

Home Unintentional Non-Fatal Injury Among Children Under 5 Years Of Age In A Rural Area

Thesis

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Introduction

Injuries are defined as any physical damage to the body resulting from acute exposure to thermal, mechanical, electrical or chemical injury or from the absence of such essentials as heat or Oxygen. The word accident, as commonly used with field of safety, refers to a sudden unintended event which results in death, injury and damage of one of the physical senses (*Peden, 2008*).

Injury is a broad term covering a multitude of types of health problem each of which is associated with different factors and for which different types of interventions are possible. The most basic classification of injuries is according to whether they are intentional or unintentional. An injury is defined as “a body lesion at the organic level, resulting from an acute exposure to energy in amounts that exceed the threshold of physiological tolerance such as (drowning, strangulation, freezing) results from an insufficiency of a vital element (*WHO, 2013*).

There has been a move away from use of the term “accident” because of its connotations of inevitability and lack of apparent cause. On the other hand, the term “injury” has been used to indicate that these events can be studied (*Eldoskoy, 2012*).

Unintentional injuries are predictable and preventable when proper safety precautions are taken-they are not accidents. and not including injuries that result from harm being inflicted on purpose, such as those sustained in suicide attempt, child maltreatment or among children with special needs who may require different set of injury prevention strategies (**CDC, 2012**).

There are different types of injuries among pre-school children like falls, suffocating and choking, domestic fires, burns and scalds, poisoning, glass related injuries, and drowning. Falls are the most common type of accident at home, accounting for 44% of all childhood injuries, about 10 children in the UK die each year as a result of falling from balconies, windows and stairs. For babies, the biggest danger is rolling off the edge of table, bed or sofa (**McDonald et al., 2006**). Also, there is suffocating and choking. Babies and young children can easily swallow. Inhale or choke on small items such as marbles, buttons, peanuts and small toys. Also, domestic fires pose a significant risk to children as they are playing with matches and lighters frequently start house fires. Also, hot drinks cause most burns and scalds to children under the age of five. A child's skin is far more sensitive than an adult's. Hot bath water is the biggest cause of severe and fatal scalding injuries in young children. There are other types of injuries as poisoning, glass related injuries and drowning (**Moore and Ormandy, 2004**).

Unintentional injuries in childhood are an important cause of mortality, morbidity and disability and cause almost 40% deaths among 1-4-year-old children and three times more deaths than the next leading cause, congenital anomalies at Washington North America (*Berhrman & Kliegman, 2000*). The home is the place where children spend most of their time, and most injuries, especially those among children occur at home (*Paes & Gaspar, 2005*). Children are in a high-risk group for home accidents since they are not aware of the hazards, are more susceptible to environmental risks and are curious (*Kamal, 2013*).

In the US more children between the ages of 1 and 4 die annually from unintentional injuries than from all child-hood disease combined (*Dal-Santo et al., 2004*). Most home injuries involving the under-5 s are caused by falls, burns/scalds and poisonings, and are presumed to be preventable through removal of particular hazards (*LeBlanc et al., 2006*). There is a severe lack of data from developing countries about childhood injuries. However, the vast majority of unintentional injuries among children occur in low and middle-income countries. Those in the African, South-East Asian and Western Pacific regions account for 80% of all children's deaths from unintentional injuries (*WHO, 2009*). The greater number of children per family not only associated with high rates of home accidents but also associated with increased the impact of these injuries (*Hyder et al., 2009*).

Socioeconomic factors as parental age, marital status, residence area, educational level and occupation of the parents are used as indices for (SES). Research has consistently shown that socioeconomic status (SES) is associated with increased risk of poor health and deaths in adults and children (*Pomerantz et al., 2001*).

Previous studies have identified a wide range of factors which are associated with increased childhood unintentional injury risk, including socioeconomic status, family type, previous injury, and home physical hazards (*Tobin et al., 2002*).

Justification:

The study was conducted in that family health unit because it is at rural area, serve large number of people most of them children.

There are no many studies done at that area especially about child unintentional home injury.

Research hypothesis:

Some sociodemographic factors as (socioeconomic status, parent's educational level, parent's age, number of family members, presence of home safety measures) affect rate of unintentional injuries among preschool children.

Goal & Objectives

Goal:

Reducing the occurrence of unintentional home injury among preschool children and its impact on the child.

Objectives:

1. To determine the proportion, the characteristics, and the outcome of the most unintentional non-fatal home injuries among children under 5 years of age at the Hegazy district in Shoubra Elkhima – Qalubya.
2. To identify the related socio-demographic factors of the most non-fatal home injuries among pre-school children at Hegazy district in Shoubra Elkhima, Qalubya governorate.
3. To assess KAP of mothers towards unintentional home injuries and first aid management to those injuries.

*Chapter One***Types & Epidemiology of Injuries****Definition**

Injury is the most common cause of preventable morbidity and mortality among children, and is a health concern in every country around the world (*Xu et al., 2014*). Every day around the world the lives of more than 2000 families are torn apart by the loss of a child to an unintentional injury or so-called “accident” (*Peden, 2008*).

Injury is defined as “the physical damage that results when a human body is suddenly subjected to energy in amounts that exceed the threshold of physiological tolerance or else the result of a lack of one or more vital elements, such as oxygen”. This energy can be mechanical, thermal, chemical or radiated (*Pedan, 2008*).

I- Types

Injury may be; intentionally or unintentionally caused, minor and require little or no care, or may be more serious, requiring treatment or hospitalization and may result in permanent scarring, disability or death” (*Peden, 2008*).

The main causes of unintentional injuries are road traffic injuries, poisoning, drowning, falls and burns (*Sethi, 2008*).

In general, the most severe child home injuries are associated with heat-related accidents and falls from a height. Older children are more likely to sustain fractures than younger counterpart's. Younger children have a higher percentage of burns and scalds as well as poisoning and ingestion accidents.

Falls

Falls are by far the most common causes of accidents in the home (*Waterson & Monk, 2014*); Falling is a normal part of the way a child develops; learning to walk, climb, run, jump and explore the physical environment. Falls defined as; an event that results in a person coming to rest inadvertently on the ground or floor or other lower level (*Pedan, 2008*).

Most falls are of little consequence and most children fall many times in their lives without incurring damage, other than a few cuts and bruises. Falls are important causes of childhood injuries, including those resulting in permanent disability or death. The types of injuries sustained were largely cuts and scrapes, fractures of the upper and lower extremities and contusions. In half of all cases, the children were left with some form of disability – in 41% of cases with a temporary disability of less than six weeks (*Pedan, 2008*).

Injuries from falls are the result of mechanical energy which depend in the outcome on three factors;

- The amount of energy released by the fall and the height from which a child falls.
- How much energy is transmitted, which depends on the object or surface the child falls onto (a grassy surface or concrete)
- The points of energy transmission: if the forces of the fall are spread over a large part of the body, the chance of injury is reduced (*American Academy of Pediatrics, 2001*).

Burn

A burn is defined as" an injury to the skin or other organic tissue caused by thermal trauma. It occurs when some or all of the cells in the skin or other tissues are destroyed by hot liquids (scalds), hot solids (contact burns), or flames (flame burns). Injuries to the skin or other organic tissues due to radiation, radioactivity, electricity, friction or contact with chemicals are also considered as burns" (*WHO, 2006*).

Children are naturally curious. As soon as they are mobile they want to explore their surroundings and play with new objects (*Pedan, 2008*). They may not realize the dangers and risks associated with hot liquids and surfaces, and flames. Because a child has thinner skin and slower withdrawal reflexes than an adult, contact burns may be deep and thus require prolonged treatment (*Argirova & Hadzhiyski, 2005*).

Poisoning

Thousands of children are admitted to emergency departments because they have inadvertently consumed some type of household product, medicine or pesticide. Most of these “accidental” poisonings could have been prevented “Poisoning” refers to an injury that results from being exposed to an exogenous substance that causes cellular injury or death. Poisons can be inhaled, ingested, injected or absorbed. Poisoning may also be acquired in utero. The exposure may be acute or chronic and the clinical presentation will vary accordingly (*Pedan, 2008*).

The factors determining the severity of poisoning and its outcome in a child are interrelated. They include: (*Rajka et al., 2007*)

- The type of poison.
- The dose.
- The formulation.
- The route of exposure.
- The age of the child.
- The presence of other poisons.
- The state of nutrition of the child.

▪ Types of poison:

The prevalence and types of poisoning vary considerably across the world and depend on socioeconomic status and cultural practices. Data from poison control centers and hospitals in "Oslo, US, Oman and India", indicate that the most common agents involved in developed countries – as well as in some developing countries – are:

▪ Medications:

- Medicines sold over the counter, such as paracetamol, cough and cold remedies, iron tablets, antihistamines and anti-inflammatory drugs.
- Prescription medicines, such as antidepressants, narcotics and analgesics.
- Recreational drugs, such as cannabis and cocaine.

▪ Household products;

- Bleach, disinfectants, detergents, cleaning agents, cosmetics and vinegar.
- Pesticides – including insecticides, and rodenticides, (*Rajka et al., 2007; Peden, 2008; Gupta et al., 2003*).

The most common agents involved in childhood poisonings in low-income and middle-income countries are

hydrocarbons used for fuel and lighting, such as paraffin oil (kerosene) (*Abu-Ekteish, 2002; Akhtar et al., 2006*).

Paraffin oil is frequently stored in bottles or other containers meant for cold drinks, milk or fruit juice, which children.

▪ **Household chemicals**

Chemicals around the house to which children may have access contribute significantly to unintentional poisonings in childhood. In the United States in 2004, among children less than 6 years of age, there were over 120 000 exposures to household cleaning agents, such as ammonia, bleach and laundry detergents (*Watson et al., 2005*). While most exposures to cleaning agents result in mild poisoning, bleach, dishwasher detergents and ammonia can lead to severe tissue damage. These agents are found in most households in developed countries. Several other studies have confirmed the existence of similar household agents in childhood exposures to toxic substances (*Taft et al., 2005*).

II- Epidemiology

Epidemiology of unintentional preschool injury:

Childhood injury is a major public health problem that requires urgent attention. Injury and violence is a major killer

of children throughout the world, responsible for about 950 000 deaths in children and young people under the age of 18 years each year (*WHO, 2008*).

In 2002, for children under five years, 68 per cent of emergency department visits resulted from injuries that occurred in the home.

- Each year, more than 20,000 children visit emergency departments due to injuries sustained in the home.
- Each year almost 900 children have injuries that are severe enough to be hospitalized
- Every day, at least 60 young children are injured in homes across the country (*Health Surveillance and Epidemiology Division, 2005*).

About 56% of injuries occur in home (*Hyder et al., 2009*), the home is considered as the most likely location for injuries in female children of all ages (0–14), for boys, the location of injury events depended on age – pre-school boys tended to be injured at home, while older boys were more likely to be injured during a sport or leisure activity in a public place (*Towner et al., 2005*).

Child injuries in home:

The largest number of accidents happens in the living/dining room. However, the most serious accidents

happen in the kitchen and on the stairs. Every year more than 67,000 children experience an accident in the kitchen - 43,000 of these are aged between 0-4 years; 58,000 children have accidents on the stairs.

The pattern is less uniform in low-income and middle-income countries, but the overall gender differential is clear, with injury death rates around one third higher for males under 20 years of age than for females (*Peden, 2008*), with the exception of fire-related burns, the female excess in fire-related burns is particularly noticeable in certain parts of the world, such as the WHO South-East Asia Region and the low-income and middle-income countries of the Eastern Mediterranean Region, where deaths of female adolescents can exceed those of males by up to 50 (*WHO, 2008a*).

Epidemiology of fall

Among children under 15 years, non-fatal falls were the 13th leading cause of disability-adjusted life years (DALYs) lost. In most countries, falls are the most common type of childhood injury seen in emergency departments, accounting for between 25% and 52% of assessments (*Khambalia et al., 2006*).

According to study in low-income and middle-income countries in Africa, the median incidence of falls among children and youth aged less than 22 years was 41 per 100 000 populations (*Hyder et al., 2008*).

Boys are overrepresented in fall mortality statistics, with the male-to-female ratio varying from 1.2:1 (in low-income and middle-income countries in South-East Asia) to 12:1 (in high-income countries in the Eastern Mediterranean region) (*WHO, 2008a*).

Infants are most likely to fall from furniture or as a result of being dropped; children aged 1–3 years are most likely to fall from stairs and steps, windows, balconies, furniture or play equipment; and older children, from playground equipment and heights such as fire escapes, roofs and balconies (*WHO, 2008b*).

Epidemiology of burn:

In high-income countries, children under the age of five years old are at the highest risk of hospitalization from burns. Infants under the age of one year have significant risk for burns (*Nguyen et al., 2008*).

In Kuwait, as high income country the incidence of burns in children under 15 years of age was 17.5 per 100 000 populations. Scalds (67%), followed by flames (23%), were the leading causes of burns (*Sharma et al., 2006*).

In low-income and middle-income countries, children under the age of five years have been shown to have a disproportionately higher rate of burns than is the case in high-income countries. In Kenya, for example, 48.6% of children presenting to the Kenyatta National Hospital were under the age of five years. Although scalds were the most common type