

Socioeconomic and ethnic group differences in self reported health status and use of health services by children and young people in England: cross sectional study

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Abstract

Objectives To examine whether self reported health status and use of health services varies in children of different social class and ethnic group.

Design Cross sectional study from the 1999 health survey for England.

Subjects 6648 children and young adults aged 2-20 years.

Setting Private households in England.

Main outcome measures Proportion of children (or their parents) reporting episodes of acute illness in the preceding fortnight and prevalence of self reported longstanding illness. Proportion reporting specific illnesses. Proportion reporting that they had consulted a general practitioner in the preceding fortnight, attended hospital outpatient departments in the three preceding months, or been admitted to hospital in the preceding year.

Results Large socioeconomic differences were observed between ethnic subgroups; a higher proportion of Afro-Caribbean, Indian, Pakistani, and Bangladeshi children belonged to lower social classes than the general population. The proportion of children and young adults reporting acute illnesses in the preceding two weeks was lower in Bangladeshi and Chinese subgroups (odds ratio 0.41, 95% confidence interval 0.27 to 0.61 and 0.46, 0.28 to 0.77, respectively) than in the general population. Longstanding illnesses was less common in Bangladeshi and Pakistani children (0.52, 0.40 to 0.67 and 0.57, 0.46 to 0.70) than in the general population. Irish and Afro-Caribbean children reported the highest prevalence of asthma (19.5% and 17.7%) and Bangladeshi children the lowest (8.2%). A higher proportion of Afro-Caribbean children reported major injuries than the general population (11.0% *v* 10.0%), and children from all Asian subgroups reported fewer major and minor injuries than the general population. Indian and Pakistani children were more likely to have consulted their general practitioner in the preceding fortnight than the general population (1.86, 1.35 to 2.57 and 1.51, 1.13 to 2.01, respectively). Indian, Pakistani, Bangladeshi, and Chinese children were less likely to have attended

outpatient departments in the preceding three months. No significant differences were found between ethnic groups in the admission of inpatients to hospitals. Acute and chronic illness were the best predictors of children's use of health services. Social classes did not differ in self reported prevalence of treated infections, major injuries, or minor injuries, and no socioeconomic differences were seen in the use of primary and secondary healthcare services.

Conclusions Children's use of health services reflected health status rather than ethnic group or socioeconomic status, implying that equity of access has been partly achieved, although reasons why children from ethnic minority groups are able to access primary care but receive less secondary care need to be investigated.

Introduction

After the Acheson report into inequalities in health was published, the government of the United Kingdom declared the eradication of child poverty a national goal and called for detailed research to monitor the impact that such inequalities have on children's health.¹ In the 1970s and 1980s, differentials in childhood mortality widened, such that death rates in children from social classes IV and V were up to five times higher than in children from social classes I and II.^{2,3} Morbidity is far harder to assess, mainly because most sources of data lack information on denominators.⁴ Some data are available on use of services, but real measures of health status are often lacking.⁵ Children account for a large proportion of the workload of general practitioners, and according to some reports doctors perceive that certain ethnic subgroups—for example, patients of Asian origin—add to their workload and use health services inappropriately.^{6,7} Socioeconomic data and especially data on self defined ethnicity are rarely available in large surveys.^{8,9} Socioeconomic differences exist in consultation rates in general practice for common childhood illnesses such as asthma and respiratory disease, infections, and injuries.¹⁰ We examined in a national study whether inequalities in health status and use of services exist in children and young adults, using information on

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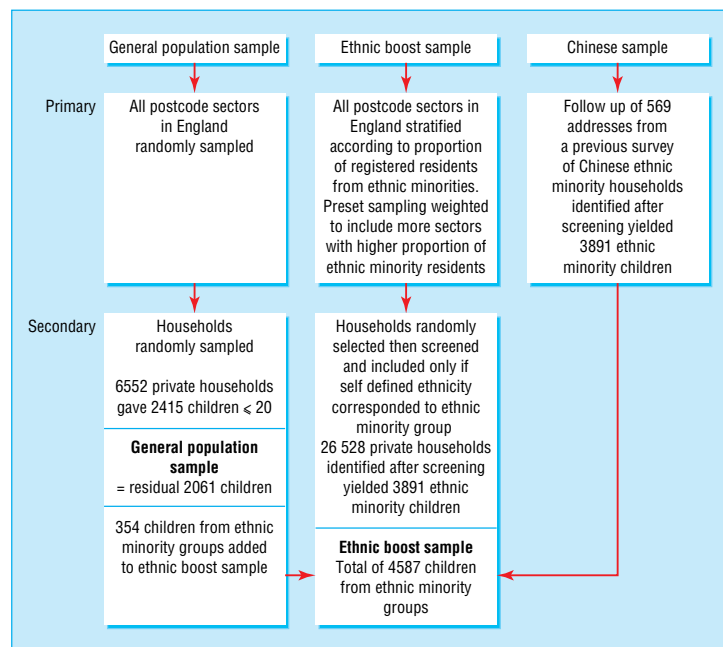
socioeconomic status, health status, and use of health services collected at an individual level.

Methods

The health survey for England is an annual survey of households in England. The 1999 survey focused on the health of ethnic minority groups.¹¹

Sampling and data collection

We used three separate samples (see figure). Firstly, a general population sample of 6552 households was obtained by using two stage random sampling of postcode sectors and then addresses in each sector. All participating households were interviewed in full. Secondly, an "ethnic boost" sample of 26 528 addresses was obtained by using stratified multistage probability sampling. Additional postcode sectors were systematically selected as primary sampling units to include a greater proportion of households from areas with a high percentage of ethnic minority groups. Each household in the ethnic boost sample was screened initially and included only if respondents identified themselves as belonging to an ethnic minority group. Individuals selected the most appropriate ethnic group from the categories "white," "black Caribbean," "black African," "black other," "Indian," "Pakistani," "Bangladeshi," "Chinese," and "other." Interviewers who could speak and read the informants' language obtained household, socioeconomic, and personal information and information on health and use of health services. Parents or guardians responded for children aged less than 13. Children aged 13-15 were interviewed directly, with a parent present in the household. Thirdly, a sample for Chinese informants was obtained by following up 569 households that had participated in an earlier survey conducted by the health education authority.



Sampling method for 1999 health survey for England with focus on ethnic minorities. Target population: all private householders in England

Data analysis

We merged individual data from the ethnic boost and Chinese samples with data from the general population sample. We recategorised ethnic groups as "Afro-Caribbean," "Indian," "Pakistani," "Bangladeshi," "Chinese," and "Irish," and grouped all other ethnic groups together in a baseline group called "general population."¹¹ For this report, we use the term "Asian" to report collective findings on Indian, Pakistani, Bangladeshi, and Chinese groups.

We examined the prevalence of acute illnesses in the preceding fortnight, limiting longstanding illnesses, and specific illnesses in children and young adults of different ethnic groups and social class. In estimating the prevalence of asthma, we included children reporting an episode of wheeze treated in the preceding year. The category "treated infections" included all children who were taking prescribed medicines for infections. Major incidents were defined as any kind of injury in the preceding six months that resulted in seeing a doctor or going to hospital for treatment. Minor incidents included any injuries in the preceding four weeks that resulted in pain or discomfort lasting 24 hours or more but did not require seeing a doctor or going to hospital. We examined variations in the use of health services, such as consultations with a general practitioner in the fortnight preceding the interview, attendance at hospital as an outpatient in the preceding three months, and inpatient and day patient admissions in the preceding year. We analysed the data with Stata version 7, weighted according to sampling probability. We used logistic regression modelling to calculate odds ratios for univariate and multivariate analysis.

Results

Household response rates were 76% in the general population and 71% in the ethnic boost sample. We obtained interviews with 97% of children from the general population and 92-96% of children from ethnic minority groups. In all, 6648 people aged 2-20 years participated in the survey. Age and sex distributions of the different ethnic and social class groups were similar, but socioeconomic differences between the different ethnic groups were large (tables 1 and 2). Thirty three per cent (377/974) of Bangladeshi children and 26% (171/688) of Indian children belonged to social classes IV and V compared with 19% (395/2061) of children from the general population.

Health status

Acute illness in children and young adults in the preceding two weeks was more common in Irish children than in the general population (odds ratio 1.45, 95% confidence interval 1.10 to 1.98) (table 3). Bangladeshi and Chinese subgroups had the lowest prevalence (0.41, 0.27 to 0.61 and 0.46, 0.28 to 0.77, respectively). Chronic or limiting longstanding illnesses were less common in Bangladeshi and Pakistani children than in the general population (0.52, 0.40 to 0.67 and 0.57, 0.46 to 0.70, respectively) (table 4). The prevalence of acute or longstanding illness in children from different social classes did not differ. The prevalence of asthma treated in the preceding 12

Table 1 Distribution of sample used in cross sectional survey of socioeconomic and ethnic group differences in self reported health status and use of health services by children and young people in England by age, sex, ethnic group, and social class

Characteristic	No	%
Age (years):		
2-5	1630	24.5
6-10	1889	28.4
11-15	1738	26.1
16-20	1391	20.9
Sex:		
Male	3358	50.5
Female	3290	49.5
Ethnic group:		
General population	2061	31.0
Afro-Caribbean	807	12.1
Indian	668	10.1
Pakistani	1060	15.9
Bangladeshi	974	14.7
Chinese	342	5.1
Irish	736	11.1
Social class of the head of household:		
I	356	5.4
II	1406	21.2
III non-manual	783	11.8
III manual	2008	30.2
IV	1373	20.7
V	214	3.2
All other	500	7.5

Percentages may not add to 100 owing to rounding.

months was highest in social class groups II and III non-manual (17.7% and 18.9%). Social class did not differ for prevalence of treated infections or injuries. Irish and Afro-Caribbean children had the highest prevalence of asthma (19.5% and 17.7%) and Bangladeshi children the lowest (8.2%). Bangladeshi children had fewer major incidents than the general population (3.1% *v* 10.0%) and fewer minor incidents (0.6% *v* 7.3%).

Use of health services

The proportion of all children and young adults aged up to 20 years consulting their general practitioner in the preceding fortnight was 8.7% (equivalent to 2.3 consultations per person per year) (table 5). Girls were less likely to have attended outpatient clinics at hospital than boys (odds ratio 0.78, 0.66 to 0.93) (table 6). The associations between socioeconomic status and

use of health services were non-significant. After adjusting for age, social class, and chronic health status, Indian and Pakistani children were more likely to have seen their general practitioner in the preceding fortnight than the general population (odds ratio for Indian children 1.86, 1.13 to 2.01). Asian children were, however, less likely to have attended outpatient departments in the preceding three months. The differences between in hospital inpatient admissions were non-significant. Children who had episodes of acute illness in the preceding two weeks were more likely to have seen their general practitioner (7.57, 5.52 to 10.38) and to have attended outpatient departments in the past three months (1.60, 1.23 to 2.08). Children who had chronic or limiting longstanding illnesses were more likely to have seen their general practitioner in the preceding fortnight (1.78, 1.28 to 2.48) and more than twice as likely have attended hospital as an outpatient or inpatient in the preceding year, (2.86, 2.34 to 3.50 and 2.49, 1.84 to 3.38, respectively) than children who did not have such illnesses.

Discussion

Asian subgroups reported less ill health than the general population. Indian and Pakistani children made more use of general practitioners' services, but children from all ethnic minority groups were less likely to be referred to outpatient clinics. Self reported health status rather than socioeconomic status or ethnicity was the best predictor of use of primary and secondary care services.

Use of health services does not accurately reflect health status yet is often used to negotiate service needs on an area basis. Our study reports national data on the prevalence of both acute and chronic illness and on use of services among children and young adults from different ethnic and socioeconomic groups. We found lower overall mean consulting rates than reported in our earlier study (2.3 *v* 3.8 consultations per person per year).¹⁰ The earlier study was, however, limited to children aged under 16, and since use of general practitioners' services is lower among young adults this may account for some of the difference. Our study relates only to children living in private households and cannot be generalised to the health of children in institutions or homeless children, but this should not affect the validity of our findings.

Table 2 Socioeconomic factors in children and teenagers by ethnic group. Data are numbers (percentages) unless otherwise indicated

	General population (n=2061)	Afro-Caribbean (n=807)	Indian (n=668)	Pakistani (n=1060)	Bangladeshi (n=974)	Chinese (n=342)	Irish (n=736)	P value (χ^2 test for significance testing of differences across groups)
Social class								
I	148 (7.4)	21 (2.7)	64 (8.0)	47 (4.8)	11 (2.1)	29 (9.0)	36 (6.8)	<0.001
II	558 (26.3)	156 (18.9)	159 (20.0)	134 (13.0)	57 (7.1)	99 (27.5)	243 (31.7)	
III non-manual	264 (12.9)	183 (21.9)	62 (10.2)	72 (6.4)	59 (6.5)	49 (15.6)	94 (14.6)	
III manual	626 (30.5)	176 (22.4)	184 (30.1)	405 (40.0)	305 (35.2)	102 (30.9)	210 (29.1)	
IV	316 (15.6)	182 (23.6)	157 (25.8)	237 (20.8)	339 (30.4)	26 (7.2)	116 (13.8)	
V	79 (4.0)	30 (4.1)	14 (2.3)	24 (2.3)	38 (3.2)	10 (2.9)	19 (1.7)	
All other*	70 (3.4)	60 (7.4)	28 (4.2)	141 (13.3)	165 (16.9)	27 (7.9)	18 (2.4)	
Living in lowest third of equivalised income	658 (32.9)	428 (52.0)	244 (42.0)	646 (60.0)	678 (68.8)	130 (34.8)	213 (26.6)	<0.001
No (%) of sample receiving income support	271 (13.6)	267 (31.7)	86 (14.2)	249 (24.0)	368 (36.7)	22 (4.5)	117 (14.8)	<0.001

*Includes children of parents in armed forces, full time students, and other.

Limitations of self reported health

The recording of socioeconomic status and ethnicity even when self completed categories are used is subject to misclassification bias.⁹ Our conclusions relate to health status and use of health services reported by parents on behalf of children under 13 years, and for older children and young adults to self rated health and use of services. To date no evidence exists that parents of children from different ethnic minority groups report different levels of subjective health, but this is a potentially important limitation of the study. The reporting of health depends on whether patients choose to consult their general practitioner and is based on their own decisions. Nevertheless, how self rated health status compares with more objective measures needs to be assessed in children from different ethnic groups and of different socioeconomic status.

Socioeconomic and ethnic group differentials in health of children

Interpreting findings relating to health inequalities is beset by confounding because lifestyle factors that pre-

dispose to ill health vary between socioeconomic groups.^{12 13} The prevalence of certain illnesses varies in different socioeconomic or ethnic groups, and differentials exist in service use and provision.¹⁴ For example, the lower prevalence of asthma in Bangladeshi children may not mean that actual prevalence is lower but that it is underdiagnosed.

Our findings of a lack of socioeconomic differentials are interesting. The categories of social class currently in use are gradually to be replaced by alternative instruments for assessing socioeconomic inequalities.¹⁵ It would be easy to dismiss our findings as not being real since a body of evidence suggests that inequalities are a consistent finding in all aspects of adult health.^{16 17} Another study examining data from the general household survey found no socioeconomic differences in the use of general practitioners' and hospital services and showed that after a period of increasing health differentials in the 1980s such inequality levelled.¹⁸ This finding is supported by our finding that health status rather than socioeconomic status or ethnic group predicts service use. Using general practi-

Table 3 Illness status in children and teenagers by ethnic group and social class

Characteristic	Acute illness		Chronic illness	
	No (%)	Crude odds ratio*(95% CI)	No (%)	Crude odds ratio*(95% CI)
Ethnic group:				
General population	209 (10.0)	1.00	483 (23.3)	1.00
Afro-Caribbean	89 (11.5)	1.17 (0.89 to 1.54)	204 (25.9)	1.15 (0.94 to 1.40)
Indian	50 (7.9)	0.78 (0.55 to 1.09)	109 (16.4)	0.64 (0.50 to 0.83)
Pakistani	83 (8.0)	0.79 (0.60 to 1.04)	161 (14.8)	0.57 (0.46 to 0.70)
Bangladeshi	45 (4.3)	0.41 (0.27 to 0.61)	127 (13.6)	0.52 (0.40 to 0.67)
Chinese	19 (4.9)	0.46 (0.28 to 0.77)	65 (17.6)	0.70 (0.52 to 0.95)
Irish	182 (27.3)	1.45 (1.10 to 1.98)	182 (27.3)	1.24 (0.98 to 1.56)
Social class of head of household:				
I	24 (7.8)	1.00	67 (21.9)	1.00
II	145 (10.9)	1.44 (0.79 to 2.63)	312 (23.5)	1.09 (0.73 to 1.64)
III non-manual	78 (10.3)	1.36 (0.70 to 2.62)	151 (20.5)	0.92 (0.58 to 1.45)
III manual	180 (10.2)	1.35 (0.74 to 2.46)	397 (24.0)	1.12 (0.75 to 1.68)
IV	110 (9.2)	1.19 (0.63 to 2.26)	261 (24.3)	1.15 (0.75 to 1.76)
V	20 (12.8)	1.73 (0.75 to 4.02)	43 (20.9)	0.94 (0.50 to 1.79)

*Adjusting for independent variables including age, sex, ethnic group, or social class did not alter odds ratios, so only unadjusted values are shown.

Table 4 Numbers (percentages) of children and teenagers with specific diagnoses: asthma, infections, and accidents by social class and ethnicity

	Treated asthma	Treated infections	Major incident requiring hospital or doctor treatment in past 6 months	Minor incidents in past 4 weeks
Social class:				
I	24 (13.0)	9 (12.9)	35 (11.6)	18 (6.6)
II	127 (17.7)	25 (20.3)	113 (9.2)	79 (6.7)
III non-manual	81 (18.9)	10 (11.6)	82 (12.9)	42 (5.1)
III manual	118 (10.5)	29 (11.4)	134 (8.7)	102 (7.8)
IV	105 (12.7)	13 (9.9)	104 (10.3)	59 (7.2)
V	16 (14.4)	4 (16.3)	16 (7.1)	12 (9.5)
P value (χ^2)*	<0.001	0.34	0.79	0.61
Ethnic group:				
General population	†	†	208 (10.0)	151 (7.3)
Afro-Caribbean	115 (17.7)	19 (14.3)	88 (11.0)	52 (6.2)
Indian	73 (13.9)	14 (19.4)	50 (8.8)	31 (4.7)
Pakistani	98 (11.8)	23 (21.2)	53 (5.1)	22 (1.9)
Bangladeshi	63 (8.2)	18 (20.1)	30 (3.1)	8 (0.6)
Chinese	36 (13.6)	7 (16.7)	14 (4.2)	15 (4.2)
Irish	128 (19.5)	12 (10.7)	65 (9.2)	48 (6.3)
P value (χ^2)*	<0.001	0.13	0.004	0.003

* χ^2 test for significance testing of differences across groups.

†Data for treated asthma and infections available for ethnic boost sample only.

tioners' services more does not necessarily imply worse health. The highest users of general practitioners' services were Asian ethnic subgroups, who reported fewer illnesses and fewest injuries. Non-illness related reasons for children consulting their general practitioner include child health surveillance and preventive care such as immunisation. Some groups may be using services more appropriately—for example, seeing their general practitioner for initial assessment rather than going direct to hospital. Nevertheless, for some children and young adults, poor socioeconomic circumstances and belonging to certain ethnic groups—for example, Afro-Caribbean—may place

them doubly at risk of ill health and poorer quality of care.¹³ Whether general practitioners are less likely to refer children from ethnic minority groups also needs to be investigated.

Conclusions

Children's health status and use of health services did not vary significantly by social class, which implies that equity in this area has been partially achieved. Children from Asian ethnic groups report better health and Afro-Caribbean children report worse health than the general population. Although these groups were more

Table 5 Children and teenagers using general practitioner, outpatient, and inpatient services by social class and ethnic group. Data are numbers (percentages) unless otherwise indicated

	Visits to general practitioner in past 2 weeks	Hospital outpatient in past 3 months	Hospital inpatient or day patient in past year
Social class:			
I	38 (9.6)	76 (21.1)	26 (7.9)
II	127 (6.9)	313 (25.6)	81 (6.3)
III non-manual	60 (6.2)	213 (29.4)	55 (5.7)
III manual	173 (8.3)	419 (25.9)	152 (8.5)
IV	121 (7.4)	281 (29.8)	101 (8.9)
V	20 (10.0)	44 (19.7)	17 (11.3)
P value (χ^2)*	0.59	0.30	0.32
Ethnic group:			
General population	155 (7.5)	548 (26.3)	162 (7.8)
Afro-Caribbean	73 (8.5)	207 (26.8)	70 (9.2)
Indian	80 (12.6)	122 (19.0)	34 (5.4)
Pakistani	118 (11.1)	155 (15.4)	71 (6.8)
Bangladeshi	71 (7.3)	126 (14.5)	53 (5.7)
Chinese	25 (8.0)	49 (14.3)	17 (4.8)
Irish	59 (7.9)	206 (30.0)	68 (9.4)
P value (χ^2)*	0.03	<0.001	0.001

* χ^2 test for significance testing of differences across groups.

Table 6 Use of health services by children and teenagers. Values are odds ratios (95% confidence intervals)

Variable	GP visits in past 2 weeks		Hospital outpatient in past 3 months		Hospital inpatient or day patient in past year	
	Crude	Adjusted*	Crude	Adjusted*	Crude	Adjusted*
Age	0.90 (0.88 to 0.93)	0.90 (0.88 to 0.93)	1.00 (0.99 to 1.02)	1.00 (0.98 to 1.02)	1.01 (0.98 to 1.04)	1.01 (0.98 to 1.04)
Sex:						
Male†	1.00	1.00	1.00	1.00	1.00	1.00
Female	0.82 (0.62 to 1.09)	0.85 (0.63 to 1.14)	0.78 (0.66 to 0.93)	0.79 (0.66 to 0.95)	0.81 (0.61 to 1.08)	0.80 (0.59 to 1.08)
Social class:						
I†	1.00	1.00	1.00	1.00	1.00	1.00
II	0.70 (0.40 to 1.22)	0.70 (0.40 to 1.23)	1.29 (0.87 to 1.90)	1.28 (0.86 to 1.90)	0.77 (0.42 to 1.42)	0.75 (0.41 to 1.39)
III _n	0.62 (0.33 to 1.19)	0.64 (0.33 to 1.24)	1.56 (1.02 to 2.38)	1.64 (1.07 to 2.52)	0.70 (0.35 to 1.39)	0.70 (0.35 to 1.41)
III _m	0.84 (0.49 to 1.46)	0.87 (0.50 to 1.52)	1.31 (0.89 to 1.92)	1.30 (0.88 to 1.93)	1.08 (0.60 to 1.93)	1.05 (0.58 to 1.89)
IV	0.75 (0.41 to 1.35)	0.78 (0.43 to 1.42)	1.59 (1.05 to 2.39)	1.59 (1.04 to 2.42)	1.14 (0.61 to 2.13)	1.10 (0.58 to 2.07)
V	1.04 (0.44 to 2.45)	1.07 (0.45 to 2.59)	0.92 (0.50 to 1.69)	0.94 (0.51 to 1.73)	1.48 (0.65 to 3.38)	1.52 (0.67 to 3.43)
Ethnicity:						
General population†	1.00	1.00	1.00	1.00	1.00	1.00
Afro-Caribbean	1.15 (0.84 to 1.56)	1.09 (0.78 to 1.52)	1.02 (0.84 to 1.24)	0.98 (0.79 to 1.22)	1.20 (0.88 to 1.63)	1.19 (0.85 to 1.66)
Indian	1.77 (1.31 to 2.39)	1.86 (1.35 to 2.57)	0.66 (0.52 to 0.84)	0.67 (0.52 to 0.86)	0.68 (0.45 to 1.02)	0.72 (0.47 to 1.09)
Pakistani	1.53 (1.18 to 1.99)	1.51 (1.13 to 2.01)	0.51 (0.41 to 0.63)	0.56 (0.45 to 0.70)	0.86 (0.64 to 1.17)	0.86 (0.61 to 1.21)
Bangladeshi	0.97 (0.68 to 1.37)	1.07 (0.73 to 1.57)	0.48 (0.37 to 0.61)	0.55 (0.41 to 0.73)	0.72 (0.50 to 1.04)	0.79 (0.53 to 1.20)
Chinese	1.11 (0.70 to 1.77)	1.19 (0.73 to 1.95)	0.47 (0.34 to 0.66)	0.49 (0.34 to 0.70)	0.60 (0.35 to 1.03)	0.58 (0.31 to 1.06)
Irish	1.06 (0.73 to 1.54)	1.02 (0.69 to 1.49)	1.20 (0.96 to 1.50)	1.14 (0.90 to 1.44)	1.22 (0.87 to 1.71)	1.29 (0.91 to 1.82)
Acute illness:						
None†	1.00		1.00		1.00	
In past 2 weeks	7.57 (5.52 to 10.38)		1.60 (1.23 to 2.08)		1.48 (0.99 to 2.22)	
Chronic illness:						
None†	1.00	1.00	1.00	1.00	1.00	1.00
Limiting longstanding illness	1.67 (1.23 to 2.28)	1.78 (1.28 to 2.48)	2.91 (2.39 to .53)	2.86 (2.34 to 3.50)	2.50 (1.87 to 3.36)	2.49 (1.84 to 3.38)

*Adjusted for age, sex, social class, chronic health status, and ethnic group

†Baseline group for univariate and multivariate comparisons of odds ratios by using logistic regression.

What is already known on this topic

Children from lower socioeconomic classes and from Indian ethnic subgroups may make more use of general practitioners' services than other children

Afro-Caribbean, Indian, Pakistani, and Bangladeshi children are less likely to be referred to outpatient and inpatient services at hospitals than white children

What this study adds

Indian, Pakistani, and Bangladeshi children reported less acute and chronic illness, asthma, and injuries than the general population, whereas Afro-Caribbean children reported more

Children's self reported health status and use of health services did not vary by social class

Indian and Pakistani children make more use of general practitioners' services, but Indian, Pakistani, Bangladeshi, and Chinese children are less likely to be referred to outpatient clinics

Self reported health status rather than socioeconomic status or ethnicity is the best predictor of use of primary and secondary services

likely to consult general practitioners, they were less likely to be referred to secondary care.

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