are more intensive users of services), although the index is much smaller than for actual use of services. HI is pro-rich for the white, Irish and the Indians, even after taking into account the need (CIS-R 12+), which indicates that the rich use more services than actually needed in relative terms.

This empirical work showed that the three Asian groups – Indian, Bangladeshi and Pakistani - are more intensive users of services than ethnic groups. Those with no qualifications and those who are economically inactive are also more intensive users of services compared to others. Bangladeshi and Pakistani groups contribute most to the pro-poor (favourable to the poor) inequality in the use of services. However, since use of services is not in proportion to the extent of needs which are also concentrated among the poor (unfavourable to the poor), there is evidence of horizontal inequity in the use of services in general.

10.3 Limitations of the study

The research reported here has its limitations. The measure of living standards used in chapter 6 is individual income, which may not be the best indicator of living standards for those with mental health problems. Household income per equivalent adult is probably a better indicator, but it was not possible to use this measure because it was available for only some sample members in the data sets used. Because the data come from a cross-sectional survey, it is hard to tease out causality, a difficulty shared with almost all studies of health inequality (cf. van Doorslaer and Koolman 2004; Fryers et al. 2005). This need for longitudinal analysis was met partly in chapter 9 where explorations were carried out using data on *general* health over three time periods to see the influence of time-lagged variables on health. The results (detailed in the previous section) showed that longitudinal data and a robust analytical framework can be useful tools for understanding the complex relationships of many social and economic variables that affect health and health care utilisation behaviour of individuals. However, the analysis would have been more relevant to the subject of this thesis if it had been possible to use data on mental health and with a theoretical model that took into account the special attributes of mental health and use of mental health care services.

10.4 Implications for policy and further research

Policy

One obvious need that came out of the review of literature on equity in mental health was a better exposition of what equity principle(s) are relevant for the mental health sector. The mere mention of the term *equity* in policy documents may not be sufficient. There are many special features of mental health problems - such as stigma and discrimination, the use of compulsory measures to detain and treat people, the human rights issues involved, growing emphasis on user empowerment – all of which should be taken into account carefully when looking at what equity might mean (implicitly or explicitly) in public attitudes and preferences, policy philosophy and practical implementation.

Even in collectively financed or coordinated health systems – as in almost all of Western Europe – there is a widespread reluctance to engage in public discussion as to how scarce health care and related resources should be distributed between competing needs and wants. Often there is confusion between the two objectives of equity and efficiency and indeed between equity and equality. Efficiency objectives in the health sector tend to dominate decisions and one needs to understand that when such decisions are made, it is quite likely that equity issues are ignored. As discussed in chapter 4, equity should be closely linked to needs and different levels of needs should be recognised and understood in this context. For example in the literature on needs in the health sector (e.g., Williams 1974; Culyer and Wagstaff 1991) emphasis is placed on what may be termed the 'economic need'. It is important to recognise that these ‘economic needs’ are only a small subset of the overall needs in society as they refer only to those needs which the services can and will deal with at a given time with existing technology. There are also 'normative' and 'felt needs' of people which may be important in terms of equity. A policy aim should be to ensure that these needs should be met in such a way that all individuals have equal probability of attaining a certain minimum level of positive mental health. Policies should not only distinguish between efficiency and equity objectives but also deal with these different levels of need as appropriate.

Decomposition of the concentration indices in chapter 6, 7 and 8 revealed some important results that are useful from the policy perspective. One important results was that the effect of unfavourable employment status, such as being unemployed or economically inactive, is very strong on the mental health of populations and its contribution to total the inequality index is much more than income itself. Reducing the number of unemployed and economically inactive groups is likely to have the greatest impact on reducing overall inequality in mental health. However, one needs to consider the reverse causality of mental health leading to unfavourable employment status. Such causality was not examined in this empirical work. Longitudinal data is required to unravel such dynamics and my work was based only on cross-sectional surveys.

The effect of demographic variables was found to be quite pronounced for psychosis, with the 35-44 age group being the most vulnerable among both males and females. The data also showed that being divorced, separated or single also appears to make one more prone to suffer from psychosis. Policies that address the special needs of divorced and separated may also be important for mental health equity.

The analysis also highlighted the importance of housing tenure in explaining inequalities both in mental health and the use of services. This suggests that policies for creating better housing environments are also likely to be important. In chapter 8, once again, it was found that in addition to the ethnic groups, the factors that contribute most to inequalities in mental health are employment status and marital status. The ethnic group that contributes most to the inequality index for mental health is Pakistani. So there is a need to understand the needs of the Pakistani population in their cultural context, and to develop services that appropriately address their needs.

Decomposition of the concentration index for use of services showed that employment status and need indicators are major determinants of use of services. Female gender, being divorced or separated and living in local authority housing are other major determinants of use of services. The major contributors to inequalities in chapter 7 were employment status and social class besides the need indicators in both 1993 and 2000. The decomposition results also provide information on the elasticities of the determinants in relation to use of services. The strongest influence on use of resources was for those in 35-54 age group for males and the 45-54 age group for females. The economically inactive group had stronger positive effect on the use of services. That is, the economically inactive group were more likely to make use of services than other groups, given their needs. Those living in local authority housing had greater elasticity of use compared to those living in own or privately rented accommodation. These results were similar in both 1993 and 2000.

The analysis of longitudinal data on *general* health carried out in chapter 9 showed how income and health influence each other and with lagged effects. While both income and health are influenced by many demographic variables, the influence of income on health and health care utilisation appears with a time lag. Similarly, the influence of health on income appears with time lag. These causal results, though found for general health, should be equally applicable to mental health. This longitudinal analysis also revealed the importance of time price (revealed by many proxies) which tends to affect 'equality of access' to services. The policy aims of making services fair and equitable mean equal access to services. In this context, taking into account time and other intangible prices (e.g., stigma) and in public policies may be essential for equity.

Further research

Given the paucity of scholastic debate in this field, and the relative scarcity of robust empirical evidence, it would clearly be helpful if more attention could be paid to equity by mental health researchers. Empirical analyses of equity in mental health contexts could helpfully examine the distribution of psychiatric morbidity by income, socio-economic group, ethnicity, gender or place of residence, but conditional, of course, on other demographic factors which are likely to be correlated with mental health. Similarly, there is need for empirical studies on equity not just in relation to mental health status but also in mental health care – and particularly to ask how the two distributions compare. It is appropriate to ask, for instance, whether the distribution of needs is congruent with the distribution of services and treatments that are intended to meet those needs. Again, this kind of work is more descriptive than prescriptive.

Standardised methods for measurement of equity and inequalities need to be developed. The concentration index approach is one such tool which has wide acceptance in contemporary health research (Van Doorslaer et al 2004). There is need for other similarly well-validated measures for expanding the research on equity in mental health in relation to other inequity-generating factors other than income and social class.

Another strand of research that is therefore needed would generate evidence on how equity can be promoted within a mental health system, between mental health and other health domains, over time, between population groups and regions, and so on. This area appears to have been particularly neglected in the international literature.

In this context, there is the need to develop appropriate definitions of equity and need for mental health care. A principle of equity that can be operationalised has to be developed. The development of an operationalised outcome measure - in relation to equity - will most probably involve developing a sound basis for assigning different weights to different needs. That is whether the needs of old and young or different levels of disability should be weighted differently for the sake of achieving vertical equity (unequal treatment for unequal needs). Research in this area is in its infancy. This needs to be addressed by more researchers in the field.

The theoretical and empirical models presented in chapter 9 for *general* health can be adapted to explore the causal pathways between income, social class, ethnicity and other factors and mental health. If longitudinal data on mental health becomes available, such analysis can be undertaken in future research. A robust model of mental health with such longitudinal data may shed very useful light on our understanding of mental health-enerating social mechanisms and be a useful guide to policies in this field.

10. 5 Concluding comments

- This thesis aimed to present research on equity in mental health and the use of services that is different in the methods used and throws better light on some aspects of income-related inequalities in relation to mental health.

- A clear basis for the equity principle was discussed and presented, identifying need as the relevant principle on which any theory should be developed.

- A standardised and well validated method for the measurement of inequalities and equity – the concentration index approach - was used for measuring income-related and social-class related inequalities in mental health and in the use of services.

- The most recent data from nationally representative surveys of psychiatric morbidity in the UK were used. Comparison was made between two time periods - 1993 and 2000.

- Income-related inequalities within and across ethnic minority groups in Britain were also studied. This is the first such study in the field.

- The thesis provides an informed view of the distribution of morbidity or need with conceptually robust data and methods.

- Similarly, the results of the analysis of equity in relation to mental health care utilisation with similarly robust data and methods were obtained and presented; and in particular attention was paid to how the two distributions of needs and use of services compare.

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