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Do minority ethnic groups receive more than a fair share of General Practitioner care?

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ABSTRACT

In the UK, minority ethnic groups experience worse health status and visit their General Practitioner more often. Existing studies of equity in health care across ethnic groups find inequities favouring ethnic minorities by standardising for health status using either (i) Le Grand's method of dividing by the proportion of each population group which is 'unhealthy' or (ii) Wagstaff and van Doorslaer's method of regressing health care use on health status. In this paper we use survey data collected in Greater Manchester which has a large sub-sample of people from ethnic minority groups. We describe four assumptions that are generally made when measuring inequity and present evidence which raises doubts about all of them in the case of comparisons across ethnic groups. We find some evidence that White individuals are more likely to under-report their level of use. We find that minority ethnic groups generally perceive themselves to be in and experience worse health than is indicated on health measurement instruments. Minority ethnic groups tend to visit their GP more often than the White group when they have mild morbidity but less often when they have severe morbidity. Conclusions about whether minority ethnic groups receive a fair share of GP care are found to be sensitive to the extent to which morbidity justifies use through its effect on need. In the case of inter-ethnic group inequity, it may not be possible to separate between horizontal and vertical equity concerns.

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Introduction

In general, individuals from most minority ethnic groups in Great Britain visit a General Practitioner more often than their white counterparts. This has been shown in a number of local studies and various national surveys such as National Morbidity Surveys of General Practice (McCormick and Rosenbaum, 1990; Carr-Hill, Rice and Roland, 1996), General Household Surveys (Balarajan et al, 1990; Smaje and Le Grand, 1997) and the Omnibus Survey (Benzeval and Judge, 1994, 1996).

This may be expected given that the evidence generally suggests that minority ethnic groups report and experience worse general health than whites (Rudat,1994; Smaje,1995).. Several studies classify ethnicity as 'South Asian' or 'White', referring to the Indian sub-continent as South Asian. However, where ethnic groups have been separated then differences between Indians , African Asians and Chinese and Whites have been small and not statistically different. Pakistani and Bangladeshi groups, on the other hand, are 50 % more likely to report having fair or poor health. Caribbeans are also more likely to report fair or poor health (30% more).

This patterning of ethnic groups yielded similar results for specific disease types like Coronary Heart Disease (CHD). Balarajan (1991) demonstrated that South Asians had higher mortality rates of mortality from CHD than the national average, Conversely individuals of Caribbean origin had half the national mortality rate of CHD. The Fourth National Survey of Ethnic Minorities provides the majority of data on the health of minority ethnic groups (Nazroo, 1997).. It reveals that high rates of diagnosis of heart disease in minority ethnic groups are mainly due to the Bangladeshi and Pakistani group. Prevalence of diabetes was significantly higher in Caribbean, Indian and Pakistani/Bangladeshi populations, the latter group having five times the rate of diabetes of the white group.

Establishing whether minority ethnic groups receive a fair share of GP care requires that comparisons are made of the levels of use and need in different groups. Smaje and Le Grand's (1997) analysis of eight years of the General Household Survey is the most comprehensive study of the equity of health care delivery across ethnic population groups in Great Britain. Controlling for the presence or absence of self-reported illness, they found that Indian, Pakistani and Caribbean people aged over 45 years were significantly more likely to have visited a GP in the last fortnight. In the under 45 years age-group, Chinese and African populations had significantly lower probabilities of GP consultation while the Pakistani group had higher probabilities of consultation *given they reported illnesses*. Pakistani females in the

sample had significantly lower probabilities of GP contact. The converse differential was significant for Caribbean females.

Smaje and Le Grand (1997) concluded that their results indicated that most ethnic minority groups “over-utilised” GP services particularly if they reported illness. They noted, however, that frequent use by ethnic minority groups may be a reflection of receipt of poorer quality services or incomparability of self-report health measures between ethnic groups.

As a number of studies of the measurement of inequity in the delivery of health care have shown, establishing whether any social group receives a ‘fair share’ from publicly provided health services is fraught with several measurement difficulties (O’Donnell and Propper, 1991; Le Grand, 1991; Wagstaff et al, 1991). Smaje and Le Grand (1997) showed that their results were robust to several accepted techniques for establishing whether social groups receive equal treatment for equal need. Nevertheless they were constrained by their data-set to crude measures of ‘need’.

In our analysis we use data which allows us to demonstrate the sensitivity of measured inequities to the ways of establishing ‘need’. Our data contains several morbidity measures which allow us to investigate whether there are differences in health and health perceptions across ethnic groups. In addition, for a subset of our sample, we have Euroqol data which can be transformed into a score representing the societal value of each individual’s morbidity experience (Kind et al, 1998). We are therefore able to extend our analysis of inter-ethnic group inequities in GP care to examine the effects of alternative judgements about vertical equity (whether people in different levels of need receive *appropriately* different levels of treatment). Using the Time Trade-Off Social Tariff for the EQ-5D to construct a cardinal index of morbidity, we show the sensitivity of conclusions about whether minority ethnic groups receive a fair share of GP care. We emphasise that inequities between ethnic groups may be caused as much by under-treatment of the sick or over-treatment of the healthy (vertical inequity) as by differential treatment of ethnic groups (horizontal inequity).

Measurement of inequity between social groups

The primary complication in measuring the extent of horizontal inequity in the delivery of health care which has been discussed in detail in the literature is how we establish a ‘need’ for health care. Le Grand (1978) proposed comparing the numbers reporting illness as a measure of the group’s ‘need’ which could be compared with the total volume of health care consumed

by each social group. His methodology has subsequently been criticised by Collins and Klein (1980) and O'Donnell and Propper (1991) who feared that Le Grand's methodology skewed the analysis because it ignored the health care needs of individuals who did not report illness. The resulting analysis would be skewed in favour of finding pro-rich inequity because those who do not report illness are disproportionately represented in rich groups.

Moreover, it is clear that there is more to 'need' than the presence or absence of it. Studies which include multiple health indicators or continuous health measures prove the additional explanatory power of "grades of severity" of illnesses (Manning et al, 1984). Smaje and Le Grand's (1997) emphasis that "over-utilisation" appears to occur for those who report illness hints at a further role for 'need' than is captured by the GHS data.

A further theme in the inequalities measurement literature has been whether self-reported morbidity can be used as a measure of need. O'Donnell and Propper (1991), in particular, showed that different social groups had different standards against which they measured the absence or presence of morbidity. Further analysis of the Health and Lifestyle Survey by Sutton et al (1997) suggested that self-reported morbidity measures underestimate the effect of morbidity on health care utilisation. They found that the difference in levels of GP use between those who were predicted to have and those who were predicted not to have a limiting long-standing illness was larger than the difference between those who reported having and those who reported not having a limiting long-standing illness. Using self-reported measures to control for the effects of morbidity will therefore introduce bias.

Analyses of horizontal equity in health care based on self-reported data make four assumptions when trying to establish whether social groups receive equal treatment for equal need:

- (i) no differences between groups in the accuracy of utilisation figures;
- (ii) no differences in the *reporting* of morbidity across social groups;
- (iii) no residual differences in morbidity between social groups once morbidity has been measured;
- (iv) on average, the existing relationship between morbidity and utilisation is equitable.

In this paper, we present some evidence on each of the assumptions (i) through (iii) and simulate the sensitivity of the results to alternative assumptions to (iv). First, we describe the survey from which our data are drawn.

Data

The data used in this study are taken from a project to investigate the extent of musculoskeletal symptoms in the community and health-care demands associated with these symptoms. The project was set in six general practices around Greater Manchester. Three of the practices were specifically located in areas where large centres of minority ethnic populations live. Adults were randomly selected from practice registration lists for the 'white' population and sampled from eight age bands. All minority ethnic individuals were identified from practice lists on the basis of name spotting for those of South-Asian origin and by practice staff for members of the 'black' community.

Selected individuals were mailed a screening questionnaire by reply-paid envelope. This comprised questions on GP visits, activity limitations and disability mHAQ⁴. Ethnic grouping was based on the 1991 Census questions. For the purposes of these analyses the groups comprised White, Indian, Pakistani, Bangladeshi and Black (Black-Caribbean, Black African and Black-Other). A letter accompanied the questionnaire from the individual's GP which gave their support for the study and encouraged them to participate. Non-responders were followed-up with a reminder card after a fortnight and then a repeat questionnaire two weeks later. Members of the South-Asian group had the chance of requesting translation in one of three languages Urdu/Punjabi, Gujarati and Sylheti/Bangla. South-Asian non-responders were visited by trained translators in order to improve response rates.

Completed questionnaires were received from 4388 Whites, 440 Bangladeshis 363 Blacks, 309 Indians and 182 Pakistanis. The white sample had an older average age of 59 years compared to 42 for the minority ethnic population.

A quota sample across age, gender, site of symptoms (eg. knee) and severity of symptoms was taken from individuals reporting pain in any joints and muscles for longer than one week in the previous month. These individuals were invited to attend research clinics where the Euroqol questionnaire was administered and GP notes were examined to validate self-reported data on GP consultation rates. The numbers of Pakistanis that attended the clinic were too small to be used in this analysis.

⁴ All of these variables are measured categorically. GP visits in the last year are measured as: 0 visits; 1-4 visits; or 5 or more visits. The activity limitations variable is measured in four categories: I can do everything I want; I can do most things I want but have some limitations; I can do some but not all of the things that I want to do; and I have many limitations and I can hardly do any of the things I want.

Analysis and results

All the analyses are undertaken in STATA 5.0. As a starting point we undertake a multivariate regression approach to testing and measuring for inequity in GP visits across ethnic groups. We analyse the categorical information on GP visits from the postal survey using interval regression. Interval regression is a special case of the ordered probit model for dependent variables which are measured in ordered categories for which the cut-points are known. This type of model (also known as grouped data regression) is more efficient as the standard deviation of the dependent variable can be estimated (Greene, 1993).

The independent variables include gender, age and four binary variables representing five ethnic groups: White, Black, Indian, Pakistani, Bangladeshi.⁵ A binary variable representing whether an individual has reported that their health limits their activity is included to capture morbidity effects in a similar way to limiting long-standing illness in the GHS.

The results are shown in Table 1. All of the coefficients are significantly different from zero at the 1% significance level. Males have significantly fewer visits and the number of visits increases as a decreasing function of age. Individuals reporting any limitations caused by their health visit their GP 1.4 times more per year on average. All other ethnic groups have higher numbers of visits than the White group. The age-, gender- and morbidity-standardised values for each ethnic group are shown at the foot of the table. Bangladeshis have the highest standardised rates of use, followed by Blacks, Indians and Pakistanis.

These results are broadly in line with those found previously and indicate that there is inequity favouring minority ethnic groups. We now examine the underlying assumptions of this kind of approach to establishing the existence and extent of equity in GP utilisation across ethnic groups.

⁵ The White group forms the base group in the regression model.

Table 1: Regression analysis of equity in GP visits across ethnic groups

Variable	Coefficient	t-ratio
Male	-0.502	-7.98
Age	0.068	7.52
Age squared	-0.001	-7.53
Any limitations	1.376	20.07
Black	1.526	11.03
Indian	0.943	6.54
Pakistani	0.792	4.26
Bangladeshi	1.687	12.80
_constant	0.964	4.22
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_sigma	2.150	81.10
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Standardised values		
	Visits	Ratio
White	5.173	100
Black	6.699	129
Indian	6.116	118
Pakistani	5.965	115
Bangladeshi	6.860	133

Assumption (i) - no differences in the accuracy of utilisation data

For the clinic sub-samples of the two surveys it is possible to compare the answers given to the postal questionnaire with the information subsequently collected from GP records. A count of the number of consultations was collected from practice records so this has been recoded into the same categories used in the postal survey. The results are shown in Table 2. The sample sizes are small but the least accurate group is the White group - only just over 60% of the White group correctly classified their number of GP visits over the last year in the postal survey.

Table 2 Comparison of self-reported with actual visits to GP by ethnic group

Figures expressed as percentages of sample (numbers of individuals)

	White	Black	Indian	Pakistani	Bangladeshi
Under-report	32 (114)	16 (6)	19 (7)	13 (2)	10 (5)
Accurately report	61 (218)	76 (28)	68 (25)	63 (10)	84 (41)
Over-report	7 (24)	8 (3)	14 (5)	25 (4)	6 (3)
sample number (n)	356	37	37	16	49

If repeated in larger samples these inaccuracies would not be anodyne because the White group is twice as likely to under-report levels of GP use. We have not been able to find other work on this and therefore we do not know whether to expect similar biases in other surveys such as the GHS which collects retrospective GP visits information over the last fortnight only.

Assumption (ii) - no differences in the reporting of health

In measuring equity in the delivery of health care the potential for differences in the reporting of morbidity across the groups of interest has been raised by O'Donnell and Propper (1991) who found evidence of systematic differences in reporting across income groups. In this section we present some evidence of differences in the reporting of health across ethnic groups.

It is difficult to disentangle the reporting of health from the next assumption we have highlighted - residual differences between morbidity levels across groups once morbidity has been categorised. Differences in the reporting of health relates to the way in *individuals* 'measure' the extent of their morbidity. This may relate, for example, to their conceptualisation of the endpoint 'full health' on the Euroqol thermometer, their definition of 'limiting' for a limiting long-standing illness or the baseline against which they assess 'good', 'fairly good' or 'poor' in the general health perceptions question in the GHS. Residual differences in morbidity once it has been categorised relates to the way in which *instruments* 'measure' health. In our context, of primary concern is whether instruments which have two to four categories into which to place individuals is sufficiently sensitive to discriminate between people experiencing different levels of morbidity.

Distinguishing between these two phenomena is difficult in practice. Individuals' health perceptions may be the morbidity measure we are trying to capture or they may reflect aspects of morbidity which we would like to capture but for which we do not have sufficiently sensitive measurement instruments. In this paper we analyse reported health perceptions in the postal survey and the clinic sub-sample. In the postal survey we use the four-category measure of the extent of limitations caused by ill-health as a measure of perceived health and relate it to measured health status using the eight questions which comprise the modified Health Activities Questionnaire (mHAQ). In the clinic sub-sample we

use the Euroqol thermometer as a measure of perceived health and relate it to health status measured using the five items in the EQ-5D.

We use regression analysis to test whether there are significant differences between groups in health perceptions, controlling for gender, age and values from the health instruments. The multi-category dimensions of the health instruments (mHAQ and EQ-5D) are coded into binary variables with zero values representing absence of problems. The four-category extent of limitations variable in the postal survey is modelled using ordered logit regression which is appropriate for data that is categorical, with categories that can be ranked, but for which no information is available on the width of each interval. The thermometer variable is modelled using OLS as none of the actual values are censored at 0 or 100. For ease of comparability, the values from the thermometer are subtracted from 100 so that they represent perceptions of *poor* health. White's corrected standard errors are used to account for heteroskedasticity.

The results which are shown in Table 3 indicate that the health instruments map well onto perceptions of health. In general, additional problems on each of the dimensions result in significantly higher reported scores for perceived ill-health. Age has a significant and positive effect on the extent of limitations reported. Males report significantly better health perceptions on the Euroqol thermometer.

Table 3 Regression model of health perceptions by ethnic group

Extent of limitations				EQ-5D thermometer (100-score)		
		Coefficient	t-ratio		Coefficient	t-ratio
	male	0.315	0.620	male	-6.344	-4.540
	age	0.039	2.743	age	0.349	1.199
	age ²	-0.002	-0.155	age ²	-0.159	-0.628
ethnicity	black	0.288	2.059	black	9.4464	3.207
	indian	0.526	3.659	indian	14.820	5.079
	pakistani	0.490	2.584	pakistani	10.666	2.538
	bangladeshi	0.313	2.291	bangladeshi	13.767	3.276
variables	dress2	0.707	5.827	eqa12	4.389	2.508
	dress3	1.038	4.267	eqa22	2.729	1.426
	dress4	1.512	4.163	eqa23	2.932	0.509
	bed2	0.537	4.651	eqa32	4.355	2.394
	bed3	0.505	2.026	eqa33	6.694	1.818
	bed4	1.276	2.400	eqa42	7.400	2.721
	lifting2	0.077	0.432	eqa43	21.146	5.859
	lifting3	0.798	2.044	eqa52	8.602	5.201
	lifting4	-1.152	-1.765	eqa53	15.595	3.633
	walking2	0.975	8.232			
	walking3	1.665	8.259			
	walking4	1.286	3.490			
	washing2	0.785	6.267			
	washing3	1.132	4.562			
	washing4	1.432	4.526			
	bend2	1.146	10.782			
	bend3	1.431	6.8			
	bend4	1.350	4.273			
	taps2	0.683	5.150			
	taps3	0.849	2.910			
	taps4	0.350	0.673			
	car2	0.906	8.245			
	car3	1.099	4.933			
	car4	0.965	2.090			
	cut1	3.236		constant	3.184	0.390
	cut2	6.816				
	cut3	10.289				

There are also significant differences between ethnic groups with all minority ethnic groups reporting worse health perceptions than the White group. The ordering of the ethnic groups is similar across both of the health perception variables with Indians reporting the worst perceptions, followed by Bangladeshis or Pakistanis and Blacks.

Assumption (iii) - no residual differences in morbidity across ethnic groups once individuals have been placed into categories

We address this assumption in two ways. First we compare the estimated health differentials between White and other ethnic groups using the binary variable representing ‘any limitations’ in the postal survey and the extent of morbidity given by the Time-Trade Off Social Tariff applied to the EQ-5D responses in the clinic sub-sample. Second we compare the mean morbidity values from the EQ-5D for individuals reporting any limitations or no limitations across ethnic groups.

Age-gender standardised values for the probability of reporting any limitations are obtained using logistic regression. The estimated differences between each minority ethnic group and the White group (see Table 4a) are all significantly different from zero at the 1% significance level. Age-gender standardised values for the EQ-5D are obtained using OLS. All minority ethnic groups have higher values than the White group (Table 4a), although only the Indian and Bangladeshi values are significantly different from the White group at the 1% level. The *extent* of the difference in morbidity between the Indian/Bangladeshi groups and the White group is larger when a more detailed morbidity measure (EQ-5D) is used.

Table 4 a) Comparison of two health status measurements across ethnic groups

Values standardised for age and gender

	Any limitations	EQ-5D
White	100	100
Black	118	101
Indian	139	179
Bangladeshi	131	142

The finding that residual differences in morbidity between ethnic groups remain once individuals have been categorised as having no or any limitations can be seen more directly by comparing the mean EQ-5D scores for individuals who report and do not report any limitations across ethnic groups (see Table 4b). Sample sizes are small, but Bangladeshis who do not report any limitations have higher mean EQ-5D scores than Whites and Blacks who do not report limitations. Similarly, Indians and Bangladeshis who do report limitations have higher EQ-5D scores on average than Whites and Blacks who also report limitations. Therefore, the simple binary variable used in the regression approach earlier to establish and measure inequity across ethnic groups does not seem to reflect the higher morbidity experience of South Asians. Like is *not* being compared with like.

Table 4 b) EQ-5D scores by reporting of no limitations or any limitations by ethnic groups
(sample sizes)

	No limitations	Any limitations
White	0.23 (121)	0.44 (356)
Black	0.20 (14)	0.44 (36)
Indian	-	0.63 (35)
Bangladeshi	0.32 (16)	0.57 (34)

A more detailed picture of morbidity experience can be found by examining the distribution of EQ-5D scores of each ethnic group. Figure 1 shows the estimated proportions of each minority ethnic group who report morbidity at various levels on the EQ-5D adjusted for age and gender relative to the White group. The age-gender standardised figures have been obtained by first undertaking a locally weighted smoothing (*lowess*, Cleveland, 1979) of reported EQ-5D scores on age for each gender group. Following experimentation, the band width was set equal to 0.4. Standardised EQ-5D values for each respondent were obtained by calculating the difference between the individual's score and the estimated *lowess* value for their age and gender. These differences were centred around the *lowess* value for a woman of average age within the sample.

Kernel density estimates of the distribution of age-gender standardised EQ-5D values are shown in Figure 1. These have been generated using the default settings in STATA 5.0 (Epanechnikov kernel, "optimal" kernel halfwidth). There is a marked peak (approximately

20%) in the distribution of the EQ-5D scores for the White group at 0.15-0.2 below full health. There is a smaller peak around 0.9-1.0 below full health (just above death).

The distribution of EQ-5D scores for the Black population shows a higher proportion reporting full health but a slightly higher tendency to report morbidity in the range 0.3-0.5 below full health. The second peak for the Black population is at slightly higher level of morbidity. The Indian group reports a substantially worse morbidity profile. The first peak is under one-third of the size of that of the White group and is only fractionally higher than the proportion reporting health states valued at 'near-death'. The Bangladeshi profile resembles that of the Indian group but shows slightly more skew towards lower morbidity. These figures indicate substantially higher levels of morbidity in the Indian and Bangladeshi groups which were reflected only partially in the distribution of reported health limitations.

Assumption (iv) - the current relationship between use and morbidity is equitable

The regression-based approach to equity measurement standardises use of health care for age, gender and self-reported morbidity. This implicitly assumes that the current distribution of use across these variables is equitable or has no confounding effect on measured horizontal inequity. For example, in the regression approach shown earlier, individuals reporting any health limitations were found to visit their GP 1.4 times more per year than individuals who did not report limitations. Thus it does not seem that there is a particularly steep use-morbidity gradient for GPs. The flatness of this use-morbidity relationship can be shown to have interesting implications for measured inequity across ethnic groups because of the differences in the distributions of severe morbidity.

We begin by estimating use-morbidity gradients for each ethnic group. These have been estimated using *lowess* smoothing with band width set equal to 0.8 and are shown in Figure 2. The three graphs compare each minority ethnic group with the White group. The graphs have been scaled to illustrate the differences between groups so that the use-morbidity relationship appears steep. However, if we compare it to a line which plots out GP visits rising proportionally with morbidity at a rate equal to the average use-morbidity ratio (not shown), we can see that the curve is quite flat and crosses this line at a score of 0.4 below full health. White individuals who are closer to full health visit their GP more than we would expect if their use rose in proportion to their morbidity. The converse is true for White individuals who have levels of morbidity more than 0.4 points worse than full health.

At lower levels of morbidity, all of the minority ethnic groups (excluding Indians in full health) have higher levels of utilisation than the White group. *At higher levels of morbidity*, all of the minority ethnic groups have lower levels of utilisation than the White group. The estimated use-morbidity relationship for Bangladeshis is of particular concern since use appears to decline quite markedly for health states scoring more than 0.5 below full health. Therefore the higher average rates of utilisation by Bangladeshis overall masks lower consultation rates at high morbidity levels.

To arrive at a conclusion on whether minority ethnic groups receive a fair share of GP care requires comparison of these curves weighted by the distribution of morbidity in each ethnic group. Table 5 shows the implied use-need ratios for each ethnic group obtained by summing morbidity scores and GP visits (Le Grand, 1978). The first column of results have been obtained based implicitly on an assumption of a 1:1 relationship between morbidity and need. Black and Bangladeshi groups are found to consume more than a fair share of GP care while Indians consume slightly less than a fair share.

Table 5 Effects of varying morbidity/need function

numbers are use/need ratios

	Morbidity linear	Morbidity Squared	Morbidity Cubed
White	100	100	100
Black	123	113	97
Indian	98	69	56
Bangladeshi	143	112	98

The rationale for choosing a 1:1 correspondence between morbidity and need is not clear however. We may expect the benefits of GP care to increase at an increasing rate with morbidity. Alternatively we may place a higher value on the needs of people with higher levels of morbidity. For these reasons, we have analysed the sensitivity of our results to changing the function which maps morbidity onto need. All minority ethnic groups consume less than a fair share of GP care when need is assumed to be a cubic function of morbidity, as measured by the EQ-5D. The conclusions change because higher weighting is given to those reporting higher morbidity and these individuals are more heavily represented in minority ethnic groups.

A final alternative way of explicitly specifying the vertical equity judgements made in measuring horizontal equity is to stipulate the a target level of use for each individual which is a function of their morbidity. In Table 6 we show the effects of assuming that the target number of GP visits for each individual is given by their level of morbidity multiplied by a scaling factor. The scaling factor is obtained by dividing the total number of GP visits by the total number of units of morbidity in the clinic population. Because individuals with high levels of morbidity are more represented in South Asian groups and tend not to use GP services in proportion to their morbidity, differences between the use-need ratios of white and South Asian groups are smaller when based on an explicit target level of GP care.

Table 6 Effect of varying target morbidity to utilisation function

	Current use-morbidity relationship	Proportional relationship
White	100	100
Black	123	130
Indian	98	72
Bangladeshi	143	108

Discussion

Our initial findings based on traditional approaches to measuring horizontal inequity in the delivery of health care suggested that inequity in GP care favoured minority ethnic groups. We have shown that there are differences between ethnic groups in several important aspects which are relevant to the measurement of horizontal equity. South Asian groups (particularly Indians) report and perceive high levels of morbidity which are not captured by simple binary measures of health function. Regression-based approaches to establishing inequities between ethnic groups are therefore likely to be biased in favour of finding pro-South Asian inequity. This is the converse of the Collins and Klein (1980) and O'Donnell and Propper (1991) critique of Le Grand's (1978) method of measuring equity. Whereas they were concerned about the health care need of the healthy, we have highlighted a concern for the additional health care needs of the very unhealthy.

The traditional approach to measuring inequity accepts the current distribution of utilisation across morbidity levels. The minority ethnic groups in this survey exhibit significantly different patterns of GP use as it relates to morbidity, measured by EQ-5D. All minority ethnic groups use services less than the White group at high levels of morbidity. Depending on the weight attached to these inequalities, minority ethnic groups can be shown to receive less or more than a fair share of GP care.

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Figure 1 Distribution of EQ-5D scores across ethnic groups

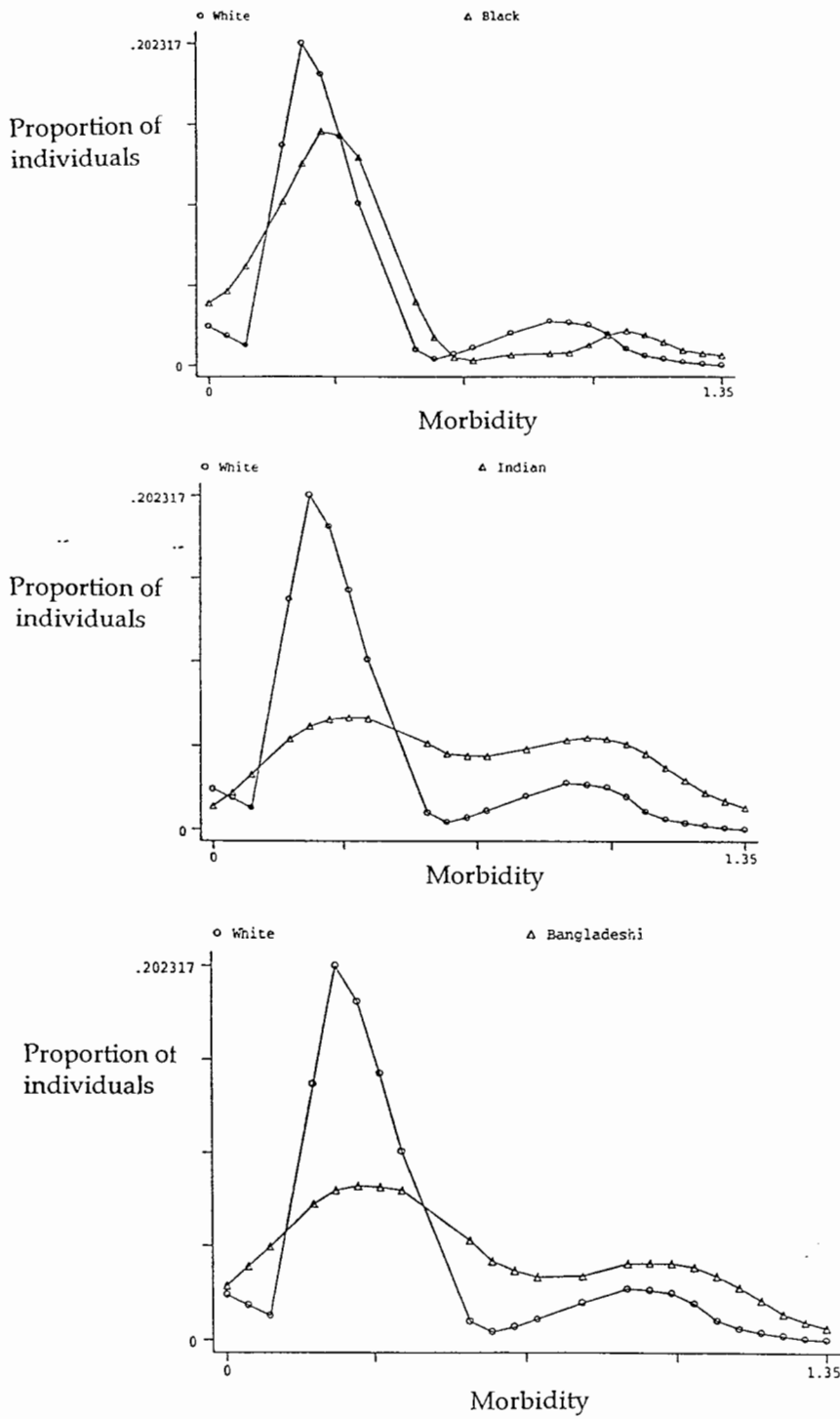


Figure 2 Use of General Practitioner by Morbidity (EQ-5D Scores) across ethnic groups

