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Pattern and Prevalence of Unintentional Childhood Injuries in Pakistan: A Cross-Sectional Study

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ABSTRACT

Introduction: Injuries during childhood are considered a non-communicable epidemic across the globe, and in Asia, an emerging trend is being observed in childhood morbidity and mortality due to injuries.

Aim: To identify the pattern and prevalence of childhood injuries in individuals who are between the age group of 0-14 years.

Methodology: The study included 780 children who were between the age group of 0-14 years of age. The data regarding their injuries was collected by conducting an interview with the mothers of children who had injuries and the results were statistically analyzed using SPSS version 23.A cross-sectional study. This study was conducted at, Global Institute of Medical and Health Sciences Hyderabad Pakistan from March 2020 to March 2021.

Results: Out of all the children, 220 injury events were reported with an overall injury prevalence of 21.2%. Most of the injuries were superficial in nature mostly due to falling from an elevated surface and most of the children had injured their extremities.

Conclusion: Injuries during childhood are quite prevalent and such studies must be conducted to design public health education, seminars for the awareness of parents regarding unintentional injuries of their children.

Key Words: Childhood injuries, Prevalence, Risk factors, Awareness, Infectious diseases, Public health education

INTRODUCTION

Injuries during childhood are considered a non-communicable epidemic across the globe, and in Asia, an emerging trend is being observed in childhood morbidity and mortality due to injuries.¹ The proportion of injuries rises with age after infancy and replaces infectious diseases. In third world countries, 13% of children who are less than or equal to 15 years die due to fatal injuries and the rate of fatality is 3.5 times higher than the developed countries.² Injury is defined as a lesion on the body developed due to any kind of electrical, chemical, thermal, mechanical or radiant energy exposure at such a rate of speed that exceeds the physiological tolerance threshold.³ Usually children are quite vulnerable to unintentional injuries such as falls, burns, road traffic accidents, poisoning, and drowning whereas a small portion also accounts for interpersonal or abusive injuries.⁴ Age and

gender of children may also have an impact on the type and cause of injuries.

There are very few population-based surveys have been conducted to assess the burden of childhood injuries in Pakistan.⁵ There is a lack of understanding and improper evidence regarding the problem and injury surveillance which pose a challenge to assess the rate of injuries and their tangible reduction in our country.⁶ Sometimes injuries are also associated with different biological, environmental, social, and cultural factors which is why it is important to have studies that might help in assessing the problem's magnitude and the relationship with its risk factors to have an elaborative outcome of childhood injuries which could be used to develop certain interventions, and resource allocations in order to reduce the injury burden in future.⁷ This study was conducted to assess the pattern, risk factors,

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and prevalence of injury in children who were 0-14 years in age.

METHODOLOGY

The current cross-sectional study was conducted at our institute and we included children aged from 0 to 14 years. The sample size was determined by assuming the injury prevalence as 50% with a 95% confidence interval, precision level of 5%, and cluster sampling design with a design effect of two which is why the study included 780 children. Data was collected by visiting every home in that area and obtaining the consent of all the participants. Mothers were the respondents from whom the data was collected by interviewing them through a semi-structured interview containing information related to injury and sociodemographic variables. The injury was defined as a lesion on the body developed due to any kind of electrical, chemical, thermal, mechanical or radiant energy exposure at such a rate of speed that exceeds the physiological tolerance threshold. The codes and classification of injury were obtained from the injury surveillance guidelines of WHO. Only those injury events were considered which happened during the one month before the interview to avoid the recall bias. Data were analyzed statistically by using SPSS version 23, and P-value less than 0.05 was considered significant. The variables considered were age, gender, occupation of mothers, outdoor activities and socio-economic statuses of the households.

RESULTS

A total of 780 children were included in the study, among them 47.7% of children were boys whereas the rest were girls.

The mean age of children was 6.7 ± 4.1 years among which 65.1% of children were less than 5 years old. Among all the children, 33.8% children had low socioeconomic status, and 42.3% had siblings. The majority of children i.e. 64.4% used to accompany their parents while travelling whereas 56.4% of children were involved in sports, recreational activities, and playing outdoors as given in Table number 1. The profiling of injuries encountered by the study subjects is given in Table number 2. In all the cases, 62.3% of injury events affected the extremities whereas in 31.8% of cases head and neck were affected. The majority of injury events i.e. 56.4% occurred because of falling from an elevated surface which was followed by getting hit by objects i.e. 27.7%. There were 53.2% injury events which were superficial in nature, 34.5% injury events that had open wounds or cuts followed by 6.8% cases of fracture and sprain. The majority of injuries i.e. 80% occurred during broad daylight and 68.8% of injuries happened at school and home whereas 8.6% of injuries occurred while playing sports. Similarly, 12.8% of injuries were graded as severe to moderate and required interventions such as casting with plaster of Paris, surgery or hospitalization in which 15.5% cases observed absenteeism from school. The mean school days of absenteeism included 4.65 ± 3.2 days. The recorded overall prevalence of childhood injuries was 21.2% with a frequency of 0.28 events of injuries per child. On the further assessment of 165 children, 72.1% had a single event of injury whereas the rest of 27.9% of children had reported multiple events of injury. Injury risks were higher in the children with whom adults were not present during their travelling. Children with no outdoor activities experienced fewer injuries whereas children who had working mothers experienced more injuries. It was also found that injury occurrence had no association with the age or gender of children.

Table 1: Risk factors and prevalence of injury among children

Parameters	Presence of injury (n, %)	Total (n, %)	Adjusted odds ratio with 95% confidence interval	Crude odds ratio with 95% confidence interval
Female	74 (18.1)	408 (52.3)	0.818 (0.569-1.176)	0.684 (0.484-0.966)
Male	91 (24.5)	372 (47.7)	1 (referent)	1 (referent)
Presence of siblings	87 (26.4)	330 (42.3)	1 (referent)	1 (referent)
Absence of siblings	78 (17.3)	450 (57.7)	0.566 (0.394-0.813)	0.586 (0.414,0.828)
Less than 5 years age	57 (21.0)	272 (34.9)	1 (referent)	1 (referent)
More than or equal to 5 years age	108 (21.3)	508 (65.1)	0.531 (0.319-0.884)	1.018 (0.710-1.461)
Upper socioeconomic class	62 (12.0)	516 (66.2)	0.692 (0.456-1.049)	0.604 (0.410-0.890)
Lower socioeconomic class	103 (39.0)	264 (33.8)	1 (referent)	1 (referent)
Mothers age more than or equal to 30 years	40 (17.0)	235 (30.1)	0.656 (0.429-1.005)	0.718 (0.485-1.062)

Table 1: (Continued)

Parameters	Presence of injury (n, %)	Total (n, %)	Adjusted odds ratio with 95% confidence interval	Crude odds ratio with 95% confidence interval
Mothers age less than 30 years	125 (22.9)	545 (69.9)	1 (referent)	1 (referent)
Working mothers	45 (23.3)	193 (24.7)	1.062 (0.690-1.635)	1.183 (0.802-1.746)
Stay at home mothers	120 (20.4)	587 (75.3)	1 (referent)	1 (referent)
Outdoor activity	110 (25.0)	440 (56.4)	1.764 (1.097-2.836)	1.727 (1.205-2.477)
No outdoor activity	55 (16.2)	340 (43.6)	1 (referent)	1 (referent)
Children who didn't accompany parents	77 (27.7)	278 (35.6)	2.230 (1.395-3.565)	1.802 (1.271-2.555)
Children accompanied elders during travelling	88 (17.5)	502 (64.4)	1 (referent)	1 (referent)
Total	165 (21.2)	780 (100)		

Table 2: The pattern of injury in children

Pattern	Frequency (n, %)
Nature of injury	
Burn, organ system injury	12 (5.5)
Sprain and fracture	15 (6.8)
Open/cut	76 (34.5)
Superficial	117 (53.2)
Place of injury	
Sports and playground	19 (8.6)
Street	50 (22.7)
Home and school	151 (68.6)
Site of injury	
Body/trunk	13 (5.9)
Head and neck	70 (31.8)
Extremities	137 (62.3)
Activity of child	
Helping at household activities	11 (5.0)
Activity at school	21 (9.5)
Travel	33 (15.0)
Play and sports	155 (70.5)
Time of injury	
Night	44 (20.0)
Day	176 (80.0)
Severity of injury	
Moderate to severe	28 (12.8)
Minor	192 (87.2)
Mechanism of injury	
Fire, bite, road traffic accident	19 (8.6)
Cut	16 (7.3)
Hit by object	61 (27.7)
Fall	124 (56.4)

DISCUSSION

Injuries during childhood have been a cause of childhood mortality across the globe and are accounted for approximately 950000 deaths per annum of people who are less than 18 years old, among which almost 90% of deaths are unintentional.⁸ This study exhibits that there is 21.1% injury prevalence in children which is similar to the study conducted by Mahalakshmy who conducted a similar sort of community-based study in an equally developing country i.e. India.⁹ In the current study we identified that injury was more in kids who were below five years of age and these findings were similar to the findings of a study conducted in China.¹⁰ It was observed that the type of injuries is usually determined by the developmental stage of the child, as during this age the child is usually full of curiosity to investigate and explore and have the ability to run and walk. We observed that the gender of children had no impact on the occurrence of injury which was different from the study conducted by Emaduddin Siddiqui et al.¹¹ To generalize, as girls spend more time playing indoors they are usually less prone to outdoor injuries. It was also observed in the current study that superficial injuries were more common as reported by Hassan Nawaz et al., who also reported that 89.8% of cases had minor injuries.¹² We observed that extremities were most commonly affected, however, Hassan Nawaz et al., reported that head and neck were most commonly affected in their study.¹² This was similar to the world report published in 2008 that head and neck injuries are most commonly affected. We also observed that injuries more commonly occurred at their homes and our findings also reported that most of the injuries occurred when the supervisor was not present with the children, this was similar to the studies of Lasi et al.¹³ We also observed that 15.5% of injuries occurred in children who didn't go to school afterwards which contradicted with the results of Lasi et al.¹³ We also observed that injuries had a significant association with the working status of mothers. However, the prevalence of injuries was estimated by the data which was reported by the caregivers and might have a chance of biasness as the extent and nature of the injury could be reported as minor by them which is a limitation of this study.

CONCLUSION

The study depicted the epidemiological prevalence of childhood injuries in the low socioeconomic areas of Pakistan

which would be helpful to develop public health interventional programs to educate the parents regarding unintentional injuries and their effective management in children.

Conflict of interest: None

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Ethical approval: The study was ethically approved by the ethical review committee of the institute.

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