

# Inequalities in morbidity and consulting behaviour for socially vulnerable groups

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## SUMMARY

**Background:** The focus of health policy on improving health and reducing inequality for socially vulnerable groups.

**Aim:** To examine self-report of condition-specific morbidity and consultation with the general practitioner (GP) for socially vulnerable groups.

**Design of study:** Cross-sectional survey using a modified version of the General Practitioner Assessment Survey (GPAS).

**Setting:** Ten general practices in each of six health authorities.

**Method:** A random sample of 200 patients was selected from each practice. The questionnaire elicited information about experience of specific acute and chronic conditions and whether the GP had been consulted. Four sub-samples were selected from the 4493 registered patients who responded to the self-completion questionnaire. They were lone mothers (n = 160), elderly living alone (n = 417), the unemployed (n = 100), and members of ethnic minority groups (n = 316).

**Results:** Logistic regression analyses showed that, after adjustment for age, sex, smoking, and housing tenure, only lone motherhood and ethnic minority group status were consistently and independently associated with poorer health outcomes. Lone motherhood was associated with a higher likelihood of anxiety (odds ratio [OR] = 2.03, 95% confidence interval [CI] = 1.34 to 3.08) and sleep problems (OR = 1.83, 95% CI = 1.18 to 2.83) and ethnic minority group status with a higher likelihood of depression (OR = 2.02, 95% CI = 1.34 to 3.04), diabetes (OR = 4.03, 95% CI = 2.54 to 6.39), migraine (OR = 1.72, 95% CI = 1.26 to 2.35), and minor respiratory symptoms (OR = 1.75, 95% CI = 1.33 to 2.29). Ethnic minority group status was the only source of social vulnerability that was independently associated with a higher likelihood of GP consultation, particularly for episodes of illness such as backache (OR = 3.28, 95% CI = 2.06 to 5.21), indigestion (OR = 2.94, 95% CI = 1.53 to 5.65), migraine (OR = 3.22, 95% CI = 1.75 to 5.93), minor respiratory symptoms (OR = 3.53, 95% CI = 2.26 to 5.50) and sleep problems (OR = 4.72, 95% CI = 2.56 to 8.71).

**Conclusions:** Social vulnerability can be a risk factor for poorer health, but this is dependent on the source of vulnerability and is condition-specific. No association was found between inequity in the utilisation of primary care and social vulnerability. The propensity for members of ethnic minority groups to consult more than white people, particularly for acute conditions, requires further exploration.

**Keywords:** health inequalities; social vulnerability; consulting behaviour.

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## Introduction

SOCIAL disadvantage can arise from material deprivation but can also be associated with social roles that bring with them a high degree of social vulnerability. Lone mothers, the unemployed, elderly people who live alone, and members of ethnic minority groups are disadvantaged, not just through poverty but because they are subject to additional social stresses, such as lack of social support, social exclusion, or the experience of cultural dissonance or racism. Very few studies have attempted to examine the independent effect of social vulnerability on morbidity and on utilisation of primary care services, although this has relevance for two core aspects of current health policy in the United Kingdom today. One, central to the agenda of primary care groups, is to tackle health inequality by improving outcomes for those most vulnerable groups in our society. Another is needs assessment; specifically, whether social vulnerability constitutes a source of need that is distinct from conventional proxies, such as age, sex, and material deprivation.

Previous studies suggest that members of socially vulnerable groups commonly report poorer mental health, but that poorer physical health tends to be condition-specific and to vary according to the particular source of vulnerability. For example, studies of the health of lone mothers have shown that this group of women are more likely to report mental rather than physical health problems,<sup>1-6</sup> while for the unemployed health tends to be poor across a wider range of health outcomes that include cardiovascular disease and its risk factors, as well as mental health outcomes.<sup>7-11</sup> Since studies of the health of socially vulnerable groups rarely control for material deprivation, little is known about the independent effect of social vulnerability on health.

The extent to which social vulnerability gives rise to higher rates of GP consultation is also difficult to ascertain from previous research. The decennial National Morbidity study (MSGP4)<sup>12</sup> measures in detail patterns of general practitioner (GP) consultation for specific conditions, rather than rate of consultation as a proportion of the prevalence of a specific condition in a population. The latter is preferable as a measure of health care utilisation because it enables the differential use of health care for equivalent need to be assessed. This measure has been used by Smaje and Le Grand<sup>13</sup> to examine patterns of GP consultation for different ethnic groups using the General Household Survey.<sup>14</sup> Using generic measures of chronic and acute illness they concluded that, of those who reported illness, there was no gross pattern of inequity in the use of health services by different ethnic groups in the UK after adjusting for material deprivation. In fact, Indian and Pakistani people were significantly more likely to consult the doctor than their white counterparts.

**HOW THIS FITS IN***What do we know?*

Membership of socially vulnerable groups, such as lone parents, the unemployed, the elderly living alone, and ethnic minority groups, is associated with poorer health. It is unclear whether this is the consequence of relative deprivation and also whether people in such groups are less willing or able to consult the general practitioner when they are ill.

*What does this paper add?*

We found some evidence to suggest that lone motherhood and ethnic minority group status were independently associated with poorer health, but that associations were condition specific. For those who reported illness, no patterns of inequity in consulting behaviour were found in relation to social vulnerability, in the sense of lower rates of consultation for members of socially vulnerable groups.



In the study reported here, we compare condition-specific morbidity and GP consultation across four socially vulnerable groups — lone parents, unemployed people, elderly people living alone, and those belonging to an ethnic minority group. The aim is to identify any variation between these groups in the extent to which their social vulnerability manifests itself in poorer health and in higher utilisation of primary care.

**Method***Measurement of morbidity and GP consultation*

An existing survey instrument, the General Practice Assessment Survey (GPAS), was modified for the purposes of this study.<sup>15</sup> The GPAS is a self-completion questionnaire that asks patients for their views and experiences of different aspects of care provided by their general practice. We added measures of condition-specific morbidity, GP consultation, and demographic and socioeconomic status. A symptom list was used to estimate the prevalence of morbidity for a range of acute and chronic conditions. Symptoms were selected for this list according to their frequency of use on five existing measures used in previous research. To estimate consulting behaviour accurately, two types of questions were devised to reflect differences in patterns of consulting for acute episodes of illness and diagnosed chronic conditions. For the 'acute' category, responders were asked whether they had had the symptom in the past two weeks and, if yes, whether they had consulted the doctor. For diagnosed chronic conditions, responders were asked whether they had the condition and, if yes, when they had consulted the doctor about it. This meant that all patients whose condition was managed in primary care were included, rather than only those who had consulted their GP in the past two weeks. The symptom list is reproduced in Figure 1. In addition, a set of questions about respiratory health was included in the questionnaire, based on that used by the European Respiratory Study.<sup>16</sup> For this study, we focused on the question concerning self-report of wheeze. Anxiety and depression were measured by identifying 'cases' using the Hospital Anxiety and Depression Scale

(HADS).<sup>17</sup> A question about consultation with the GP in the past year accompanied both the HAD and the respiratory symptom scale.

*Identification of vulnerable groups*

'Lone mothers' were defined as female responders (aged 18 to 64 years) with one or more children under 18 living in their household, who did not currently have a partner or did not live with their partner ( $n = 160$ ). 'Mothers with partners' ( $n = 679$ ) were the comparison group.

'Elderly living alone' were defined as those people aged 65 years or over who neither lived with a partner nor had any children under 18 in their household ( $n = 417$ ). However, this category does not exclude the elderly living with adults who were not their partners. 'Accompanied' elderly people ( $n = 654$ ) formed the comparison group.

Employment status was measured on the GPAS questionnaire by including the question about employment status from the 1991 Census. 'Unemployed' persons were defined as those responders of working age (males aged between 18 and 64 years and females aged between 18 and 59 years inclusive) who were unemployed and looking for work in the previous week, or waiting to start a job; they were classed as 'economically active unemployed' ( $n = 100$ ). Employed responders of working age ( $n = 2281$ ) formed the comparison group. The 'economically inactive unemployed' responders who were unable to work owing to long-term sickness or disability ( $n = 216$ ) were also identified. This group were selected to check that the measures used were reliably picking up poorer health and higher demand for health care for those with the greatest need. Previous work has consistently shown that this group has higher morbidity and rates of GP consultation than the employed across a wide range of conditions.<sup>3,12</sup>

'Membership of an ethnic minority group' was measured on the GPAS questionnaire using the checklist of ethnic groups included in the 1991 Census. The breakdown according to ethnicity is displayed in Table 1; however, these separate categories could not be used in analyses as the numbers were too small. For our analysis, responders were classified as either belonging to an ethnic minority group ( $n = 316$ ) or as 'white' ( $n = 4087$ ).

These samples were selected from 4493 responders to the GPAS survey that had been mailed to 11 831 adult patients (aged over 18 years) from ten practices in each of six health authorities. Practices were stratified by number of partners, deprivation payments (derived from the Jarman Index<sup>18</sup>) and training status to be representative of a national population of GP practices. The response rate was 38%.

*Analysis*

Binary variables were created to indicate membership of each 'vulnerable' group or its respective comparison group. All data were analysed using SPSS for Windows (version 9.0). Chi-square tests were undertaken to test for significant associations ( $P < 0.01$ ) between vulnerable group membership and reported prevalence and consulting for each of the selected conditions. Only responders who had a particular condition were included in analyses of consulting behaviour.

**Do you have any of the following problems?**

Diabetes	Yes <input type="checkbox"/>	No <input type="checkbox"/>	If yes	When did you last consult the doctor?				
				Under	1-11	1-5	Over	
				1 month	months	years	5 years	
				ago <input type="checkbox"/>	ago <input type="checkbox"/>	ago <input type="checkbox"/>	ago <input type="checkbox"/>	Never <input type="checkbox"/>
High blood pressure	Yes <input type="checkbox"/>	No <input type="checkbox"/>	If yes	When did you last consult the doctor?				
				Under	1-11	1-5	Over	
				1 month	months	years	5 years	
				ago <input type="checkbox"/>	ago <input type="checkbox"/>	ago <input type="checkbox"/>	ago <input type="checkbox"/>	Never <input type="checkbox"/>
Eczema	Yes <input type="checkbox"/>	No <input type="checkbox"/>	If yes	When did you last consult the doctor?				
				Under	1-11	1-5	Over	
				1 month	months	years	5 years	
				ago <input type="checkbox"/>	ago <input type="checkbox"/>	ago <input type="checkbox"/>	ago <input type="checkbox"/>	Never <input type="checkbox"/>
Angina	Yes <input type="checkbox"/>	No <input type="checkbox"/>	If yes	When did you last consult the doctor?				
				Under	1-11	1-5	Over	
				1 month	months	years	5 years	
				ago <input type="checkbox"/>	ago <input type="checkbox"/>	ago <input type="checkbox"/>	ago <input type="checkbox"/>	Never <input type="checkbox"/>
Arthritis/rheumatism	Yes <input type="checkbox"/>	No <input type="checkbox"/>	If yes	When did you last consult the doctor?				
				Under	1-11	1-5	Over	
				1 month	months	years	5 years	
				ago <input type="checkbox"/>	ago <input type="checkbox"/>	ago <input type="checkbox"/>	ago <input type="checkbox"/>	Never <input type="checkbox"/>

**Have you had any of these problems in the past two weeks?**

	Yes and consulted doctor	Yes but did not consult doctor	No
Trouble with hearing in one or both ears	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Backache	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Indigestion	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Difficulty or pain passing urine	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Migraine headache	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Cold/flu	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Difficulty sleeping/insomnia	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Piles (haemorrhoids)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Figure 1. The symptom list used on the GPAS survey.

Table 1(a). Proportion of each vulnerable group in the GPAS sample compared with those in the General Household Survey.<sup>14</sup>

	Proportion of GPAS responders (%)	General Household Study 1998-1999 <sup>a,d</sup> (%)
Lone mothers <sup>a</sup>	13	22
Elderly living alone <sup>b</sup>	39	36
Unemployed <sup>c</sup>	3	5
Ethnic groups <sup>d</sup>		
White	93	93
Indian	2	2
Pakistani/Bangladeshi	2	2
Black Caribbean	1	1
Other ethnic groups	3	3

<sup>a</sup>Base: all responders with dependent children in household. <sup>b</sup>Base: all responders aged 65 years or over. <sup>c</sup>Base: all responders of working age. <sup>d</sup>Base: all responders. <sup>e</sup>Owing to rounding, GHS data add up to 101%.

For episodes of acute illness that were reported 'in the past 14 days', analyses distinguished between those who had consulted the doctor (score = 1) and those who had not consulted (score = 0). For diagnosed chronic conditions for which consulting behaviour was reported over a five-year period, rates of consultation were condensed to a binary variable 'consulted within the past 12 months' (score = 1) or 'consulted a year ago or more' (score = 0). For conditions

where significant associations were identified, logistic regression analyses were performed to calculate odds ratios for higher prevalence or consulting rates among the vulnerable groups and to examine the degree to which associations could be explained by conventional proxies for need, such as age, sex, and social deprivation. Thus, in the first regression equation (Model 1), only vulnerable group membership was entered as an independent predictor of prevalence or consulting. In Model 2, the association of vulnerable group membership was explored while adjusting for age and sex. Current smoking behaviour was also entered as an independent variable when exploring relationships with prevalence or consulting for respiratory conditions (such as 'wheeze' or 'cold/flu'). In the final regression equation (Model 3), housing tenure was entered as a measure of material deprivation. Living in rented accommodation is a reliable proxy of low income.<sup>19,20</sup>

## Results

### Sample characteristics

Socially vulnerable groups were selected from a sample of 4493 responders, representing an overall response rate of 38%. It was not possible to compare responders with non-responders to test for selection bias because of confidentiality agreements with participating health authorities.

Table 1(b). Self report of limiting longstanding illness by age and sex in the GPAS and GHS samples.

Age range (years)	All persons (%)		Males (%)		Females (%)	
	GPAS	GHS	GPAS	GHS	GPAS	GHS
18–44 <sup>a</sup>	13	15	17	12	14	12
45–64	28	28	30	28	27	29
65–74	45	38	47	39	42	39
75+	55	50	50	48	56	51

<sup>a</sup>GPAS only includes the ages 18–44 years in the younger age groups, whereas GHS includes the ages 16–44. The small percentage differences could be occurring for this reason.

Instead, the indirect method was used and compared the GPAS sample with the nationally representative General Household Survey (GHS),<sup>14</sup> in terms of the proportion of the sample in a socially vulnerable group and an age/sex breakdown of limiting longstanding illness. These comparisons are displayed in Table 1. The only notable differences between the two samples were that, in the GPAS sample, there were more men aged 18 to 44 years and 65 to 74 years, and women aged 75 years and over who reported limiting longstanding illness, and that fewer lone mothers responded to the GPAS study.

Table 2 shows the socioeconomic, demographic, and lifestyle characteristics of vulnerable groups. All the groups identified were significantly more likely to live in rented accommodation than their relevant comparison groups. There was a preponderance of people aged over 75 years and women among the 'elderly living alone' and of younger people and men among the 'unemployed'. Lone mothers and the unemployed were significantly more likely to be current smokers.

### Significant associations ( $P < 0.01$ ) between social vulnerability, the prevalence of specific conditions (Table 3), and consultation with the GP (Table 4)

**Lone mothers.** Associations between lone motherhood, anxiety, and higher self-report of sleep problems remained significant when adjusting for all other variables in Model 3. The odds ratio for depression was not significant at the 0.01 level when housing tenure was included in the model. There was a higher likelihood of lone mothers reporting wheeze compared with mothers with partners but the odds ratio was not significant in Model 2. Univariate analyses suggested that differences in the prevalence of wheeze were likely to be explained by the higher percentage of current smokers among lone mothers. There was no significant association between lone motherhood and propensity to consult for any of the index conditions in this study.

**Elderly living alone.** There was a significantly higher likelihood of reporting arthritis and sleep problems among elderly people living alone; however, these associations disappeared when adjustment was made for age and sex factors in Model 2. Results suggested that these conditions were more predominant among women aged over 75 years. The association between being elderly and living alone and higher self-report of migraine was not significant when housing tenure was included in the regression model (Model 3).

There was no significant association between being elderly living alone and increased propensity to consult for any of the index conditions at the  $P < 0.01$  level.

**Unemployed.** No significant associations were found between unemployment and greater reported prevalence of any index conditions at the  $P < 0.01$  level. The same was true of propensity to consult for those who reported a condition.

**Membership of an ethnic minority group.** There was significantly higher reported prevalence of diabetes among ethnic minority responders. Ethnic minority responders were also more likely than white responders to report having had migraine and cold/flu in the past two weeks; associations which remained significant when adjusting for the socioeconomic, demographic, and lifestyle variables in Model 3. In respect of mental health, ethnic minority responders were more likely than white responders to be identified as 'definite' anxiety and depression cases on the HAD scale. The association with depression remained significant in Model 3, although the association with anxiety was explained by the demographic variables entered in Model 2.

Table 4 shows that ethnic minority group membership was the only source of social vulnerability to be associated with differences in consulting behaviour. Responders reporting backache, indigestion, migraine, cold/flu and sleep problems showed comparatively greater propensity to consult than their white counterparts. These associations all remained significant when adjusted for the socioeconomic, demographic, and lifestyle variables in Model 3.

## Discussion

The impact of social vulnerability on health is variable. Lone motherhood and ethnic minority group status were most strongly and independently associated with poorer health, but these associations were only evidenced for a small number of conditions. Results confirm the common association between poorer mental health and lone motherhood, an association that is conventionally attributed to lack of social support and high levels of social stress. Membership of an ethnic minority group was associated with higher self-report of morbidity across different types of condition; for example, diabetes, cold/flu and depression. A higher prevalence of mortality and morbidity from diabetes for ethnic minority groups has been reported in other studies<sup>21,22</sup> and this is particularly pronounced for people of Asian origin. But in general, little is known about the underlying reasons for ethnic inequalities in health and further research is necessary to

Table 2. Differences between each vulnerable group and its respective comparison group across key socioeconomic, demographic, and lifestyle variables.

Groups	Mean age (years)	Female (%)	Current smokers (%)	Rented housing (%)
Lone mothers	36.0 <sup>b</sup>	100	43.0 <sup>c</sup>	50.6 <sup>c</sup>
Mothers with partners	38.3	100	25.5	14.7
Elderly alone	76.5 <sup>c</sup>	72.5 <sup>c</sup>	17.0 <sup>d</sup>	34.4 <sup>c</sup>
Elderly not alone	72.5	42.8	14.4	15.1
Unemployed	38.4 <sup>a</sup>	38.0 <sup>c</sup>	45.4 <sup>c</sup>	51.1 <sup>c</sup>
Employed	41.7	58.5	28.1	13.8
Ethnic minority	42.6 <sup>c</sup>	58.7 <sup>d</sup>	24.6 <sup>d</sup>	34.8 <sup>c</sup>
White	52.4	61.6	25.3	19.4

<sup>a</sup>P<0.05; <sup>b</sup>P<0.01; <sup>c</sup>P<0.001; <sup>d</sup>not significant.

Table 3. Logistic regression analyses showing the significant associations (P<0.01) between social vulnerability and the prevalence of specific conditions.

	Prevalence (%)	Odds ratio (95% CIs)		
		Model 1: unadjusted	Model 2: adjusted for age (and smoking, where applicable)	Model 3: adjusted for age, (smoking) and housing tenure
<b>Lone mothers</b>				
<b>Wheeze</b>				
Lone mother (n = 157)	26.1	2.01 (1.33–3.04)	NS	NS
With partner (n = 669)	15.0			
<b>Sleep problems</b>				
Lone mother (n = 144)	31.9	1.81 (1.21–2.71)	1.88 (1.25–2.83)	1.83 (1.18–2.83)
With partner (n = 59)	20.6			
<b>Anxiety</b>				
Lone mother (n = 156)	37.2	2.65 (1.81–3.88)	2.61 (1.78–3.83)	2.03 (1.34–3.08)
With partner (n = 652)	18.3			
<b>Depression</b>				
Lone mother (n = 155)	12.9	2.62 (1.47–4.68)	2.73 (1.52–4.89)	NS
With partner (n = 654)	5.4			
<b>Elderly Living Alone</b>				
<b>Arthritis</b>				
Elderly alone (n = 387)	52.5	1.71 (1.33–2.22)	NS	NS
Not alone (n = 606)	39.1			
<b>Migraine</b>				
Elderly alone (n = 275)	13.6	2.11 (1.28–3.47)	2.06 (1.19–3.57)	NS
Not alone (n = 455)	7.0			
<b>Sleep problems</b>				
Elderly alone (n = 301)	31.9	1.59 (1.15–2.20)	NS	NS
Not alone (n = 484)	22.7			
<b>Ethnic minority groups</b>				
<b>Diabetes</b>				
Ethnic minority (n = 303)	9.6	2.51 (1.66–3.80)	4.02 (2.57–6.30)	4.03 (2.54–6.39)
White (n = 3910)	4.0			
<b>Migraine</b>				
Ethnic minority (n = 258)	28.3	2.06 (1.54–2.74)	1.79 (1.33–2.42)	1.72 (1.26–2.35)
White (n = 3280)	16.1			
<b>Cold/flu</b>				
Ethnic minority (n = 282)	45.7	2.02 (1.58–2.58)	1.77 (1.36–2.29)	1.75 (1.33–2.29)
White (n = 3370)	29.4			
<b>Anxiety</b>				
Ethnic minority (n = 288)	23.3	1.59 (1.19–2.11)	NS	NS
White (n = 3884)	16.0			
<b>Depression</b>				
Ethnic minority (n = 296)	12.8	2.24 (1.56–3.23)	2.62 (1.79–3.82)	2.02 (1.34–3.04)
White (n = 3945)	6.2			

unravel the potential influence of culture and environment in explaining such differences. Given the findings of previous research studies, the lack of any consistent association between unemployment and poorer mental or physical health is surprising. One possible explanation for this is that the unemployed category in this study included both sexes,

but most of the previous research in this field has focused on male unemployment. The effects of unemployment on health are generally more marked for men than for women.<sup>3</sup> Also, to pinpoint the effect of unemployment itself on morbidity and consulting behaviour, we excluded those people who were 'economically inactive' because of long-term sick-



Table 4. Logistic regression analyses showing the significant associations ( $P < 0.01$ ) between social vulnerability and consultation for specific conditions.

Ethnic minority groups	Percentage reporting a condition who consulted	Odds ratio (95% CIs)		
		Model 1: unadjusted	Model 2: adjusted for age (and smoking, where applicable)	Model 3: adjusted for age, (smoking) and housing tenure
<b>Backache</b>				
Ethnic minority ( $n = 109$ )	36.7	2.58 (1.70–3.90)	3.56 (2.28–5.58)	3.28 (2.06–5.21)
White ( $n = 1280$ )	18.4			
<b>Indigestion</b>				
Ethnic minority ( $n = 59$ )	37.3	2.59 (1.48–4.54)	3.31 (1.79–6.12)	2.94 (1.53–5.65)
White ( $n = 724$ )	18.6			
<b>Migraine</b>				
Ethnic minority ( $n = 73$ )	30.1	2.45 (1.41–4.27)	2.98 (1.66–5.35)	3.22 (1.75–5.93)
White ( $n = 528$ )	15.0			
<b>Cold/flu</b>				
Ethnic minority ( $n = 129$ )	40.3	3.22 (2.18–4.75)	3.97 (2.59–6.08)	3.53 (2.26–5.50)
White ( $n = 992$ )	17.3			
<b>Sleep problems</b>				
Ethnic minority ( $n = 62$ )	37.1	2.99 (1.73–5.17)	4.32 (2.41–7.75)	4.72 (2.56–8.71)
White ( $n = 814$ )	16.5			

ness from the 'unemployed' category and also adjusted for material deprivation in our logistic regression models. Had these controls not been made, our findings would have been similar to those produced in previous research.

Social vulnerability was not in itself associated with inequality in utilisation of primary care, in the sense of lower rates of utilisation for equivalent need. However, higher rates of GP consultation were independently associated with ethnic minority group status for a number of illnesses, particularly acute conditions. Other studies have also reported a significant association between ethnic minority group status and propensity to consult the GP for 'signs, symptoms, and ill-defined conditions'.<sup>12,23</sup> Such patterns of consultation have been attributed to 'somatisation',<sup>4</sup> whereby psychological distress is presented in terms of physical symptoms. This is thought to arise from the greater stigma attached to mental illness within Caribbean populations and from networks of social support within the South Asian population that 'keep mental illness in the family'.<sup>25,26</sup> There is, however, little empirical evidence for the phenomenon of somatisation in ethnic minority populations<sup>17,27</sup> and possible cultural explanations for these patterns of consultation require further investigation using qualitative methods to explore the experience of different ethnic groups.

### Methodological issues

The main methodological issue in this study was whether the low response to the GPAS questionnaire (38%) meant that the samples selected for analysis were biased and thus the findings of our study compromised. Our tests for selection bias in relation to two main dimensions of our analysis — social vulnerability and health status — indicate that this is not the case. The samples of unemployed, ethnic minority groups and elderly living alone selected for this analysis were represented in much the same proportions as in the General Household Survey (GHS).<sup>14</sup> Lone mothers were under-represented; 13% of all parents with dependent children who responded to our survey were lone mothers compared with 22% in the GHS. Despite this difference, it was

clear that the lone mothers in this study shared similar characteristics to those in nationally representative samples in that they were significantly more likely to be younger, to live in rented accommodation, and to smoke when compared with mothers with partners. When levels of reported limiting longstanding illness were compared between the GPAS responders and the GHS sample, there was no evidence of any serious under-representation of morbidity in any age/sex group. The tendency was towards some over-representation for men aged 18 to 44 years and 65 to 74 years and for women aged over 75 years. The 'long term sick' responders to the survey were significantly more likely to report higher morbidity and rates of GP consultation for almost all index conditions, after adjusting for the socioeconomic and demographic variables included in our analyses (results not shown). This suggests that the methods used were robust in identifying those people in the population who are known to have poorer health and make more use of primary care services.<sup>3,12,14</sup>

### Policy implications

Some sources of social vulnerability, such as lone motherhood and ethnic minority group status, are likely in themselves to constitute a risk to health. Strategies for health improvement should bear in mind that for such groups poorer health is likely to result from a combination of 'social' risk factors. Statistically, the 'independent effects' of material deprivation and social vulnerability have been isolated in this study; in reality they simply constitute a 'double disadvantage' so that tackling health inequality for these groups involves addressing problems associated with relationship breakdown and cultural diversity, as well as low income.

With the important exception of ethnicity, social vulnerability itself did not give rise to greater demands on primary health care for equivalent need once other proxies for need, such as age, sex, and material deprivation were taken into account. Clearly, this has implications for needs assessment in primary care using the Jarman Index.<sup>18</sup> On the basis of the findings of this study it is questionable as to whether indica-

tors of the 'elderly living alone', 'the unemployed' and 'lone parenthood' should be included as factors in this index in addition to the demographic and socioeconomic indicators that are conventionally used as proxies for health need. The 'elderly living alone' currently attract the highest weighting in the Jarman Index. In relation to the equitable use of primary care (i.e. equal treatment for equal need), members of socially vulnerable groups were no less likely to see the GP when they were ill than their counterparts who were more advantaged. In policy terms, this is an encouraging indication that primary care does not exacerbate inequality through lack of accessibility to services for these disadvantaged groups.

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