CHAPTER - 5
SUMMARY AND CONCLUSION

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Childhood: the most crucial stage ready to take on the world. Being the wealth of tomorrow, ensuring their endurance, development and protection means investing in the future of the nation. It is staggering to know that, unintentional injuries: are steadily increasing in India; the most common cause of death among the children; the leading threat to child's continued existence; compel a proportionate burden on families and health-care systems; the area not finely valued by either the health strategy planners nor the healthcare experts; no proper records nor the exact pathway to defeat the problem and systematic as well as scientific efforts in injury prevention and control are yet to begin in India. Consequently, the distressing injuries need imperative steps to revoke the rising trends and 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.

It is well assumed that education and public information are the key components of any programme. The most promising one to combat the injury issue is addressing the mothers' knowledge base or to strengthen mothers orientation, as they are a vital care provider. But, it is astounding to be acquainted with mothers' awareness regarding the injury dilemma, its scope and the preventability which remains unacceptably low and also the mothers don't habitually think regarding injury hazards in the course of their everyday interactions with their child, also they are not always in the position to check injuries due to conditions beyond their control, always hold a strong conviction that they can someway keep their children secure but, without the knowledge of the fundamental epidemiology of injuries, well-organized injury prevention and acute care cannot be carried out by the mothers.

Using tailored messaging as opposed to generic materials, at an appropriate stage of the child in mother-directed interventions can enhance positive effects and 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.

An instructive multi-media package delivered via mass media through a teacher in special sessions will be a powerful medium to garner the grass roots support of mothers on the various aspects of injuries. The multimedia 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 unintentional injuries like burns, scalds and electrocution, poisoning, falls, slips and trips, drowning and road traffic injury. As a result, to design and develop a concise injury fortification instructional multimedia package, the present study was undertaken with the following 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.

Methodology

The study was conducted in a phased manner and accordingly the methodology has been organized under as follows:

Phase-I  To find the knowledge of mothers regarding unintentional injuries, their causes and the safety practices adopted for the prevention of injuries among children of 4-6 years of age.

Phase-II  Designing of Instructional MMP (Multi Media Package) for mothers on prevention of injuries.

A). Designing of multimedia DVD.

Phase - III  Studying effectiveness of MMP (Multi Media Package) in terms of gain in knowledge by mothers.

Phase- IV  Analysis of data

Phase-I  To find the knowledge of mothers regarding unintentional injuries, their causes and the safety practices adopted for the prevention of injuries among children of 4-6 years of age.

The study was conducted purposively in Udaipur city (Rajasthan). The three non government schools fulfilling the criteria of the objectives were selected. A stratified purposive sampling technique was used for the present study. The study population was divided into two strata i.e. mothers having children of 4-5 years of age and mothers having children of 5-6 years of age. Further, the mothers who were willing to participate in the research study were selected. So, a total of 180 mothers constituted the sample. 30 mothers of 4-5 year children and 30 mothers of 5-6 year children from all the three schools formed the sample of the study.

Self designed questionnaire was prepared. The questionnaire consisted of three sections. The first section was regarding the demographic profile of the respondents whose purpose was to make the respondent at ease with the forthcoming questions related to injuries. The second section was further sub divided into three parts in which the first sub-section discovered the awareness of mothers regarding unintentional injuries; the second sub-section included fifty-six closed ended questions related to the causative factors of the five injuries i.e. Burns, Scalds & Electrocution, Poisoning, Falls, Slips & Trips, Drowning and Road Traffic Injuries. The level of knowledge scores of mothers was classified as poor for 1-60, average for 61-120 and good for 121-180 and the third sub-section bring forth the self rating of the knowledge level of respondents towards unintentional injuries among children on a five point Likert scale. The knowledge level of different injuries was rated on 5 point scale ranging from 5 (Extremely knowledgeable) to 1 (Not at all knowledgeable). The criteria for rating of the knowledge level by the respondents was 1.00-1.80 for Not at all Knowledgeable, 1.81-2.60 for Slightly Knowledgeable, 2.61-3.40 for Somewhat Knowledgeable,
3.41-4.20 for Moderately Knowledgeable and 4.21-5.00 for Extremely Knowledgeable. The third section of the questionnaire discovered the safety practices adopted by mothers for prevention of injuries which was also subdivided into three sub-sections. The first sub-section included closed ended questions regarding the preventive measures of injuries and the second sub-section included seventy-three questions regarding the safety practices adopted for prevention of different injuries. The safety practice adoption score level for mothers was classified as low for scoring 1-60 marks, medium for 61-120 marks and high for 121-180 marks. The third sub-section was related to self rating of the frequency of use of safety practices for prevention of all the injuries among children on a five point Likert scale ranging from 5 (Always) to 1 (Never). The criteria for rating of the adoption level by the respondents was 1.00-1.80 for Never, 1.81-2.60 for Seldom, 2.61-3.40 for Sometime, 3.41-4.20 for Often and 4.21-5.00 for Always. The reliability statistical values of the Cronbach’s alpha were 0.716 and 0.789 for the knowledge and safety practices which indicated a good internal consistency of the items in the scale.

Experimental research design was used for the present study and for the collection of data in each school, an introductory session was organized during ‘Parents Teachers Meetings’- PTM’s and the mothers who had indicated a wish to participate in the research study through a written consent form were requested to fill the questionnaire.

Phase-II Designing of Instructional MMP (Multimedia Package) for mothers on prevention of injuries.

A). Designing of multimedia DVD:

1. Gathering subject matter information: Investigator had an in-depth review of published literature and lengthy child injury prevention reports and guidelines of many international level organizations. Also the TV, newspapers, magazines, conversations with the relatives and friends, recurrent visits to hospital pediatric ward during the research study proved to be the priceless source of information.
2. Finalization of subject matter and content outline: The content outline of the package was framed by keeping in mind the analysis of data in phase - I, reviewing the literature and experts’ guidance. Based on the gathered information a series of 1-5 comprehensive parts of DVD on the five most prevailing injuries materialized were Burns, Scalds and Electrocution, Poisoning, Falls, Slips and Trips, Drowning and Road Traffic Injury among children of 4-6 years of age. The matter thus collected in English was translated in Hindi. The key content areas apart from introduction and conclusion recognized as imperative and finalized for DVD were:

PART-1: Burns and Scalds: Sources of burns, scalds and electrocution; Electric and electrical equipment safety; Cooking safety; Handling hot items (solid and liquid); Safety related to medical oxygen cylinder, candles, cigarettes, gas cylinder; Firework safety; Sun safety; Concept of inflammable clothing for children; Fire-extinguishers and its handling; Home fire escape plan; Safety during fire at home; Skills for fire safety; Emergency contact numbers; First aid for burns/scalds.

PART-2: Poisoning: Concept of poisoning; Sources of poison at home; Reasons for child sensitivity towards poison; Medicine safety; Cleaning product/Insecticide/Chemical safety; Homemade cleaning products; Art supply safety; Safety aligned with lead poisoning; Sources and precautions for carbon mono oxide poisoning; Unknown plants safety; Pet safe practices; First aid for poisoning.

PART-3: Falls, Slips and Trips: Sources of falls, slips and trips; Stair safety; Window/balcony/unguarded height safety; Furniture/huge equipment safety; Floor safety; Basic playground safety rules; Safety tips for small wheeled devices.

PART-4: Drowning: Sources of drowning; Causative factors and Safety measures inside home and outdoors; Pool safety; Steps for drowning prevention.
PART-5 Road Traffic Injuries: Reasons of road traffic injuries among children; Bicycle safety; Car safety; Parked car safety; Heat facts; Two wheeler safety; Pedestrian safety; Safe cross code; School bus safety; Helmet fit test; Hand signals during cycling.

3. Preparation of multimedia DVD:

Multimedia DVD part 1-5 'Ek Kadam Sureksha Ki Aur' on the prevention of unintentional injuries: An audio-visual script was prepared in Hindi. The audio for entire DVD was recorded in a sound proof room. After recording, the entire editing work of audio was done using the Sony Sound Forge software and followed by edition, exported audio as Mp3 format having 128Kbps size and then in the end the final audio output was achieved. According to the written script, for visuals large sized live images and clip arts were imported in JPEG format. After this a rough story board and finally, a final story board was prepared covering description of special effects such as fading, typewriter, mixing, wiping in different styles, dissolving, zooming, sliding etc with text, images and sound. The overall duration of all the part/component of DVD was of 105:35 minutes. Following this, the synchronization of audio and text was done in which a time line was created in Adobe Premiere software. Then all the images were imported which were rescaled to 1280×720 size in Adobe Photoshop. After this, the audio was imported. All the images were synchronized with audio and then the required was typed on images with special presentation effects like typing, rolling, wiping etc. After this, the predefined transition effects for the text such as fading, mixing, wiping in different styles, dissolving, zooming, sliding etc were inserted in the time line. Then light background music was imported and inserted in audio time line to give a slight entertaining effect breaking up the monotony. To get the final output the time line was exported in HD (High Definition) size as Mp4 format (Mp4 video properties are RGB color and frame is 25 frame/sec). After this the final Mp4 video was imported in AVS video editor to burn DVDs.

4. Evaluation of multimedia DVD by panel of experts:

To test the validity and appropriateness of the content with visuals and audio, the developed package was subjected to evaluation by panel of experts (10). The panel comprised of one health professional, two Subject Matter
Specialists (SMS) from Home Science Extension and Communication Management, two SMS of Human Development and Family Studies, two Home Scientists who were the mother of children of this age group, two mothers working as a teacher in school and the last one was a computer professional. The visual assessment was done in terms of 9 criteria i.e. purpose accomplished, content, organization and layout, colour, visual clarity, attention catching, self explanatory features, continuity in messages, tuning of visuals with commentary. The audio assessment was done in terms of 10 criteria i.e. Language, commentary, content clarity, voice, continuity of messages, pace and speed of narration, length and time of narration, overall length of program, music and interest orientation. All the criteria were evaluated on a 3 point continuum of good, average and poor with scores of 3, 2 and 1 respectively.

B). Designing of a Manual:

The manual script consisted of eight chapters. The first chapter stated why to make home kid-safe? The second one illustrated the steps to prevent unintentional injuries. The content used in part 1-5 of DVD was used as such in the manual chapters from 3-7 but the images used were different to give it a variation from DVD. The last chapter was about the simple instructions to be checked (checklist) in home to make it secure. Subsequently according to the written script, for most of the written text the live images and the clip arts were imported relevant to all the components of various injuries in JPEG format. The collected images and clip art were dragged on the work space in Corel Draw software against the text and the size of these were adjusted according to the work space. Outline designing was done to get an attractive look on the cover page as well as all the 51 pages of the manual to give it a booklet form and the title "Ek Kadam Sureksha Ki Aur" was given.

Evaluation of manual by experts: After making all the corrections, the final copy was subjected for evaluation by the same panel of 10 judges (selected for evaluation of the DVD). The manual was evaluated on six criteria i.e. clarity of visuals, subject matter, organization and continuity, colour combination, appropriateness of size and overall presentation using three point continuum of good, average and poor with scores 3, 2 and 1 respectively.
Once developed, the instructional MMP was pilot tested with 20 non sample mothers to determine package revisions and check.

**PHASE III: Studying the effectiveness of MMP in terms of gain in knowledge by the mothers.**

The respondents of each group (30 mothers having 4-5 year child and 30 mothers having 5-6 year child) in all the three schools were contacted during ‘Parents Teachers Meetings’- PTM’s and the purpose of the research was reviewed again. After that a common procedure for providing the intervention programme to all the six groups was carried out in which proper physical arrangements were made for the exposure of the DVD, then each designed component of the DVD was exposed one by one to orient about the various aspects of injury. After exposure of each component as well as in the end, discussions were held to solve their queries regarding understandability of few messages and finally accompanying the multimedia exposure, the manual was given for the exposure of 30 days to allow sufficient time to read and comprehend the intended messages.

After a gap of one month, the post test of the respondents was conducted. The respondents were asked to rate themselves regarding all the unintentional injuries among children on a five point Likert scale. Also the mothers rated the frequency of the use of safety practices for prevention of all the five injuries among children on a five point Likert scale ranging from 5 (Always) to 1 (Never).

**PHASE- IV Analysis of data**

Frequency, percentage, mean score and Student’s t-test were used to analyze data statistically.

**MAJOR FINDINGS:**

1. **Demographic Profile of the Respondents:**
   - In terms of educational status, 58.9% respondents were post graduate or above followed by 27.2% graduates. Very few respondents were below graduation i.e. 6.1% pursued by technically educated (5%) and literate (2.2%).
• 61.1% mothers were housewives, and the remaining 38.9% were working.

• Majority of respondents (26.1%) were from the income category of Rs. 40,001 to 60,000 per month followed by Rs. 60,001 to 80,000 per month (25.5%) and above Rs. 80,001 per month were 23.9%. Few respondents’ family income was below Rs. 20,000 (7.8%) per month while the left over 16.7% respondents were from the income range of Rs. 20,001 to 40,000 per month.

• Maximum number of respondents (64.4%) was from joint family.

• In terms of age of the child both the age groups i.e. 4-5 & 5-6 years were taken 50% each.

• 53.3% respondents were having girl child and remaining were having baby boy.

• In majority of cases (66.7%) it was the first child of respondents followed by 31.1% with second child and only 2.2% respondents recorded the third ordinal position of their child.

• According to number of children, maximum number of respondents (51.1%) were having two children followed by 45.6% respondents who were having single child. 3.3% respondents had three kids and no one responded for four kids.

2. Knowledge of Mothers regarding Unintentional Injuries and their Causes.

❖ Mothers’ Knowledge regarding Unintentional Injuries

It was astounding to know that in general the awareness of mothers regarding unintentional injury aspect was not good. Only 43.9% of them discovered correctly that Home is the main place where a child of this age is most susceptible to injuries as well as merely 68.3% respondents had the acceptable concept that Unintentional injuries can cause death in children and 72.8% mothers had the perception that Electrocution, suffocation and drowning fall in the category of unintentional injuries. The overall mean knowledge score (111) for all the three statements was in average category.
Mothers’ Knowledge regarding the Causes of Unintentional Injuries

This segment of the research bring forth the Mothers’ knowledge toward the Causes of Unintentional Injuries and to serve the objective unintentional injuries were divided in five categories (I - V) i.e. Burns, Scalds & Electrocution, Poisoning, Falls, Slips & Trips, Drowning and Road Traffic Injuries.

- Causes of Burns, Scalds & Electrocution
  
  - Electric current & electric equipments, while cooking food, Fireworks, Hot items (liquid/solids), Sunburn were among the important culprit of Burns, scalds & electrocution in children.

  - The mothers were having good knowledge regarding two aspects of Electric current and equipments i.e. 76.7% for Pulling cord directly from plug can cause electric shock and 76.1% for Electric current flows rapidly in human body. On the counter side mothers were not familiar that Current does not flow from clothes and glass as majority of them (62.2%) stated it incorrectly. The overall mean average score (114) wind up with the fact that some mothers were unacquainted to the fatality of electric current and equipments.

  - Mere 15% of the mothers know the difference of Scald and burns but, substantial respondents (76.7%) had the right perception that The temperature of hot oil is greater than the temperature of hot water.

  - Maximum mothers i.e. 90.6% had the wrong notion that Children less than five years of age can light sparklers. Furthermore, 71.1% responded wrongly that Instead of glass containers, metal containers should be used for firecrackers. The poor knowledge score reveals that the knowledge needs to be strengthened regarding the risk factors associated with fireworks.

  - Technically 65% respondents didn’t know that the Safest temperature for bathing young children should be 100°F/37.8°C and along with this 78.3% were also in dilemma that whether It was safe to use table cloth in place of anti skid mats or not.
- To avoid sunburn, 91.7% of respondents were correct and not in favor of children playing outside for a longer time in summer but surprisingly, sizable (75%) opined wrongly that sunscreen lotion was not essential for children at this age.

- On the whole, the mean scores ranged in poor and average knowledge category. For fireworks and hot items, the mean score was poor, however, the mean score was average for electric current and equipment; sunburn and for cooking. Subsequently, that can create an alarming rise in the incidences of Burns, Scalds & Electrocution injury.

- **Causes of Poisoning**

  - Maximum (93.9%) respondents were known to the products like Rat killers, insecticides, mosquito repellants could cause poisoning but only 70% were familiar with cleaning agents like floor cleaner, glass cleaner etc. could also be poisonous and only 63.9%, 79.4%, and 67.8% were known of the poisonous effect of Small batteries, Lead, and Camphor. Simultaneously, 65.6% respondents were aware of the harmful effect of Cosmetics, shampoo, mouth wash, shaving foam etc. The overall mean score discloses that 27.6% mothers don't know that common household products can also cause poisoning among children.

  - Generous number of respondents (84.4%) agreed that Food of pets can be poisonous for children but nearly half (48.3%) agreed with the issue that Animal defecation was not safe in home lawn/garden.

  - Respondents (61.7%) know that Carbon-mono-oxide was produced by burning wood or charcoal in closed non-ventilated room and 70.6% were known to that. Sleeping in a closed and non-ventilated room with room heater on can cause suffocation in children. Here all the scores were in average category.

  - Only 52.2% of the mothers opined correctly that Instant glue and permanent markers can cause poisoning whereas 65.5% were void of the harmful effect of powdered clay. The mean knowledge score for Art supplies was poor which
wrap up with the reality that mothers were not aware of the harm caused by these products.

- Respondents (71.7%) are not attentive with the verity that Some plants kept in home can be poisonous for children and only (53.3%) mothers agreed with the argument that It was harmful for a child to eat seeds of any plant mistaking them for fruits. In the case of poisoning due to unknown plants the mean score was poor (73.5) which confirmed that mothers would have never assumed that lots of plants are poisonous or capable of causing highly allergic reactions.

- Response regarding the causes of medicinal injury revealed that only half (51.7%) of the mothers agreed that It is not safe for a child to eat his own medicine as a candy. 63.9% affirmed that Over dosage of iron/vitamin tablets can cause immediate harm. The scores 93 & 115 focused the mothers average understanding towards medicines.

- Among all the six causes of poisoning the respondents had only good knowledge regarding the household products poisoning. The mean average knowledge scores for all the causes of poisoning warranties mothers/parents-focused program especially for unknown plant safety, art supplies and medicines.

- **Causes of Falls, Slips & Trips**

  - The responses assessed regarding Falls, Slips & Trips disclosed that considerable respondents (90.6%) opined acceptably that Lack of two way light arrangement in stairs can cause falls but 96.7% were having the wrong notion that only One sided safety gate is necessary in stairs which unveil that the concept of both sided stair safety gate was still not known.

  - Mothers (91.1%) were also wavering to the statements that Windows should have strong grills which can be opened and the height of the railing on the terrace should be 50cm (88.3%). The knowledge scores for this injury cause ranged in poor category (16 & 21).
According to mothers to evade falls during skating, A child should do skating only on an empty road (95.6%) and Child should wear only helmet (75.6%). The low scores (8 and 44), projected ignorance concerning the safe path and protective gear for skating.

Simply 26.7% know that Toughened glass was harmless and 52.8% respondents were aware of Furniture/huge equipments with heavy base are safe for children. This uncovered to the fact that respondents were not acquainted to the safety standards of furniture/huge equipments.

When asked about the causes responsible for slips on floor, it was cheering to come across that 83.9% respondents were familiar that Light rugs/carpets can cause falls in children and Shoes with Velcro/elastic laces prevent children from falling (74.4%). The scores in this category were good.

Concerning playground equipment injury, maximum respondents said that Swings with bucket seat were not safe for children (73.8%) and See-saw with springs should only be used for small children (26.7%). The scores 47 and 48 depict poor knowledge of mothers.

In summary, it can be generalized that major chunk of the respondents were having poor knowledge about the Falls, Slips & Trips which can be caused due to Window/balconies/Places with height, Small wheeled equipments and Play ground as the mean scores for these were 18.5, 26 and 47.5 respectively. Mean scores revealed that mothers possessed average knowledge about Stairs & Furniture/Huge equipments. Therefore there is a burning need to accentuate the causes of these injuries to prevent fall, slips & trips.

**Causes of Drowning**

The causes of drowning were divided into two categories; first at home & outside and second at swimming pool. 70% of the mothers viewed wrongly that One inch of water in washing machine, bucket, drum etc at home cannot be the cause of drowning. While for the second cause 92.2% respondents answered correctly that the Life saving jacket was essential for children while boating.
For the causes of drowning in swimming pool, greater part of respondents were unaware regarding that the Children should not swim below the diving board (68.3%) and more than one third (40%) stated wrongly that Diving was safe for children. The third cause of drowning in pool also disclosed the disappointing concept by 84.4% mothers that Safety devices like arm bands / floats were reliable during swimming. 60.6% of respondents showed disagreement for Pools having self closing and latching gates, which was again a mistaken response.

Though mean scores revealed average knowledge for both the causes but the score for drowning in swimming pool was very near to poor level of knowledge among mothers (Mean Score= 66). The knowledge was ominous and mothers information need to be accentuated.

**Causes of Road Traffic Injuries**

When response pertaining to the causes of bicycle injury was drawn out from mothers it was found that greater part (90.6%) of respondents opined wrongly that It was safe to ride a bicycle on non traffic/ empty roads. When reply as regards to the necessity of wearing helmet while cycling was bring forth nearly more than half (57.2%) respondents only answered acceptably. Overall the mean knowledge score concerning bicycling was 60 which ranged in poor knowledge level of mothers.

To shun car related injuries sizeable respondents (74.4%) had a wrong notion that Sitting at the front seat of car after putting on the seat belt was safe for the child. Just 55% respondents reported correctly that Sitting at left side of the back seat of car was safe for the child and only 16.1% know that the Speed of a car should not exceed 30 km/hr in front of school/home. The mean poor knowledge score (58) of the mothers related to car could compound the car related injuries among children.

The mean average (69.5) knowledge score concluded that respondents didn’t know the menace of two wheeler ride with children as 68.3% respondents opined wrongly that It was safe for a child to stand in the front portion of a
two wheeler and 54.4% were having mistaken concept of Riding on a two wheeler was safe for children.

- Pedestrian injury responses were shocking as maximum mothers were unaware of safe play areas and reported that It was safe for children to play on empty roads (60.6%). Children should cross an empty road immediately was a wrong response given by 76.7 % mothers. Here the mean score for both statements was 56.5, which was awfully poor.

- Substantial respondents (59.4%) were disagreed to the statement that Seat belt was not required in a school bus while 70% considered Van and auto also as a safe means of conveyance for school children. Here respondents were correct in first statement but for the second statement their knowledge score was too low i.e.54.

- In summary, it can be figured out that out of the five causes of road injuries the mean knowledge score was poor for three causes which were Bicycling, Related to car and Pedestrian safety and average knowledge for two causes i.e. Two wheeler riding and School bus/Van/Auto. The consequences of poor knowledge can be devastating.

- **Overall Knowledge of Mothers regarding Unintentional Injury**

  - The study discovered that, the overall mean knowledge score of all the 180 mothers was average in all the injuries i.e. Burns, Scalds & Electrocution, Poisoning, Falls, Slips & Trips, Drowning and Road Traffic Injuries ranging from 64.25 to 111.31 of 180 maximum score but the findings exposed to a significant gap in overall knowledge towards Unintentional injuries causes. The knowledge score was highest in Poisoning (111.31) followed by Burns, Scalds & Electrocution and Drowning which was almost comparable (80.81 and 80.66) and the lowest among Road Traffic Injuries and Falls, Slips & Trips which was 64.27 and 64.25 concurrently. Slim forethought on behalf of mothers can help evade ruinous consequences for the children.

- **Mothers’ Knowledge Rating toward Unintentional Injuries**

  The respondents were asked to specify their knowledge level towards unintentional injuries among children on 5 point scale ranging from 5 (Extremely
Knowledgeable) to 1 (Not at all Knowledgeable). It was observed that all the knowledge scores were in the range from 2.63 to 2.84 i.e. all the respondents had only somewhat knowledge about all the injuries. It was reported that they possessed highest knowledge in Burns, Scalds & Electrocution i.e. 2.84 followed by Road Traffic Injuries and Falls, Slips & Trips with the score of 2.80 and 2.74 respectively and 2.68 in Poisoning and rated themselves with the least knowledge in Drowning with the score of 2.63. This result figure out the fact that all the respondents were factual in self rating as the analysis of the knowledge result depicted similar findings in the present research that is all the mothers had average knowledge regarding all the five injuries.

3. **Safety Practices Adopted by Mothers for Prevention of Unintentional Injuries among Children**

- **Safety Measures for Prevention of Unintentional Injuries**
  
  The results received in favour of the sources of information for preventive measures revealed that 97.8% gained information via newspaper followed by neighbour (78.9%), magazines (65.6%) and TV (53.3%). Only 45.6% respondents received information from relatives and only 37.2% took help of internet.

  Sizable respondents (93.9%) had never attended any kind of formal training or have ever been exposed to any informational program relevant to injuries but all the respondents (100%) had shown willingness to attend the training program.

- **Safety Practices Adopted by Mothers for Prevention of various Unintentional Injuries among Children**

  This section discussed the practices of mothers that could predispose their child to various unintentional injuries. Each injury risk for Burns, Scalds & Electrocution, Poisoning, Falls, Slips & Trips, Drowning and Road Traffic Injuries was treated separately in this analysis so that determinants of injury-specific safety practices could be obtained.
• Safety Practices for Burns, Scalds & Electrocution

- For prevention from Electric current and equipments, only 62.2% protected the unused plugs/sockets with tapes and socket guards. The current study discovered an obvious ignorance regarding the menace of chargers as only half (50.6%) of the respondents removed the charger from plug after every use. Along with this, Using two pin plugs by maximum respondents (75.6%) also signifies unawareness regarding the importance of three pin to prevent electrocution. It was made known in this study that 77.2% mothers didn't Left the automatic equipment on and unattended but 38.3% uncovered to the actuality that a wrong practice of permanent use of extended cord was followed by them.

- When the practices of mothers in the kitchen was reviewed, half of them (51.7%) reported that The child goes in the kitchen unattended when the cooking was in process. The practice of Always keeping the handle of cooking utensils in the middle or back of the stove was not adopted by 76.7% mothers. Also, the busy schedule of 68.9% mothers forced them to pursue the wrong practice of Allowing the child to play in kitchen while cooking. The mean safe practices adoption score (61.6) in the kitchen may cause devastating trauma among the children.

- For hot liquids and solid prevention practices it was found that, just 7.2% mothers followed the Temperature checking of child's bathing water by keeping the hand in for more than 5 seconds, only half (49.4%) of them always Served the microwave cooked food after thorough stirring and testing for hotness and 15% of mothers sometimes Asked their child to carry hot tea/milk to the table which was an inexcusable practice.

- The practices for fire prevention were dreadful. It was found that only a few (20.5%) mothers trained the child to stop, drop and roll in case of fire on clothes and mere 21.1% of them possessed fire extinguisher in home and know its operation. Very few (12.8%) practiced the home fire escape plan with their family. Also, not many (17.8%) mothers were aware of the use of different type of fire extinguishers. The overall awfully low adoption scores
for fire prevention practice expose to the fact that mothers would be unable to deal after any kind of mishap due to fire.

- In case of fire/electrocution, only 58.9%, 30%, 43.9% & 60% respondents were having emergency contact number of fire brigade/local fire station, local electricity office, hospital/ Doctor (on call) and ambulance respectively.

- Overall the mean scores for all aspects of Burns, Scalds & Electrocution prevention range in medium adoption category except for fire prevention which is nerve-racking in the existing study. Therefore, an effective strategy for prevention of burns, scalds and electrocution injuries needs to be highlighted.

- **Safety Practices for Prevention of Poisoning**

  - The response regarding medicinal/therapeutic drug safety practices bring forth that 68.3% of the mothers followed the wrong practice of Using spoon instead of measuring cup while giving medicine to their child. Also 40% of them Asked the child sometimes to take medicine themselves and over again 50% reported that The left over / extra medicines were actually found within the reach of children. All the three practices related to medicine were found to be a sign of negligence and unawareness regarding the intimidating effects of medicines.

  - When the practices for Mosquito repellant, toilet cleaner, phenyl etc were examined it was found that only 51.7% of the mothers Always kept the doors & windows open while using these products, 31.7% Sometimes didn’t covered the edible items and 77.2% reported that the Cosmetics and cleaning products were often left within the reach of children. The overall mean score for the practices followed for Mosquito repellant, toilet cleaner, phenyl etc was only 85.6 which clearly reveals for an immediate need for detailed guidelines for mothers regarding use, storage, disposal of these products.

  - The practices for Art/craft materials make known that 73.3% mothers Did not checked for the non toxicity label of the products while purchasing and 37.2% reported that They allowed the child to eat and do art & craft work
simultaneously. Both the wrong practices show that mothers were badly informed of the reality that art and craft material contain a lot of toxic products which can adversely affect the child.

- Sizable respondents (84.4%) admitted that they purchased local colored toys for children from mela as well as 52.2% were giving drinking water to their child from age old water pipelines. The low adoption score for prevention of child against lead (57) can have adverse consequences on their physical and mental health.

- Response for Poisonous gases prevention divulged that in summers (22.8%) mothers allowed their child to sit in closed car with a functional AC which was completely a lamentable practice.

- For Pet safety only 67.2% respondents did not entrusted the child with food and bath duties whereas only 53.3% were aware of all the implication on health of child when in contact with house pets. The mean score 108.5 for pet safety ends with a suggestion that still more mothers need to be cautious.

- The safety practices of mothers for Unknown plants were staggering. It was found that only 10% labeled the household plants and only 17.8% had acquired information from experts' regarding in and around household plants.

- Overall for poisoning safety practices, the mean scores of medicinal/therapeutic drug safety practices, household products safety, art/craft materials safety practices and for Pet safety range in medium adoption category but the low preventive measures were taken against Lead and Unknown plants. Thus, warrant comprehensive poison prevention information highlighting lead and unknown plant safety.

- **Safety Practices for Falls, Slips & Trips**

  - Respondents when asked to disclose various safety measures used by them to prevent Falls, Slips And Trips among the children it was disturbing to find that only 46.1% mothers had installed appropriate size and gripped hand railing on
both the side of stairs and nearly two third (62.8%) of them in the current study were Always able to keep stairs clear of clutter.

- About more than half of the respondents in the study (56.7%) worried that their child climb on chair & other furniture left sometimes in balcony/near window by them, 44.4% of mothers were troubled as their child reached the rooftop/balconies which were unprotected and having small railing. 76.1% were bothered because their child tried to reach/climb for toffee/toys/remote kept at height. If we talk in terms of scores of the three practices adopted by mothers all range in low & medium category of adoption (Score from 43 to 100).

- When reply regarding Furniture/Huge equipment safety was drawn out significant number (78.9%) Haven't strapped the unstable and huge equipments by brackets on the wall and sizable respondents (88.3%) Did not guarded the sharp edges of furniture with pads/corner cushions. The reason behind low scores (38 and 21 of 180 maximum) for both the practices may be that the concept of anchoring the heavy items and padding the corners was either not known or because they were costlier or either mothers thought that supervision alone will prevent children from getting injured.

- Merely 46.7% respondents Installed hand rails and non- skid mats to prevent slips in bathroom and just 38.9% were always able to Keep heavy- use areas free from shoes, slippers, toys in home. Grounds behind low score for first statement may be that hand rail / grab bars / non skid mats was still not very well-known especially for children. Also the cost of these items as well as expenses incurred in their installation may appeared to be higher.

- It has been observed that generous sample gave priority to Good fitting footwear for the children (94.4%) but Non-skid and good grip sole was taken into consideration by only 68.9% mothers.

- The Play ground safety aspect when considered, it was found that only 60.6% mothers regularly checked the pointed edges and broken hooks of the swings and slides before making the child sit on it and 68.3% of them did not
Allowed more than one child to sit on the same swing at the same time. The scores for these two practices ranged in nearly good category but when the scores for coming two practices were studied, it was found that 66.1% respondents were sometimes Unable to stop the child from climbing the slide from the wrong side and 56.1% were Unable to keep a constant watch on the child in the playground. The medium adoption scores for the last two statements of playground safety can hinder the child for active, social fun and might become a breeding ground for injuries.

Considering the overall scores for Falls/Slips/Trips in the current research, it can be concluded that mothers followed high safety measures for footwear safety but significant proportion of them will be unable to prevent injuries caused due to Furniture/Huge equipment, Windows/Balcony, At floor and In the play ground because in maximum preventive measures the scores ranged in low & medium adoption category (29.5 to 98). So, drawing attention towards prevention from this distressing injury would be laudable because safety of the child must be the foremost priority of every caretaker.

**Safety Practices for Prevention from Drowning**

The response regarding drowning prevention practices divulged that only 66.7% mothers Emptied the water sources (big buckets, washing machine etc) after each use and kept them out of the reach of child all the time knowing the verity that one inch of the water can be a culprit. Mere 56.7% of them Emptied the inflation pool after each use but sizeable respondents (85.6%) adopted a praiseworthy practice of Ensuring that the tanks inside the home and the tanks under construction were always covered as they may be well-known to the fact that the depth of the tank increased the risk of drowning as well as reduced the possibility of rescue. The majority of mothers (72.8%) stated that they were not able to Use the appropriate size of life saving jacket for their child during boating which was verified by a small personal survey done at two famous lakes of Udaipur: Fatehsagar and Pichola which disclosed the fact that the life saving jackets were not available particularly for this age group.
(Jackets of common size was available for all the children which was anyhow adjusted by the straps).

- When response regarding pool safety practices were drawn out it was found that nearly one-third of the respondents (34.4%) were not able to keep a constant watch on their child during swimming. May be the reason behind non vigilant observation by the mothers was more reliability on the life guard. About 70.6% respondents didn’t obtained any additional information regarding pool and swim safety signs but it was cheering to find that almost all (97.2%) of them ensured swimming in the presence of life guard/trainer.

- Overall the mean adoption score for drowning prevention (Practices at home and outside as well as pool) range in medium adoption category (106.5 & 118.6). Therefore, education appears to be promising strategy to prevent traumatic event of drowning especially for swimming pool.

- **Safety Practices for Road Traffic Injuries**

  - Mothers were asked to report on their use of safety practices relevant to Bicycling, Car, Two Wheeler, Walking /Crossing the Road, School Bus/Van/Auto and Safety Equipment to prevent fatal road injuries among children.

  - It was shocking to know that 30.6% mothers permitted their child to ride cycle all alone on a nearby empty road sometimes, 25% respondents didn't checked regularly the functional brakes, air in tyre of child’s bicycle and 35% were unable to stop their child from showing stunts with the bicycle and riding with uncontrollable speed. The first & third practices which were not adopted by nearly one third proportion of the respondents could be a cause of immense harm to the respondents' child.

  - Practices regarding car safety uncovered that 32.7% of mothers sometimes forget to put child lock in car, 45.6% sometimes left the child alone in car and get down to buy things and 22.8% were not alert of the child getting out from the wrong side in the stopped car. Also 70.6% mothers fulfilled their child’s wish to sit on the front seat of the car. But it was admirable that 84.5%
mothers didn’t Allowed child to play all alone in a closed car. The overall medium adoption score (110) compel remaining mothers for enhanced safety practices regarding the car.

- Two-wheeler ride practices disclosed that 33.3% Sometimes had 3 or 4 riders on one vehicle to cover short distances and 46.1% Used to carry the children, their bags, vegetable and the like on the same vehicle. The above two practices followed by some mothers were disagreeable. But, it was admirable to find that despite of the inevitable use of mobiles, 77.2% respondents didn’t Used mobile while riding a two wheeler.

- While talking of pedestrian safety, 47.2% of the respondents Attempted to cross the busy road and also tried to cross in between the parked vehicles with children. Besides that, nearly half of the respondents (51.7%) only Make their child to practice regularly to cross road safely.

- Response related to School bus/Auto safety discovered that 43.3% mothers Sometimes entrusted her child with other children while waiting for the school vehicle forgetting that there is no substitute supervision and 35% of them Allowed the child to travel in an overloaded auto/van for school. Here again both the practices were woeful.

- When the practice for Safety equipments was reviewed it was found that only 38.9% of mothers Provided an ISI mark helmet to their child and from that too only 19.4% Took appropriate measurement test for helmet before buying.

- The overall score analysis of Road traffic injuries conclude that the score range in medium adoption category (Mean Score = 94 to 118.6) apart from one practice i.e. safety equipment for which the score was poor. This confirms that mothers were taking few preventive measures but, since road injuries are life threatening, all the mothers need to identify and follow all the specific prevention strategies to reduce the debilitating road injuries.

- **Overall Safety Practices Used for Prevention of Unintentional Injuries**

  - It was discovered in the current research that, the overall mean safety practice adoption score of all the 180 mothers was medium in all the five injuries
ranging from 73.05 to 111.57 of 180 maximum score. A closer look in the study exposed noteworthy and at times serious gaps in the prevention of all the unintentional injuries. There were surprisingly few precautions practiced by the majority of the mothers, and they did more to prevent some types of injuries than others i.e. considerable variability in mothers' safety practices was found. For example, mothers engaged in more safety practices to prevent drowning as the adoption score was highest in Drowning i.e.111.57 of 180 while the second highest safety practices was adopted in Road Traffic Injuries (102.2). Followed by this, was Falls, slips and trip whose overall mean adoption score by respondents was 86.4 of 180. A lack of adoption of practices that prevent children from being subjected to Poisoning injury was also demonstrated in current study as the mean score was found to be only 79.53. It was crushing to know from the present study results that sample followed the lowest adoption practices in Burns, Scalds & Electrocution (73.05 of 180) unacquainted to the fact that burns are one of the most devastating conditions encountered in medicine.

From the study results, it can be divulged that despite the reality that Burns, Scalds & Electrocution, Poisoning and Falls, slips and trips are alarming, less than half (44.2%, 40.6% and 48%) of the mothers did not realized the importance of following the safety measures relevant to these three injuries. Therefore, every-one across wide disciplines, especially the mothers should be reinforced through educational programme.

- **Rating of the Safety Practices Adopted for Prevention of Unintentional Injuries**

The respondents were asked that how often they use various safety practices for prevention of unintentional injuries on 5 point scale ranging from 5 (Always) to 1 (Never). It was observed that mothers always use safety practices for Burns, Scalds & Electrocution (Mean Score=4.48), Poisoning (Mean Score=4.51), Drowning (Mean Score=4.64) and Road Traffic Injuries (Mean Score=4.39) while they often use safety practices in case of Falls, Slips & Trips. The findings for this statement figure out the fact that all the respondents were not accurate in self rating of the safety measures. The analysis of safety practices
result reveals dissimilar findings for four injuries i.e. Burns, Scalds & Electrocution, Poisoning, Drowning and Road Traffic Injuries which was in medium category.

4. Designing of Instructional MMP (Multi Media Package) for mothers on “Prevention of injuries” among children of 4-6 years of age:

According to the objectives set forth, the Instructional MMP (multimedia DVD and manual) on prevention of injuries was designed by the investigator following the steps given below:

A). Designing of multimedia DVD
2. Finalization of subject matter and content outline.
3. Preparation of multimedia DVD.

Multimedia DVD part 1-5 on ‘Ek Kadam : Sureksha Ki Aur’ on the prevention of unintentional injuries among children.

- Writing Script
- Audio recording
- Collection of images
- Preparation of a storyboard
- Synchronization of audio and text
4. Evaluation of multimedia DVD by panel of experts.

B). Designing of a manual
- Script writing
- Collection of images.
- Arranging images with matching text.
- Evaluation of the Manual by panel of experts.

Evaluation of Multimedia DVD: The multimedia DVD along with the parts/components was subjected to evaluation for two aspects i.e. visual and audio aspect by panel of experts on three point continuum. In the visual aspect, multimedia DVD was rated good with overall scores range between 2.60 to 3.0
out of maximum rating of 3. In all the ten criteria of audio aspect multimedia DVD was rated good by experts with mean scores ranging between 2.77 to 3.0.

– Component/part wise evaluation of the audio and visual aspect of multimedia DVD by experts revealed that all the seven components were evaluated good and average as mean scores in different criteria of audio and visual aspects ranged between 2.4 to 3. The component 'Road Traffic injuries' was rated good with the highest mean score of 2.92 followed by 'Drowning' and 'Introduction' with mean score of 2.91. Similarly, the component 'Poisoning' was recorded to be third with the mean score of 2.84. And the remaining three components i.e. 'Burns and Scalds', 'Falls, Slips and Trips' and 'Conclusion' were having the similar mean score of 2.83 respectively.

**Evaluation of Manual:** The manual was rated good by the experts with the mean scores ranging between 2.69 to 2.87 out of maximum score 3.

– Component wise evaluation of different aspects of manual was rated average and good by experts with mean scores between 2.2 to 3 in all the eight components. Among the entire component, Poisoning was rated with the highest score of 2.98 of 3 followed by this were two components i.e. Burns and Scalds; Home safety checklist with second highest score of 2.97. Road Traffic injuries were rated third with the mean score of 2.93. Drowning and Falls/Slips/Trips was rated as fourth and fifth with the score of 2.90 and 2.80 respectively and lastly two components Why make your home Kid-safe and Steps to prevent injuries was rated with an average score of 2.40 each.

– Once developed, the instructional MMP was pilot tested with 20 non sample mothers to determine package revisions and check. The mothers were able to understand the package and no major comments and remarks were made to improve or change.

5. **Effectiveness of Instructional Multimedia Package (MMP) in terms of gain in knowledge by the mothers**
- **Respondents’ Knowledge towards Unintentional Injuries after exposure to Instructional Multimedia Package (MMP)**

  - After the intervention through multimedia package, the respondents were asked to disclose their knowledge level toward various unintentional injuries among children on 5 point scale. To get the concrete result mean score was calculated. It was observed that the mean knowledge scores were in the range of 4.67 to 4.94 so it can be concluded that now respondents have extreme knowledge about various unintentional injuries among children.

  - If we compare these scores from the scores before intervention (2.63 to 2.84), it can be noticeably concluded that MMP has significantly increased the knowledge of mothers.

  - To check whether this increment is significant or not, t-test was applied. For Burns, Scalds & Electrocution the mean knowledge score increased from 2.84 to 4.84 with the calculated t-values of 17.216. Simultaneously for Poisoning the mean knowledge score increased from 2.68 to 4.67 with the calculated t-values of 25.213. Similarly for Falls, Slips and Trips the mean score increased from 2.74 to 4.76 having the calculated t-values of 18.154. For Drowning the mean knowledge score increased from 2.63 to 4.68 with the calculated t-values of 29.165 and for Road Traffic Injuries the mean knowledge score increased from 2.80 to 4.94 and the calculated t-values was found to be 21.705 (At 5% Level of Significance and Tabulated value = 1.96). Consequently from the results, the null hypothesis is accepted and it can be concluded that Instructional multimedia package is effective in increasing the knowledge of mothers.

- **Safety Practices Adopted for Prevention of Unintentional Injuries after exposure to Instructional Multimedia Package (MMP)**

  - After exposure to MMP, respondents were asked that now how often they use various safety practices for prevention of unintentional injuries on 5 point scale ranging from 5 (Always) to 1 (Never). It was observed that the mean adoption scores were in the range of 4.86 to 4.97 so it can be clearly
concluded that the frequency of safety practices use for prevention of unintentional injuries after getting exposure to MMP has been increased. Now the mothers would always use safety practices for Burns, Scalds & Electrocution (Mean Score=4.89), Poisoning (Mean Score=4.97), Falls, Slips & Trips (Mean Score=4.96), Drowning (Mean Score=4.86) and Road Traffic Injuries (Mean Score=4.91).

- If we compare these scores from the scores before intervention (3.99 to 4.64), it can be noticeably concluded that MMP has significantly increased the safety practices of mothers for all the unintentional injuries.

- To check whether this increment is significant or not, t-test was applied. An increase was found in mean score from 4.48 to 4.89 for Burns, Scalds & Electrocution and the calculated t-values was found to be 3.503, for Poisoning the mean score increased from 4.51 to 4.97 with the calculated t-values of 5.174. Simultaneously for Falls, Slips & Trips it increased from 3.99 to 4.86 and the calculated t-values was found to be 7.593. For Drowning it increased from 4.64 to 4.96 with the calculated t-values of 3.616 and for Road Traffic Injuries, the mean score increased from 4.39 to 4.91 and the calculated t-values was found to be 4.913 (At 5% Level of Significance and Tabulated value = 1.96). For all type of injuries significant difference has been identified in the mean scores, which means that mothers have significantly started using more safety practices after intervention. Therefore it can be concluded that Multimedia is an effective instructional aid for the mothers to prevent injuries.

CONCLUSION

Overall it can be summarized that mothers had an average knowledge regarding unintentional injury and their causes as well the adoption of safety practices was medium for all the injuries i.e. Road Traffic Injuries, Burns, Scalds & Electrocution, Poisoning, Falls, Slips & Trips and Drowning.

The multimedia package having DVD and manual was found to be effective in increasing the knowledge and safety practices of the respondents. Consequently, the developed instructional package will not only help the mothers to maintain the health and functional independence of their children by avoiding
costly injuries and infirmities but will definitely have a wide educational appeal and will be sought out by a host of learners including families, community groups, and members of the health care professions who will make this program an indispensable tool for positively impacting the health of the blooming population.

**Recommendations**

- Similar studies can be conducted in other schools with different clientele to determine the wider applicability and use of the instructional package.
- A comparative study with other aids can be done.
- A complete website on 'Injury Prevention' can be developed for its wider accessibility.
- Research on case studies of injury victims can be carried out and the critical cases can be converted into documentaries and can be used as a tool for motivating more and more people.
- Short live or animated videos on injury causes and preventive measures can be developed on specific injury type and can be exposed to a lot of spectators through Whatsapp, Facebook, YouTube etc.
- Unobtrusive home observation can be carried out in order to check on the accuracy of what mothers' reported regarding the safety practices for the prevention of injuries.
- Information can be gathered about why mothers' choose not to engage in a variety of precautionary measures against injuries which may prove useful for planning a more effective intervention programming.
- Additional research is necessary to determine whether multimedia package effectiveness would maintain over time.