CHAPTER-1
INTRODUCTION

✓ UNINTENTIONAL INJURIES: CONCEPT, PREVALENCE, CAUSATIVE FACTORS, INJURY PREVENTION INTERVENTION, ROLE OF MOTHERS IN INJURY PREVENTION

✓ ESSENTIALITY OF COMMUNICATION

✓ IMPORTANCE OF DEVELOPMENT OF INSTRUCTIONAL MATERIAL

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There is nothing more precious to a parent than a child, and nothing more important to our future than the safety of our children.”- Bill Clinton

Childhood: the most crucial stage, ready to take on the world for overall development and cumulative lifetime learning. Being the wealth of tomorrow, ensuring their endurance, development and protection means investing in the future of the nation as children embrace nearly one third of the total population of our nation. But child injury - portrays the most imperative moral dilemma of the new millennium.

An 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” (Baker, 1992). The energy may be chemical or mechanical or thermal or it may be radiated.

Globally, injuries have turn out to be the universal and foremost cause of death among the children (Unicef, 2007, WHO, 2012, and Alonge, et al., 2016) and worldwide deaths from injury has increased by 10.7%, from 4.3 million deaths in 1990 to 4.8 million in 2013 (Naghavi, et al., 2015).

In low and middle income countries (LMICs), child injuries is an emergent civic wellbeing problem and is mainly missing from child survival initiatives because, is still thought to be a less severe problem than communicable disease and nutritional problems (Bartlett, 2002 and Hyder, et al., 2009). It is stated that each year, more than 875,000 children between 0 and 18 years of age die as an outcome of unintentional injuries (UIs), with a higher percentage taking place in low- and middle-Income countries (LMICs): the World Report on Child Injury Prevention, 2008 confirms that a child UI death rate is 3.4 times greater in LMICs
than in high income countries (HICs) (41.7 per million vs. 12.2 per million, respectively), but a huge disparity occurs according to the category of injury death. For fire and flame deaths, the rate of injury death is nearly 11 times higher in low-income countries than in high-income countries, for drowning it is six times higher, for poisons four times and for falls around six times higher (Mathers, et al., 2008).

Unintentional Injuries are the leading threat to child's continued existence and with the anticipated succession of child age, injuries bounce to amplify spectacularly and compel a proportionate burden on families and health-care systems. In concomitant to it, studies reveal that injury is responsible for 30% of deaths in 1–3-year-olds, with the figure approaching 40% in 4-year-olds and 50% to 60% among those aged 5 to 17 years (Linnan, et al., 2007). Also the Years of Potential Life Lost due to unintentional injuries among children is many more times higher than the rate for other diseases like cancer, heart disease, influenza, pneumonia and many others.

Children are courageous, inquisitive to escapade and living in surroundings designed merely for adults. Knowing the outcome of hazardous trials is a learnt behavior naturally lacking in them. Some of the characteristics of children like the light weight, small size, lower visualization capacity, less audible range, and imperfect sightedness, make them more susceptible to injuries than adults. Also, the comparatively big spleen and liver and the wide costal arch make these structures prone to direct sufferings. Death is the main noteworthy measure of injury nevertheless it is neither the mere result nor the most frequent. Injury is graphically represented as a pyramid in which at the top with the smallest group is of death, in the mid is the group which is hospitalized and at the base forms the largest group which is unreported and non-hospitalized injury including consequences such as a hasty trip to hospital emergency department or to the general surgeon, the dentist or the medical store or a pharmacist or a slight injury-a cut, a discoloration, a bang or an abrasion which can be treated in the home or by a hug and assurance from mom or dad. It has been found that each day in New Mexico, an average of nearly 5 people die from an injury, approximately 40 other
are hospitalized, 705 are seen in emergency departments, and another 2,035 visit other health care facilities for treatment of their injuries (The New Mexico Injury Prevention Strategic Plan: 2008-2012).

Unintentional injuries can occur from an array of causes. The childhood burns remains one of the most important health concern causing continuing morbidity and mortality for children resulting from a number of agent factors like chemicals, leakage of kerosene stoves, practice of low-level cooking; the hot liquid food, hot water, cooking oil, and hot water for bathing are the major causes of scalding; unsafe crackers used during festivals without supervision; cooking equipment, matches, lighters, candles etc are also the cause of home fires and home fire injuries; touching of electrical outlets, faulty equipments, malpractice of the electric equipments etc are among the cause of electrocution in children. Parallel to this injury, accidental poisoning among children is seriously challenging the pediatricians. The introduction of wide range of new and complex chemicals in the form of pesticides, insecticides, household cleaners like phenol, bleaches and their derivatives, paint thinners etc has widened the spectrum of toxicity; lead, cosmetics, arts and craft supplies, body care products in home are the commonly abused agents; over-the-counter preparations such as paracetamol, cough/ cold remedies, vitamins and iron tablets, antihistamines and anti-inflammatory drugs makes children falling prey to their own curiosity; even ornamental plants may pose a problem and some of these may be poisonous. Furthermore, the innocent children drown from not being aware of the danger of water. The incidence of drowning injuries aggravate by the house condition such as the water container without covers, large buckets, washing machines, bath tubs, toilets, inflation pools, under construction or unprotected water tanks etc and swimming pools and natural water sources are also among the most common site for a drowning. In addition among all traumatized children, the most common cause is fall injury responsible for the largest number of hospital visits for many serious, non-fatal and fatal injuries. Falls from heights: windows, roofs, stairs, balconies etc.; slippery floor in the house; limited access to safe play areas, uneven walking surfaces, lack of supervision; inadequate safety standards for household furniture and goods are basically responsible for high rates of fall, slips
and trips death and injury. Simultaneously, among all the unintentional injuries the ghastly road accidents are the leading cause of pediatric trauma where many children beat their precious lives. Among the causes of Road Traffic injuries, Bicycling is a leading cause of recreational injury; the pedestrian children are particularly vulnerable; the rear seat placement of children in the car is not ensured; non utilization of the car restraints create high rates of automobile death and injury; two wheelers are also the involved vehicle responsible primarily for high rates of fatal injuries.

Each child’s death is heart breaching, no matter what the cause. However, when a child departs due to unintentional injury, it is particularly tear-jerking, because almost every single fatality could have been prevented as injuries are currently considered as predictable and preventable (Sahril, et al., 2014 and Georgia Child Fatality Review, 2015).

“Implementing proven interventions could save more than a thousand children’s lives a day.” - Dr. Margaret Chan and Mrs. Ann Veneman.

Although Johns Hopkins-International Injury Research Unit disclosed to the verity in the news on, Jan 11, 2013 that implementing effective solutions remains worldwide challenge despite the fact that remarkable improvement has been made over the previous few decades to understand the epidemiology of injuries in children.

Injury prevention is an incredible beneficial community welfare approach – the expenditure of intervention is generally to a great extent lesser than the charges of consequences of injury. Successful injury prevention would engross approaches being ethnically and linguistically precise and receptive (Borse and Hyder, 2009, Ruikar, 2013 and Babu, et al., 2016) and National Crimes Records Bureau of Ministry of Home Affairs, Government of India also describe that to be effective, policies on injury prevention and safety must be based on local evidences (NCRB, 2013) and for this researches need to be carried out especially in our country. Parallel to it Dr. Harshvardhan, former Union Minister of Health & Family Welfare, Govt. of India and Advisor to World Health Organization, is
of the similar view that Injury Prevention and Control is the up-and-coming area where imperative act is compulsory. However he disclosed that it is the area not finely valued by either the health strategy planners or the healthcare experts. Similarly, in India the occurrence of childhood injuries is poorly monitored and along with this the available data from the hospital and emergency department is also of poor quality which does not allow it to be an ideal source to studying the epidemiological features of childhood injuries (Ray, et al., 2012) and along with this in India, population-based studies are costly and rarely carried out particularly on topics such as injury (Bansal and Dalal, 2013). In concomitant with these studies it can be concluded that the distressing injury burden is inappropriately higher and requires to work out for effective injury surveillance systems, epidemiological review of all effects of injuries, promotion for prevention and treatment and assessment of existing effective interventions for injury prevention and trauma care as-

*Injury prevention in India is not beyond infancy as a specialty and therefore till today, need to endeavor persistently to prevent a disaster just waiting to happen.*

Apart from this there are no proper records nor the exact pathway to defeat injury which is clear from the research conducted by Gururaj in 2008 who revealed that according to Ministry of Home Affairs, there were 15,281 children ages 14 and younger reported as killed by unintentional injuries in India in 2005. However, in 2000 the WHO projected nearly 1,20,000 deaths a year to children in this same age group. In support to this study Naghavi and colleagues also make known that important gaps exist in the empirical data for cause of death estimates for a country like India where there is no national data available for the past decade (Naghavi, *et al*., 2015). Parallel to this, other studies (Uthkarsh, *et al*., 2012, Zaidi, *et al*., 2013 and Sahril, 2014) also expose that the burden of child injuries is not clearly known and scientific efforts in injury prevention and control are yet to begin in India. Furthermore the scarce emergency services, scanty resources, deficient trained staff, lack of community education programmes and limited rehabilitation services (ICMR, 2007) direct to poor quality care and unnecessary referrals result in an amplification of the secondary injuries.
Consequently the most hopeful one to battle the injury problem is starting from the bottom and that could be achieved by addressing the mother's knowledge base or to strengthen mothers orientation, as they are an vital care provider and is powerfully accountable to nurture child's curiosity and perk up their safety from the inimitable challenges of unintentional injuries (Nath & Naik, 2007). But, there also it is astounding to be acquainted with mothers’ awareness regarding the injury dilemma, its scope and the preventability which remains inappropriately low and also the mothers don't habitually think regarding injury hazards in the course of their everyday interactions with their child. Along with this, the mothers also stated that they were not always in the situation to prevent the injuries due to circumstances beyond their control (Saad, et al., 2005 and WHO, 2005). Most parents cannot identify specific prevention strategy (Kakefuda, et al., 2010 and Van Beleen, et al., 2014) and believe that simply “being careful” is adequate protection from injury (Schnitzer, 2006). The findings also indicated that parents do not hold a strong belief in the preventability of injuries though they believe that they can somehow keep their child safe (Vincenten, et al., 2005 and Shrestha, et al., 2014). Therefore without the knowledge of the fundamental epidemiology of injuries, well-organized injury prevention and acute care cannot be carried out by the mothers. Ablewhite, et al., (2015) in their study revealed that the barriers to injury prevention are provision of safety information later than needed in relation to child age and development. Therefore, using tailored messages, as opposed to generic materials, at an appropriate stage of child development in mother-directed interventions can enhance positive effects to prevent the little ones from the murkiness of injuries.

The essentiality of communication can't be denied in the phase of speedy development. The progression of human being depends on their access to accurate and reliable information which they can utilize to resolve their problems. As the majority of the learners is heterogeneous or with different IQ or with individual differences and so on the development of meaningful and effective communication material is a difficult and challenging task. The complex method of teaching make them confused and they feel shy in asking freely. In such a condition the development of instructional material with more of visuals and self
explanatory features can be a great source to gain knowledge, to improve the level of understandings, to develop the interests and self-confidence and get across a new and complex idea in an easier way. Instructional approaches and accompanying tailoring strategies have been widely used in the education field and have shown successful learning outcomes (Dori, et al., 2003 and Yoshioka, et al., 2003).

An instructional material is any device that assists an instructor to transmit to learner facts and appreciation about an idea. An instructive programme delivered via mass media through a teacher or a trained personnel or a health worker or community leader in classes, courses, and special sessions can be a powerful medium to empower a learner. The integration of school, family and community efforts to prevent unintentional injuries is must as either of them alone cannot prevent unintentional injuries in isolation from each other. Schools, communities and families can provide each other with reciprocal benefits. Teachers are vital component in the execution of multimedia instructions in education as the presence of multimedia alone will not stimulate significant changes in the learners. Arulogun, et al., (2013), Olutayo, (2013) and Suguna, (2015) in their studies have also recommended the same. Parallel to these studies Carlsson, et al., (2011) were also of the view point that a teacher, health personnel or community leaders chosen to approach the education addressing parents is a good and proven strategy for child injury prevention. When selecting the source of a message, consider which person or group has influence with your audience and will attract the most of their attention and interest (Centers for Disease Control and Prevention, 2012).

Globally it can't be denied with the verity that our dependency on multifaceted and allied modern gadgets has improvised to accomplish our day to day activities in the information and communication technology world. This situation pledge the use of “multimedia” so that a knowledge enhanced society can be fabricated and to reach the hitherto un-reached. The rapid rate of diffusion of information could only be achieved through dynamic participation of people with the facilitation of computer based interactive multimedia technology which
displays complicated technologies in simpler terms with the use of audio, video, text, graphics and animation involving the use of more of our senses and helping the user to learn the contents, structure and information without depending on a facilitator. It is an encouraging tool playing a significant role in far-reaching transformation in the period of globalization. Resultantly, the attention of educationists is changing towards the application of multimedia as a means of much desired swift communication of useful information with the main aim of defeating the language obstacles and illiteracy constraint as generally it is produced in local language with graphics, videos, images and animations so that all can easily access it.

The multimedia package play an effective role in raising awareness among the learners as the use of intervention implemented over a period of time can allow messages to be repeated and can begin to develop a culture of safety regarding the gravity and preventability of the intended messages. The Georgia Action Plan for Child Injury Prevention, (2015) has make known that to alleviate the risk of injury among mass, the application of multi-media can be a good step forward to bring not only awareness but also to promote safer interventions as ample prospects subsist for modern technology and information systems to improve injury outcomes. Parallel to it is the study conducted by Van Beelen, et al., (2014) who disclosed that the effectiveness of health promotion efforts has improved by the use of Web-based tools.

Consequently, the neglected epidemic of injury in India and the low level of knowledge of mothers regarding unintentional injuries warrant, specific directed efforts to avert the injuries in children particularly at home and on road. Research is the need of the hour to identify the magnitude and distribution of injury risks experienced by the children. Along with this there is a pressing need to develop suitable intervention and promote widespread adoption of these solutions for the credible advocates of child safety especially the mothers. In concomitant to this, a report on injuries in America highlights from injury facts that researches in the field of injuries and its effective utilization in various preventive programmes can help decline the injury-related fatality rates very
speedily. For example, between 1912 and 2006 in the United States, unintentional- injury death rates fell by 49 per cent (National Safety Council, USA, 2008). Therefore, the initiative through present research is intended to first identify mothers’ knowledge regarding unintentional injuries, the causative factors of the injuries and the safety features adopted for prevention of injuries among children of 4-6 years age group. Both these set of findings will serve as a basis for innovative and targeted injury-specific prevention programs to achieve greater injury control for young children. Also the investigation proposes to design and develop a concise injury fortification instructional multimedia package and for the further reinforcing of the messages an educational booklet i.e. a manual will be provided. Additionally, well-designed method would be used for measuring the impact of package. This package will very well interweave into the existing knowledge of the mothers to be sentient of injury hazards and will forever help to stand by to safe guard their children from injuries which can put in their child to either death or hospitalization or a visit to an emergency care unit or can result in a temporary or permanent disabilities whether physical or social or either psychological. Even the amputations, deformity, pain, suffering and agony could be prevented. The package in the present study will propose short-term and long term measures that parents, health care providers, communities and policy makers can take forward to keep the blooming lives secured from severe disability and death caused each day due to unintentional injuries like burns, scalds and electrocution, poisoning, falls, slips and trips, drowning and road traffic injury.

OBJECTIVES:

(1) To find the knowledge of mothers regarding unintentional injuries and their causes among children of 4-6 years of age.

(2) To study the safety practices adopted by mothers for prevention of unintentional injuries among children.

(3) To design instructional multimedia package for mothers on prevention of injuries.

(4) To study the effectiveness of developed instructional multimedia package in terms of gain in knowledge by the mothers.
MAJOR HYPOTHESIS:

(1) Mothers have less knowledge regarding unintentional injury causes among children of 4-6 years of age.

(2) Safety practices are not properly adopted by mothers for the prevention of unintentional injuries among the children.

(3) Multimedia is an effective instructional aid for the mothers to prevent injuries.

(4) Instructional multimedia package is effective in increasing the knowledge of mothers.

OPERATIONAL DEFINITIONS:

(1) Unintentional injury: Unintentional injuries may be unplanned, but we are able to anticipate their occurrence, and can act to prevent them.

(2) Knowledge: It may be defined as information gained through experience or education regarding the particular subject.

(3) Practice: It is defined as to do something repeatedly or regularly to acquire a skill or habit.


(5) Mother: One who nurtures and raises a child.

(6) Children: The term refers to the child who is between the age of 4-6 years, with natural curiosity and lack of experience in assessing danger and risk of various injuries.

DELIMITATIONS:

(1) The mothers of 4-6 years children will be confined to three schools of Udaipur for the present study.
(2) The multimedia instructional package i.e. DVD and manual will be considering the most prevalent five unintentional injuries like burns, scalds and electrocution, poisoning, falls, slips and trips, drowning and road traffic injuries among children of 4-6 years of age.

IMPLICATIONS OF THE STUDY:

- The present findings of the study have implications for programs that aim to increase mothers' knowledge and safety practices to prevent unintentional injuries among children of 4-6 year and close by age at home as well as on the road.

- Although these guidelines are designed primarily for 4-6 year children, the broad recommendations would be applicable for the nearby age group children.

- At the local level teachers, health service providers, public safety personnel, community leaders, policymakers, and parents may use these guidelines and complementary materials to plan and implement unintentional injury-prevention policies and programs.

- The present study would provide valuable guidelines to the extension scientist/personnel about the development of multimedia package for effective communication of useful information to the mothers.

- Multimedia package prepared on different aspects of injury can also be provided to the pediatric health centers, Anganwadi and Non Governmental Organizations working in the field of injury prevention and health promotion.

- The prepared MMP can be provided to the Anganwadi workers/paramedical workers like Auxiliary Nurse Midwife (ANM) during their training programme.

- In addition, faculty at institutions of higher education can use these guidelines to train professionals in education, public health, nursing, and other appropriate disciplines.