

Injury In Preschool-Age Children: A Population-Based Study

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ABSTRACT A study on the type and frequency of injuries in preschool-age children was conducted in a sample of households representing population of Purworejo district. A two stages cluster (wilcah) method was used to select 4.354 preschool-age children living in 12,721 households in the district. The mother or other child caretakers provided responses about injuries occurring during the 3 months period to interview. Injuries among these preschool-age children included trauma by cutting or sharp object (6.5%), falls (5.7%), burns (0.6%), bites (0.4%), traffic accident (0.4%), unconsciousness (0.2%) and poisoning (0.1%). The typical injury in under the 12 months olds was falls. Children aged 12 to 23 months accounted for 18% of the injury episodes which were typical falls and trauma. Children aged 24 to 59 months accounted for 76.6% of injury episodes which were typically trauma, falls, burns, bites and traffic accident. No statistical differences in the frequency and type on injuries were observed between urban and rural areas. The relative frequency in age-grouped and type of injuries from this population-based study can be used in planning injury prevention especially for family health education program. [*Paediatr Indones* 1995; 35:231-235]

Introduction

Childhood injury is now being given appropriate attention due to childhood mortality and morbidity decrease by ad-

vanced medicine in the health program. In some developed countries it becomes the main cause of death and disability in children.^{1,2} WHO together with other international, regional and national organizations develop activities toward a better control of childhood injury.^{3,4}

This notable trend may not be well appreciated, especially in developing coun-

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tries, because of incomplete or faulty collection of data and unrecorded. The study of childhood injuries and accidents is hampered by imprecise definition and misclassification.⁵⁻⁷ The terminology used is often subject to extensive discussions. Haddon & Baker⁸ define an injury as an energy (e.g. chemical, mechanical, thermal, electrical, etc.) transfer from a hazardous agent to a susceptible host in a conducive environment (physical and social) such that the host sustains physical damage.

The Indonesian National Household Surveys (1980, 1986, 1992)⁹ showed a decrease of most infectious diseases and prevalence of malnutrition. Consequently communicable diseases as major causes of mortality and morbidity will be replaced by non-communicable diseases. Some diseases or disorders are expected to increase during next 25 years including accidents, injuries, poisoning and pollution.

The present study describes the proportion and type of injuries in under-5 years old children in the community and compares the injury characteristics between urban and rural areas.

Methods

Data collection on injury in children was conducted in the Community Health and Nutritional Laboratory, Purworejo district, Central Java. The sample of the surveillance system was calculated approximately 13,000 households to cover the most of specific objectives, representative for the district's total population of 729,825. A two stages cluster (wilcah)

sampling method with Probability Proportional to Estimated Size (PPES) was used.

Standardized questionnaires were used by trained, high school educated interviewers to collect the injuries occurring during the 3 months prior to interview. Injuries were grouped into 7 categories in accordance with the National Household Survey criteria. Place where to seek help concerning injuries were recorded besides age, sex and origin. The quality of data collection was monitored by field supervisors and completed a series of data checks in the field.

Data entry was equipped with error screening for data type, range and logical checks. Data analysis was performed with Epi Info version 6 computer program for frequency distribution and chi-square calculations.

Results

An amount of 4,345 preschool children living in 12,721 households was included in the study. Five hundred thirty four children lived in urban environment.

Table 1 showed that the majority of injuries were trauma by cutting or sharp object and falls. The frequency of injury episodes in the under 1 year, 1 year, and more than 1 year age group were 5.4%, 18% and 76.6% respectively. The typical injuries in the under 12 months olds were falls, that of in the age group of 12-23 months were falls and trauma, while in the older group varied (Table 2).

There were 60 injury episodes out of 534 children in the under urban compared to 518 cases among 3,920 children in the rural area. No statistical differences

Table 1. Injury in children aged 0-4 years during a 3 month period (n=4354)

Trauma by cutting, sharp objects	258	6.5%
Falls	223	5.7%
Burns	27	0.6%
Bites	15	0.4%
Traffic accidents	14	0.4%
Shock/unconscious	8	0.2%
Poisoning	6	0.1%

Table 2. Type of injury by age group

Age distribution (years)	0	1	2-4	Total
Trauma by cutting or sharp objects	1	28	256	285
Falls	29	68	130	223
Burns	-	8	19	27
Bites	-	1	14	15
Traffic accidents	-	-	14	14
Shock/unconsciousness	1	3	4	8
Poisoning	-	-	6	6

Sixty percent of injuries were self medicated and 15% sought help to health center 6 doctor private practice, 5% nurse private practice, 2% bone healer, 1% hospital and others.

Discussion

In this study the events were based on recall over a 3-month period. Information ascertained retrospectively through mothers reports may be subject to bias due to differential recall pattern.^{10,11} There are two main reason for recall bias: 1) memory decay-the loss of information due to failure to recall the event, and 2) the telescoping effect-the tendency to remember events in the past as if they occurred closer to the present than they really did. Harel et al.¹² showed significantly declining rates for a 1-month to a 12-month recall period. The largest declines were found for the 0-trough 4-year-old age group and for minor injuries. Recall periods of between 1 and 3 months are recommended for use in population-based surveys.

The high frequency of injury due to fall (5.7%) in this district should be considered. Sixty four percent of the deaf children visiting the Ear, Nose and Throat Department of the Dr. Sardjito Hospital had reported history of falls from bed during their sleep.¹³ This may suggest the importance of preventive measures against falls.

Morbidity from falls is large and results in the most frequent cause to bring the children to the emergency room and lead an admission in United States.¹⁴ Injuries from stairs and steps predominate, while

on its frequency and the type of injury were observed.

beds, tables, and chairs are also common injury vehicles in children aged 0 to 4 years. For older ages in this group falls from bicycles and heights are added.

Grigorovic¹⁵ reported the commonest risk situations involved falling from settees (45%), cots (12%), Prams (12%) and tables (4%). Burns and scalds occurred in 20% of the children with injury and wounds in 15%, namely wounded by falling objects such as broken-glass, knives, blades, or pens.

In this study on difference in the frequency and type on injuries was found between urban and rural settings. Thus one may conclude in the under years olds were mostly influenced by home environment and road and traffic condition were comparable.

Injuries to the under-5 years children were fairly slight, no impact of injury was reported in this study. This impact could be measured by time in beds, hospitalization, limitations of activity or disability. Approximately 30% of injuries required care-seeking either to government or private health services in this district.

A developmental context to child behavior at different ages is helpful for preventive counseling.¹⁶ Topics on specific cognitive and physical limitations at a certain age should be communicated to presents in situations or activities that have a likelihood of injuries. The probability of the site of injury occurrence can be predicted.

Population based data on injuries can be used more clearly on opportunities for prevention. The prevention of injuries cannot be undertaken by health personnel alone but should of multidisciplinary approach.

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