

Epidemiology of Common Childhood Injuries in Rural Area of Wardha District

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Abstract

Background: Childhood injury is a common public health issue across the world .childhood injuries stand out to be sixth leading cause of mortality and morbidity as per the World Health Organization (WHO) report 2004. The number of deaths that occurred due to unintentional injuries was more when compared to other diseases like heart disease, cancer. Road traffic injury, drowning, burns, falls and poisoning classified as unintentional injuries, make up a major part of all child injury deaths. Ninety percent of unintentional injuries are most commonly seen in lower middle class. However less information is available about the childhood injuries in a Rural Hospital. **Objective:** To estimate the magnitude and prevalence of Unintentional injury distribution & pattern among children of 1 years-18 years of age in rural India. **Methodology:** In this prospective study, a pre-structured questionnaire will be given to the attending of the children who are above 10 years. It will include the mechanism and type of injury along with the other factors which may or may not be contributing to the injury. **Results:** After completion of the study, we will come to know the prevalence of various types and mechanism of childhood injuries. **Conclusion:** The study will probably give the information about the prevalence of the childhood injuries in rural India and can be helpful in modifying the factors leading to it, thus decreasing the mortality and morbidity in children due to injuries.

Keywords

Unintentional injury; Road traffic injury; Drowning; Burns

Introduction

Globally the childhood injury is an important public health issue. Around sixty percent of the childhood injuries are unintentional like drowning, road traffic accident, falls, poisoning and burns.

A maximum portion of the time, children spend in the home, which may expose them to get injured. These hazards mainly include free access to poisonous substances and pesticides, window without safety grills, open water reservoirs, free access to stove or gas cylinders, open water reservoirs, free access to sharp object, medicine and chemicals. [1-3]

Physical damage to a child's body, as a result of mechanical, thermal, chemical, or radiation energy, in amounts exceeding the threshold of physiologic tolerance is termed as childhood injury. Generally, unintentional injuries are the most common cause of death in the adolescent group, which is also a serious issue globally. The pediatric age group is at risk for unintentional injuries due to their curious nature to inspect

and experiment, and physiological immature to understand the grave nature of surrounding. [3-5]

Unintentional injuries are preventable and can lead to decrease in morbidity and mortality among children. As per the WHO's Global Burden of Disease Study approximately, 855,000 deaths have occurred due to unintentional injuries in the age group of less than 18 years.

Disability remains to be the major concern among kids since they have many more years to ahead affect with disability. Low middle income countries are at a huge stand for unintentional injuries.

As per the WHO report, deaths due to the external cause were observed to be in poorest countries.[4-9]

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Research Question

What is the prevalence of unintentional childhood injuries in rural area of Wardha District?

Aim and Objective

Aim

To know the prevalence of unintentional childhood injuries in rural area.

Objectives

- To delineate the epidemiology of childhood injuries and to explore the predicted outcomes.
- To understand the magnitude, associated risk factors, and impacts of child injuries.

Materials and Methods

Setting: Department of Paediatrics, JNMC, Sawangi (Meghe), Wardha.

Study design: Prospective observational study

Duration: One year

Method: A pre-structured questionnaire will be given to assess the common types of injury and risk factors which may or may not be contributing to the injury like age and gender of the child, age of the mother, activity of the child, rural-urban dwelling, socio-economic status, type of family, attention given to the child during the time of incident etc.

The information will be collected from the mother of the child. The exclusion criteria include the children above the age of 10 years and ones without injuries.

The age of child will be noted in 3 categories: <1year, 1year to 5 years and 5year to10 years. The mechanism of injury taken into consideration will be road traffic accidents, falls, foreign body injury fire/burns, poisoning, smoke inhalation, near drowning, machinery incidents, choking on food, injury from a stationary object and animal bites.

The questionnaire will be related to age, gender, time of injury, place of injury, mechanism of occurrence of the injury, activity at the time of injury, treatment outcome and self-reported questions on basic safety interventions practiced by caretakers like use of seat-belts, helmet use, accessibility to hot liquids and objects, supervision of child during bathing, hazardous materials and medications.

The previously identified villages which are within the reach of AVBRH hospital that is within the area of 50 km will be part of the study.

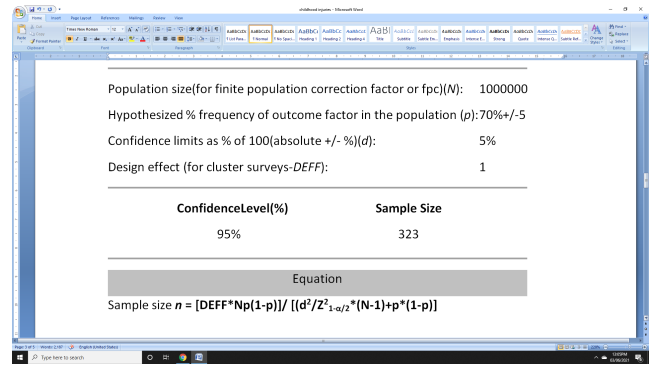


Figure 1: Sample size calculation estimated required sample size: 323.

Statistical analysis

Statistical analysis will be done by using stat Version 10. Descriptive analysis of age of the child, gender, nature and type of injury, and outcome of injury cases will be performed. Chi-square test will be used where appropriate. Chi-square test will be used where appropriate. The means of all the continuous variables will be compared between the two groups using the two-sample Student's t-test. A $p < 0.05$ will be considered statistically significant.

Expected Result

After completion of the study, we will come to know the prevalence of childhood injuries in the rural area. We will compare the outcomes depending on the variables like age, type of injury, safety measure taken by the caretaker's, socioeconomic status and treatment received. Finally, we will establish the correlation of the age and sex with the outcome of the injury considering the variables.

Discussion

A retrospective study done by Ortega et al [8] reported 1498 patients died, with 124 deaths being attributable to injury. Whereas Balan et al [9] mentioned that every year, lower-middle-income countries have seen over 875,000 deaths which were as a result of unintentional injury and was seen in the age group of 0 to 18 years. As per WHO 2008, World Report on Child Injury Prevention reported that the death rate from unintentional injuries in children was 3.4 times higher in countries with lower-middle-income as compared to countries with high-income. Often the cause of death from drowning, burns, and falls was remarkably more in lower-income countries. The surveillance and survey study done by Sivamani et al [10] mentioned that the childhood injuries identified were 13.59/1000 child-years (confidence interval: 11.86 - 15.32) and 341.89/1000 child-years (confidence interval: 254.46-429.33) of injury rates, respectively. Sekii et al [11] showed mortality decreased by 46.2%, from 933 in 2000 to 502 in 2009. Children of age group from 1 years-4 years showed to have decreased mortality rate. Western literature has consistently shown a male preponderance. [7-12] Chowdhury SM et al [12] found majority of these injuries

occurred in boys in and around households in younger children (<5 year of age). Boys tend to fall from heights or a tree in their premises and girls fall when they are busy in household works. Recent studies have demonstrated the major causes of injury death from unintentional injuries were to be road traffic injury, choking, and drowning. The root cause for hospital admission was due to falls, Road traffic accidents, or being hit by a person or object. Head injuries and fractures of long bones were seen to be the most common types of injury.

Sekii et al [11] found that most of the deaths were due to transport accidents, accidental threats to breathing and drowning. Klein et al [13] reported that there was a decrease in death rates from 2000 to 2008 from unintentional injury. He also noted that most of the deaths were due to traffic accidents and the common cause for hospitalization was leisure accidents at home. The death rate seemed to higher in low socioeconomic class as compared to high socioeconomic. Ortega et al [8] reported, most fatal injuries were accidental. 82% of abusive fatal injuries had shown to have subdural hematomas, as compared to accidental fatal injuries where only 7.2% had a subdural hematoma. Approximately 50% of the child with abusive fatal injuries had retinal hemorrhages, but there were no retinal hemorrhages reported in accidental injuries. Sheriff et al [14] observed 36% of injuries were mechanical injuries which were road traffic and accidental fall and 22.3% were due to poisoning. Unintentional injuries were seen in an overactive child, a baby born to younger mothers, male child, joint families, and preschool and urban settings.

Khan et al [15] reported the most common cause for injury in school based injury was fall while playing. School officials need to prevent these injuries. The study was carried out by Howe et al [16] in an age group of 6 months-17 months of 2000 children in each of Ethiopia, Peru, Vietnam, and India. He found that childhood injuries were proportionally high in all the countries. Maternal or caregiver depression was turned up to be a consistent risk factor for all sought of injuries. Other associated risk factors were to be long-term child health problems, region of residence. Several programs for injury prevention are implemented in the health system, including parents' education in well-baby clinics for child safety by nurses. [7] Chowdhury et al [12] have reported unsupervised children were more susceptible to injuries. Preventive measure in form of putting pillow, use of net around bed and door barrier was suggested. On the other hand, Klein et al [13] noted that parenteral education on the safety of the child by community pediatrician showed to have a good result in preventing childhood injury.

Mahalakshmy et al [17] studied the epidemiology of injuries among children (<14 years) in a rural population in Puducherry, South India. The study showed to have a prevalence of 23% among children less than 14 years. They found more prevalence of injury in male child as compare to female child. (p=0.001). Maximum number of the injuries was accidental and around 68% of injuries occurred in the home environment after that in school. Most of injuries were

treated by government doctors. Falls were the most common cause of injury, 16.8% the study carried out by Verma et al [18] reported 60.8 percent injuries occurred at home,

16.8 percent injuries occurred at street and 16.4 percent were to be seen in playground.

Most commonly injuries which came across were to be fall (n=144, 64 percent) followed by road traffic accidents (n=37, 16.4 percent) .the common form of injuries were to be in form of fractures (32%) bruises and laceration. Of all these 3.5 % of population were noted to have child abuse. As per the study the delay in reaching hospital was 2hours and 50 minutes. A retrospectively reviewed the autopsied during 1994-2007 by Kanchan et al [19] on the fatal unintentional injuries in children aged 10 years and below. A total of 75 cases were identified throughout the 14 year study. Sixty-eight percent were males with a male to female ratio of 2.1:1. Of all the cases Road traffic injuries were most common followed by thermal injuries. 52.9% of thermal injuries were in form of flame and 47.1% of the population showed to have scalds. Injuries in school-aged children were more common in form of road traffic injuries, drowning, and fall. Toddler and pre-school age children were at risk of thermal and poisoning. Pedestrians were the victims for road traffic injuries (64.1%). Head injuries alone were responsible for major mortalities in road traffic incidents (82.1%). A surveillance project in north India done by Mohan et al [20] in nine contiguous villages reported the 2029 injury cases. Children in the age group of 0 to 14 years accounted for thirty percent of which forty two percent sustained home injuries, thirty five percent of injuries were to be seen on roads. The major cause was fall in 35 percent. 80% of injuries were minor, eighteen percent were moderate and none were serious.

Conclusion

The study will provide us information about the prevalence childhood injuries. It will also provide the common type of injury and the outcome of various types of injuries considering with the variables which may be a contributing factor.

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