

ACCIDENTAL INJURIES IN PRIMARY SCHOOL AGED CHILDREN

An epidemiological exploration of the influence of Socio-demographic factors on injury presentation

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Executive Summary

1. Background

- 1.1 Accidental injury in childhood is a leading cause of death among children aged 0 - 14 years of age in the United Kingdom (UK)¹ and a major cause of ill health and disability^{1, 2, 3, 4, 5, 6}. Approximately 2 million children below the age of 16 years (20%) attend an A&E department in England and Wales each year^{3, 7, 8, 9} and a further 1.4 million (14%) seek advice from a General Practitioner (GP)¹⁰.
- 1.2 The UK Government has introduced targets for injury reduction and identified children as a priority societal group for injury prevention initiatives^{6,11}. However, UK based child injury research has been acknowledged to be limited in both breadth and depth^{1, 6} and consequently, gaps in the childhood injury evidence base exist, particularly with respect to health inequalities across geographical, economic and ethnic groups^{5, 12, 13}.
- 1.3 The majority of UK based research has focussed on pre-school aged children, or adopted wide age ranges that prevent examination of the influence of changes in physical and cognitive behaviour on accidental injuries. Further, many studies have failed to take account of the influence of socio-demographic and environmental variations on the cause, type and severity of injuries experienced. Where these factors have been considered, authors disagree over their importance with some concluding that socio-demographic factors in particular are

significant determinants of injury whereas others question their contribution to injury risk. Importantly the influence of ethnicity, as defined by the child or carer, has not been examined within the context of injury risk in the United Kingdom (UK) despite ethnic variation within the population being acknowledged as contributory factor in UK health inequalities^{14, 15, 16}.

- 1.4 In recognition of the need to increase knowledge and understanding of the influence of socio-demographic factors with respect to childhood injuries, strategic priorities for injury research have been devised⁵. These priorities identify a need for greater population based research to determine which population groups are most at risk from which types of injury⁵, taking into account variations in injury severity and injury causing behaviours across societal groups and rural/urban populations.
- 1.5 This research study aimed to address these issues and provide a detailed and comprehensive analysis of injury in primary school-aged children in the Bradford and Airedale health districts.

2. Research Questions

- 2.1 This research study focussed on the influence of socio-demographic factors on childhood injuries experienced by primary school-aged children (4-12 years). In particular, the research considered the influence of ethnicity and socioeconomic status on injury type, severity and injury causing activities.

3. Data

- 3.1 All children aged 4-12 years residing within the hospital catchment areas for Bradford Royal Infirmary (BRI) and Airedale General Hospital (AGH) and attending the A&E department at AGH or BRI following an injury, as reported at clerical registration, were eligible for inclusion in the study.

3.2 Data were collected prospectively between 31st March 2004 and 1st April 2005. The data collected included both the essential and additional information detailed in the Core Minimum Data Set for A&E attendance recommended by the Public Health Information strategy (PHIS)^{17, 18}.

4. Results

4.1 The clinical notes were reviewed for 10140 A&E attendances by 9300 children.

4.2 826 attendances were related to government priority areas for injury intervention (550 cycle injuries, 156 RTA pedestrian injuries, 120 fire/thermal injuries). No incidents of drowning / near drowning were recorded.

Ethnicity related findings

4.3 Ethnicity was declared by 5000 (53.76%) of children. The success of ethnicity data collection was varied across hospital sites. A greater proportion of Asian children attended the A&E departments than white children. Nam Pehchan analysis of children for whom ethnicity was not declared also identified a greater proportion of Asian names than would be expected from the population size.

4.4 Asian children attending an A&E department are more likely to be male than white children.

4.5 A&E attendance rates increase with age for white children but remain similar across the age range for Asian children.

4.6 Asian children are more likely to reside in a deprived area than white children.

4.7 Asian children are more likely to experience an injury and attend an A&E department during evening/night time hours (20.00-07.59) than white children.

4.8 Asian children are more likely to attend the A&E department following a road traffic accident (RTA) in which they were a vehicle occupant than white children. However, no evidence was found to suggest that Asian children are more likely to attend an A&E department following a pedestrian RTA.

4.9 Sport related injuries (whether formal or informal sporting activities) resulting in attendance at the A&E department are significantly less likely among Asian children than White children.

4.10 23% of attendances at A&E were as a result of accidental injury in the school environment. A greater proportion of Asian children than white children attended the A&E department following injury at school.

4.11 Asian children are more likely to attend the A&E department with a minor injury than white children.

4.12 Asian children were more likely to attend the A&E department with injuries to the axial skeleton than white children and significantly less likely to attend with injuries to the lower arm and leg.

Socioeconomic related findings

4.13 A greater proportion of children living in deprived areas attend the A&E department following accidental injury than those residing in the most affluent areas.

4.14 The home is the most common injury environment among 4-7 year old children. Attendance at an A&E department following home injury is significantly associated with residential environment deprivation.

4.15 Children residing within deprived areas are significantly less likely to attend with a sport related injury (whether formal or informal sporting activities) than those residing within affluent areas. The effect of residential

area deprivation on likelihood to attend an A&E department with a sport related injury is greater than the effect of ethnicity.

4.16 Children living within urban environments were more likely to experience a severe injury than those living within a rural environment

4.17 Children residing in affluent areas are more likely to attend with a fracture than children residing within deprived areas.

5. Conclusions

5.1 The findings of this study suggest that both socioeconomic status and ethnicity are influential in determining the type and severity of injuries experienced by primary school aged children and the activities undertaken by children at the time of injury.

5.2 Socioeconomic status is unable to fully explain variations in accidental injury presentation across ethnic groups.

5.3 The influence of SES and ethnicity on hospital A&E department attendance is not consistent across injury type, mechanism and child activity. As a result, injury intervention and prevention strategies should not assume that the effect of SES and ethnicity on accidental injuries across population groups and communities is consistent.

6. Recommendations

6.1 Greater priority needs to be given to the accurate recording of appropriate A&E data, in particular ethnicity data. Processes also need to be established to permit agencies responsible for developing and monitoring injury intervention strategies to access A&E data to inform intervention priorities.

6.2 The large majority of primary school-aged children injuries are minor and could be treated within the primary care sector. The introduction of NHS walk in centres within the district at key areas (e.g. Shipley Hospital, Keighley Health Centre – both of which have X-ray facilities on site)

operating over an extended day period (7am – 9pm) are advocated to alleviate the over-use of A&E hospital services for minor injuries, improving A&E service and reducing waiting times, and act as a community triage service for hospital referral.

6.3 The home environment continues to be the major site of accidental injuries in children 4-7, particularly for those residing within deprived areas. Extension of the work of the SureStart programme (now subsumed with the Children Centres) to include families with vulnerable school aged children should be made to promote home safety.

6.4 Greater communication between the local health and education services needs to be undertaken to discuss common child activities resulting in injuries and how they can be modified to reduce or prevent injuries. Further, a quick access school injury referral to primary care services for injury assessment and referral to A&E as necessary should be developed to support schools in managing injuries, develop closer links between primary care services and schools and alleviate overuse of A&E services for minor injuries.

6.5 Vehicle safety for children travelling in cars needs to be promoted among Asian families to reduce the number of child injuries experienced as an occupant of a vehicle involved in a collision.

6.6 Intervention strategies need to be developed to reduce the likelihood of fractures among children residing within affluent areas. This positive association between environmental affluence and fractures suggests a difference in activities undertaken across social areas and may indicate inequalities in access to sport and physical activity facilities. Further research is required to determine the cause for the positive trend in fracture occurrence with increasing area affluence and any implication for sport and physical activity promotion as a healthy lifestyle intervention.

6.7 The national accidental injury reduction targets and priority areas for injury intervention for children related to only a small number of A&E attendances in this study (8.15% of attendance and 17.9% of severe injuries). The appropriateness of these targets needs to be reconsidered in the light of new and detailed evidence from local injury surveillance studies and greater emphasis placed on developing injury intervention strategies appropriate to the needs of local communities.

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