

complicated. We make this point because the history of the AIDS epidemic suggests that there is still an automatic tendency to stigmatise the infected person as of necessity belonging to a "high risk" group.

(4) To have blood withdrawn at regular intervals for storage against a future need to establish HIV state. This facility already exists in our district, and the matter is very carefully arranged to ensure confidentiality but we are not aware of any national policy.

(5) To have blood withdrawn and possibly analysed at the time of and subsequent to a specific incident in which virus transmission was a possibility. Because of the definition adopted in our district this would in theory embrace all operative injuries.

(6) To have an HIV assay at their own behest. Again, with suitable safeguards, this is possible in our district.

(7) To have the "signing on" for work and the insurance situation debated at greater length. In particular, is it likely to become a condition of service that the members of the surgical team are initially and perhaps intermittently tested for their HIV state? Are those in contact with patients with AIDS likely to have a loading on their insurance premiums?

(8) To request—and in our view to insist—on testing for HIV of a patient involved in an injury to a surgeon. Reassurance from a negative assay for HIV antibodies in the patient does not, because of the incubation period, carry certainty, but at least it would have a confidence building effect to which the surgical "victim" is entitled.

These proposals will undoubtedly arouse controversy and by some, away from the front line, be regarded as inappropriate surgical panic. It has, however, characterised the AIDS "epidemic" that reactions to events have been post hoc rather than propter hoc.³ It is wise to discuss the matter now against a background of suggestions, some of which may be less soundly based than others, but all of which should be debated. By so doing we may also be readier for the next epidemic, whatever this may be.

References

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Contemporary Themes

Accidents in the home among children under 5: ethnic differences or social disadvantage?

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Abstract

Accidents in the home to children under 5 in a multiracial population with a high level of social disadvantage were studied by interviewing at home the parents of 402 children attending the accident department of a west London hospital during one year. The parents' country of birth, whether they were employed, and their housing conditions were recorded using the definitions of the 1981 census. Four ethnic groups (British (183 children), Asian (127), Caribbean (61), and other (31)) were identified. Though attendance rates based on the populations of electoral wards at the census and standardised for distance from the hospital showed no significant differences among the ethnic groups, there was a strong gradient by social class and strong associations with unemployment of the mother (although not of the father), overcrowding, and tenure of housing.

Social disadvantage seems to be more important than ethnicity as a determinant of accidents to children in the home.

Introduction

Accidents are the commonest cause of death among children under 15 and the second commonest, after congenital anomalies, among children under 5. Fatal accidents to older children are most often caused by motor vehicles, but in children under 5 they commonly occur in the home.¹ About half a million children under 5 attend accident and emergency departments each year for injuries resulting from accidents in the home (Department of Trade and Industry, home accident surveillance system, personal communication).

Little is known about accidents to children in ethnic minorities in Britain. The number of deaths so far has been small. Ethnicity is not routinely recorded in National Health Service data but was considered in two studies of attendances at accident departments. In Preston Ahamed estimated that the rate of hospital attendance after accidents in the home was similar among Asian children under 5 and among all children under 5 in the town, whereas in Bradford Learmonth reported that there were more burns and scalds than expected in city wards with high populations from new Commonwealth countries.^{2,3} Both studies failed to take account of the gradient of use that occurs with distance from the accident department; Learmonth's study used a correlation matrix rather than calculating rates specific to wards; and both studies used different classifications of ethnicity from census definitions.

Accidental deaths of children show a gradient according to the Registrar General's index of social class.⁴ Studies of the distribution of non-fatal injuries by social class, however, have yielded conflicting results. Brown and Davidson's study of accidents in children up to the age of 15, MacQueen's two year prospective study of accidents in the home in Aberdeen, and Martin's investigation of

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50 children admitted to a London hospital for burns all found gradients according to social class for attendances at hospital.^{5,7} On the other hand, a one year prospective study in Norwich and two national longitudinal studies suggested that there are no social class differences in accident rates.^{8,10}

We studied accidents in the home to children under 5 in a multiracial population with considerable social disadvantage. We chose accidents in the home rather than all accidents (including those on playgrounds and roads) to focus on personal disadvantage rather than local environmental disadvantage. We decided against interviewing a control group of families without accidents: parents are understandably suspicious of an unknown visitor asking questions about the possibility of an accident or making observations about their housing. By using the 1981 census as a denominator we were able to compare the incidence of accidents by ethnic groups and indicators of social disadvantage.

Methods

The study was based on the accident and emergency department of the Central Middlesex Hospital, a large district hospital in inner north west London that draws its patients from Brent and Acton. With the agreement and support of the staff of the accident department, the community nursing service, and the district ethical committee the researcher (RA) interviewed at home the parents of children who had attended the accident department. The interview schedule was tested in a pilot survey with parents of children who attended the accident department of another hospital. We asked for the parents' country of birth as the indicator of ethnicity, as this was used in the 1981 census. The father's country of birth was taken when the parents were married or cohabiting, otherwise the mother's country of birth was taken. The children were divided into four ethnic groups: British (including people from Ireland), Asian (people from the Indian subcontinent, Asians from east Africa, and a small number of Chinese), Caribbean, and other (including black African, European, and Mediterranean people). Details from the records of the accident department were validated in the interviews. Although we had expected that language might be a problem for some respondents, this was rarely the case; when difficulty arose a relative or friend was available to help.

The size of the sample was based on the estimate that ethnic minority groups comprised 35% of the population in Brent; we calculated that a minimum of 400 interviews with parents were required.¹¹ The children were identified daily from the records of the accident department. Children were included if they were under 5 years old and had required treatment for an accident occurring in a house or garden within the study area. Deaths were excluded because the interview with the parents would have had to be very different. Children with injuries suspected by the department staff, a liaison health visitor, or the researcher to be non-accidental were also excluded.

Data about the population in the area surrounding the hospital were gained from small area statistics in the 1981 census¹² and the Office of Population Censuses and Surveys (personal communication). For our ethnic groups children aged 0-4 were used for comparison; the other characteristics (employment, social class, and housing) were estimated from census data on children aged 0-15. Attendance rates according to distance from the department were calculated by ethnic group for each ward and then standardised for each variable by the direct method¹³: hospital attendances diminish with distance so this procedure removed the possible effect of an uneven distribution of demographic characteristics in the catchment area.

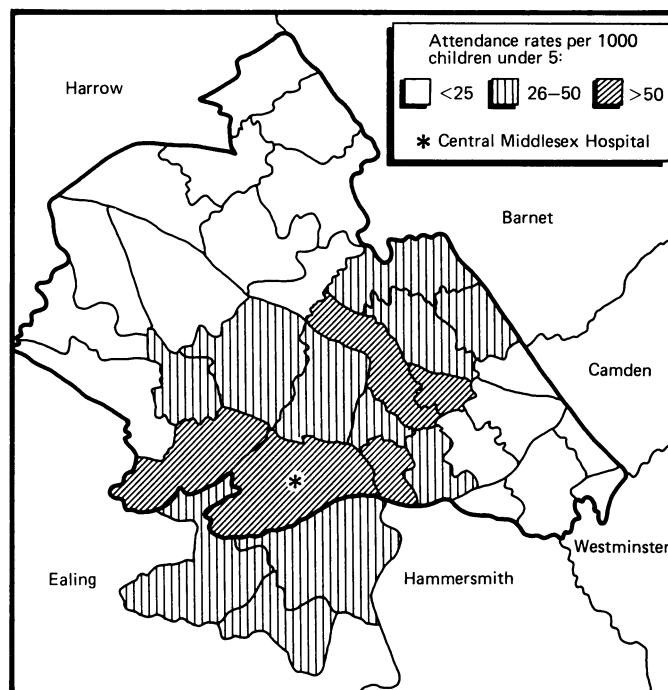
Results

Children were entered into the study between November 1983 and October 1984. No deaths from accidents in the home were recorded in the accident department during this period. Twenty children were excluded because their injury was suspected to be non-accidental: nine on the basis of evidence in the accident department, eight by the liaison health visitor from their histories, and three by us because of an aggressive response to the request to take part in the study. We did not further validate these exclusions. Twenty two children in the care of childminders at the time of the accident were included in the study.

Letters sent to 483 parents inviting them to take part in the inquiry emphasised its confidential nature. A total of 79 parents refused or did not respond, and two children were excluded after the interview because of suspected non-accidental injury. Analysis of the age, sex, and geographical distribution of these children showed that they did not differ significantly from the group whose parents were interviewed, but details of social

class and ethnicity were not available from the records of the accident department. The 402 completed interviews resulted in a response rate of 84%.

We studied 65 (16%) children under 1, 119 (30%) aged 1, 89 (22%) aged 2, 82 (20%) aged 3, and 47 (12%) aged 4. There were more boys (226; 56%) than girls (176; 44%). These proportions are similar to those in previous studies.¹⁴ Differences in age and sex among ethnic groups were not significant. The total attendance rates varied as expected with geographical distance (figure).



Geographical distribution of accidents to children in the home by wards of residence, London Borough of Brent.

Most parents were British, followed by Asians, Caribbeans, and those from other countries. The standardised attendance rates ranged from 36.8 per 1000 Caribbean children under 5 to 40.2 per 1000 from "other" countries and were not significantly different from each other (table I). These rates can be compared but are not absolute because the denominator population came from areas overlapping catchment areas of other hospitals.

The standardised attendance rates showed a large and consistent gradient by social class. There were no differences in attendance rates between children of employed and unemployed fathers; when the mother was working, however, accidents were almost three times less common than expected. Accidents to children were significantly more common in shared accommodation than in self contained accommodation, in overcrowded accommodation (more than 1.5 people per room), and in accommodation rented from the council or housing associations compared with owner occupied or privately rented housing.

Further analyses looked at the differences among ethnic groups in more detail. Table II shows attendances at the accident department by social class and the numbers that would be expected for the surrounding population. For all ethnic groups except "other" there was a significant trend from underrepresentation in social classes I and II to an excess in social class V. No significant differences were found in observed and expected numbers between unemployed and employed fathers in any ethnic group, but in the three main ethnic groups children of working mothers had fewer accidents than children of unemployed mothers (table III). Significant differences occurred in relation to housing characteristics (table IV). Sharing accommodation resulted in a highly significant difference in observed and expected numbers in Asian children and to a lesser extent in British children but not in Caribbean or other children. Accidents were also more common than expected among Asian children in privately rented accommodation and British and Caribbean children in accommodation rented from the council or housing associations. Accidents were associated with overcrowding (more than 1.5 people per room) in all ethnic groups except "other."

We also compared the types of accidents by ethnic group and by social

class. There were 195 falls (49%), 49 burns and scalds (12%), 63 poisonings (16%), 54 cuts (13%), and 41 other accidents (10%). The proportions of types of accidents were not significantly different among ethnic groups and showed no trends with social class.

TABLE 1—Numbers of children aged 0-4 attending accident department and rates of attendance by sociodemographic characteristics

	No (%)	Attendance rates standardised for distance/1000 children	Relative risk of highest v lowest (95% confidence interval)
Parent's country of birth:			
British Isles	183 (46)	38.2	1.09 (0.53 to 1.61)
Asian	127 (32)	37.0	
Caribbean	61 (15)	36.8	
Other	31 (8)	40.2	
Social class:			
I and II	36 (9)	19.9	4.21 (2.35 to 6.07)**
III Non-manual	58 (14)	35.3	
III Manual	139 (35)	35.4	
IV	80 (20)	51.3	
V	50 (12)	83.8	
Inadequately described	39 (10)	73.4	
Father's employment:			
Employed	302 (85)	37.7	1.06 (0.70 to 1.42)
Not employed	53 (15)	40.1	
Mother's employment:			
Employed	122 (30)	20.7	2.85 (2.27 to 3.43)**
Not employed	280 (70)	58.9	
Housing:			
Shared	41 (10)	58.2	1.59 (1.35 to 1.83)*
Self contained	361 (90)	36.6	
People per room:			
≤ 1.5	294 (73)	30.5	2.85 (1.72 to 3.98)**
> 1.5	108 (27)	86.8	
Tenure:			
Owner	153 (38)	30.3	2.23 (1.63 to 2.83)**
Renting privately	60 (15)	30.1	
Renting from council	140 (35)	67.0	
Renting from housing association	49 (12)	61.4	

*p<0.05, **p<0.001.

Discussion

Ethnic identity is subjective¹⁵: members of an ethnic group may share kinship, religion, language, or memories of a past society and are conscious of belonging to that group. Race, in contrast, refers to biological characteristics. Some racial differences, such as skin colour, may become important in certain circumstances—and thus increase the likelihood of separate ethnic groupings. The ethnic minorities in Britain differ among themselves as well as from the indigenous population, and they have a varied geographical distribution.¹⁶

We took the country of birth of the father (or the mother, in single parent families) as a proxy for ethnic group. Thus children taken as British included those with parents born in the Republic of Ireland and some who were of Caribbean descent but whose parents had been born in Britain. Almost all the Asians were originally from the Indian subcontinent, but this geographical region includes a wide range of cultures. A question asking the respondent to describe himself or herself would have been a more accurate way of assessing ethnicity,¹⁵ but only country of birth had been used in the census. Analysis by ethnic groups should reflect the influence of cultural patterns in the country of birth and should show differences in accident rates if these cultural patterns are strong determinants of accidents.

The cause of death of adult immigrants to England and Wales has been studied from information given on death certificates.¹⁷ People born in Ireland and Commonwealth countries in Africa had higher overall mortality than people born in England and Wales, but people from the Indian subcontinent and the Caribbean did not. Although the numbers in the groups were small, this pattern was found for all deaths from accidents, poisoning, and violence and for accidental falls alone. Analyses by social class of these immigrants (men and their wives aged 15-64) did not show the clear social class gradient for deaths from accidents, poisoning, and violence that is seen in people born in England and Wales. If this finding reflects the different characteristics of immigrants our study suggests that the

TABLE 2—Observed and expected numbers of accidents to children (adjusted for distance from hospital) compared by social class

Social class	Parent's country of birth									
	British		Asian		Caribbean		Other*		Total	
	Observed	Expected	Observed	Expected	Observed	Expected	Observed	Expected	Observed	Expected
I and II	13	22.3	14	25.5	1	2.1	8	6.5	36	56.4
III Non-manual	20	43.2	25	33.2	5	10.9	8	5.8	58	93.1
III Manual	73	54.1	40	34.9	17	22.2	9	8.0	139	119.2
IV	33	29.7	35	17.6	10	9.5	2	6.1	80	62.9
V	24	18.6	11	8.1	13	7.2	2	1.8	50	35.7
Inadequately described	20	15.2	2	7.7	15	9.0	2	2.8	39	34.7
Total	183		127		61		31		402	
χ ²	26.4		30.4		13.7		3.37		34.8	
df	5		5		5		3		5	
p Value	<0.001		<0.001		<0.025		NS		<0.001	

*Social classes IV, V, and inadequately described were combined for statistical testing.

TABLE 3—Observed and expected numbers of accidents to children compared by employment state of parents

	Parent's country of birth									
	British		Asian		Caribbean		Other		Total	
	Observed	Expected	Observed	Expected	Observed	Expected	Observed	Expected	Observed	Expected
Father:										
Employed	130	137.3	116	114.0	29	33.4	27	26.6	302	308.5
Unemployed	26	18.7	10	12.0	14	9.6	3	3.4	53	46.5
χ ² (df=1)	3.24		0.37		2.60		0.53		1.05	
p Value	<0.1		NS		<0.1		NS		NS	
Mother:										
Employed	56	96.6	31	65.4	22	37.4	13	15.5	122	222.7
Unemployed	127	86.4	96	61.6	39	23.6	18	15.5	280	179.3
χ ² (df=1)	36.1		37.3		16.4		0.80		102.1	
p Value	<0.001		<0.001		<0.001		NS		<0.0001	

TABLE IV—Observed and expected numbers of accidents to children by characteristics of housing

	Parent's country of birth									
	British		Asian		Caribbean		Other		Total	
	Observed	Expected	Observed	Expected	Observed	Expected	Observed	Expected	Observed	Expected
Accommodation:										
Shared	7	15.3	27	10.6	4	5.1	3	2.6	41	33.8
Self contained	176	167.7	100	116.4	57	55.9	28	28.4	361	368.2
χ^2 (df=1)	4.91		27.7		0.26		0.067		1.67	
p Value	<0.05		<0.001		NS		NS		NS	
People per room:										
≤ 1.5	142	165.1	82	114.5	45	55.0	25	28.0	294	362.6
> 1.5	41	17.9	45	12.5	16	6.0	6	3.0	108	39.4
χ^2 (df=1)	33.0		93.7		18.5		3.32		132.4	
p Value	<0.001		<0.001		<0.001		NS		<0.0001	
Tenure:										
Owner	51	82.5	72	85.5	13	29.2	17	17.7	153	193.0
Rented privately	21	45.2	32	21.5	2	4.0	5	7.8	60	83.2
Rented from council	74	40.1	19	15.6	42	23.8	5	4.0	140	98.1
Rented from housing association	37	15.2	4	4.1	4	4.0	4	1.5	49	27.7
χ^2 (df=3)	82.8		8.09		23.9		5.45		49.0	
p Value	<0.001		<0.05		<0.001		NS		<0.001	

determining experiences of British life are already at work for the second generation.

We considered whether the social gradient for accidents to children in the home might be explained by children having different severities of injury. We constructed a child injury severity scale with definitions of three levels of severity for six types of accident and tested its reliability.¹⁸ We found a clear trend of greater severity of injuries to children of working class parents. Thus not only do these children have accidents more commonly but their injuries are more severe. We recognise that by studying only children given treatment in the accident department we excluded those with trivial injuries. Inclusion of trivial accidents could account for the failure of some previous studies to find a gradient of child accident rates by social class.⁸⁻¹⁰

Our study repeats the finding of MacQueen in Aberdeen that accidents to children in the home are not associated with unemployment of the fathers.⁶ In contrast, the accident rates were significantly lower when the mother was working. Brown and Davidson did not find a protective effect of the mother's employment for accidents to children in south London, but their study included both accidents outside the home and children up to 14 years old.⁵ If income is related causally to accidents in the home by improving the surroundings employment of the mother in a two parent family may appreciably improve household income whereas unemployment of the father may not reduce household income greatly if it is compensated for by state benefits. Also, as women going out to work arrange for their children to be looked after during the day our finding may suggest that the environment in which the children were looked after was better than that available to mothers who stayed at home.

Housing is another important indicator of social disadvantage. The longitudinal study of the Office of Population Censuses and Surveys has shown that mortality gradients by household tenure and density of occupation are as large as those by social class for adults in middle age.²⁰ Our study suggests that housing indicators need to be looked at within ethnic groups. Accidents to children were more common in shared accommodation only in Asian families but were associated with overcrowding in all three main ethnic groups. Tenure of housing especially showed differences in cultural patterns: private renting was associated with high rates of accidents to Asian children while council housing was associated with high rates of accidents to Caribbean and British children.

Ethnic minorities in Britain face two major disadvantages: poverty and racism.^{21,22} On average they have lower incomes, higher unemployment, and poorer housing than other people in Britain. They also suffer discrimination, which contributes to these inequalities. Racism may be expressed in the provision of health care

and in the assumption that ethnicity causes a presumed pattern of disease.^{23,24} We found no significant differences in rates of attendance at hospital for accidents to children among ethnic groups in a multiracial area of west London. Each of the three main groups showed significant gradients in attendances by social class, even when the social structure of the local population was taken into account. We suggest that social disadvantage, rather than ethnicity itself, is the main predictor of accidents to children.

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