A Randomized Control Study to Evaluate the Efficacy of Safe Home Toolkit for Under-Five Children (SHT-UFC) on the Awareness of Parents Regarding the Prevention of Domestic Accidents

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Abstract

Background

Domestic accidents among under-five children are linked to numerous factors, including child development, the physical layout and facilities at home, knowledge and practices, the behavior of parents and other family members, parents' education, overcrowding and homelessness, and the availability of safety equipment in the home.

Objective

The objective of this study is to evaluate the efficacy of a safe home toolkit for under-five children (SHT-UFC) on parents' awareness regarding preventing domestic accidents among under-five children, to assess the baseline knowledge and practices regarding preventing domestic accidents among parents of under-five children in the control and experimental groups, to find out the reported incidence of domestic accidents among parents of under-five children in the control and experimental groups, and to evaluate the effectiveness of a safe home toolkit among parents of under-five children.

Method

Simple random sampling was done in each community to recruit the participants. The sampling frame (list) of the participants was collected from the Anganwadi workers of the community. Each participant was then selected by using the computer-generated table in both groups that are the experimental and control groups.

Result

Knowledge and practice scores regarding SHT-UFC are positively related in the pretest and post-test, indicating that knowledge influences practices. In the pretest, Pearson’s correlation coefficient (r) is higher than in the post-test because the knowledge was less and so were the practices in the pretest. In the post-test, the knowledge gained is varied yet significant, and the practices also improved.

Conclusion

This study revealed that a safe home toolkit for under-five children (SHT-UFC) is effective in creating awareness among parents regarding the prevention of domestic accidents.

Introduction

Accidental injuries in the home environment are the main reason for preventable deaths in under-five children. These injuries can also have negative consequences on a child’s health and lead to serious disability. Children’s accidental injuries remain a major public health concern [1]. Unintentional injuries (such as burn, fall, poisoning, cuts, and injuries from drowning and strangulation/choking/suffocation) are significant health issues that can be avoided among children. There is a persistent social dimension to accidental injuries. The rate of casualty visits for non-intentional injuries under five years is 38%, which is more common in poor populations than in affluent people [2].

Approximately 830000 children under 18 years die worldwide every year from unintentional injuries. Millions of children require hospitalization and advanced care every year for nonfatal injuries. Ninety-five
percent of injuries to children occur in underdeveloped and developing countries. Forty percent of all child
deaths in developed countries are due to child injuries [2]. Globally, nearly 47000 children and adolescents
die due to falls each year. There are about 690 children who miss school due to fatal falls each year, and it is
the main contributor to long-term disability in under-five children [3].

Choking, suffocation and strangulation, falls, poisoning, burns and scalds, and drowning are unintentional
injuries accounting for 90% of hospitalization in this age group. These significant causes of preventable
death and severe long-term harm demand urgent action to make a significant difference [3].

A serious bathwater burn would need years of severe skin grafts; therefore, treating an accident may be very
costly. Permanent brain damage may be caused by a fall at home. Injuries significantly influence study, job,
emotional health, and socialization. In addition, such long-term injuries are psychologically painful for the
caregivers too. Unintentional injuries in the home accounted for almost 7% of all pediatric deaths in 2015
among children between one and four years of age [4-6].

Domestic accidents among under-five children are linked to numerous factors, including child development,
the physical layout and facilities at home, knowledge, and practice, the behavior of parents and other family
members, parents’ education, overcrowding and homelessness, and the presence of safety equipment inside
the house [7-9]. Domestic accident types have different levels of gravity. Some accidents, such as choking,
strangulation, and drowning, could be fatal. Scalds and burns can cause serious long-term impairment and
hospitalization but rarely result in death [10].

**Materials And Methods**

**Research setting and design**

In the selected community area of Wardha, Maharashtra, India, the study was carried out and used
an experimental study approach. A randomized control study was the research method used for this study.
The study proposes to evaluate the efficacy of a safe home toolkit for under-five children (SHT-UFC) among
parents in preventing domestic accidents.

**Sampling techniques, sample size, and eligibility criteria**

Simple random sampling was done in each community to recruit the participants. The sampling frame (list)
of the participants was collected from the Anganwadi workers of the community. Each participant was then
selected by the computer-generated table for both groups that are experimental and control groups. In this
study, 200 samples were included, 100 samples each from the experimental group and control group. The
eligibility criteria for the participants are shown in Table 1.

| Serial Number | Criteria for Participant Selection |
|---------------|-----------------------------------|
|               | **Inclusion criteria**             |
| 1             | Those who were available at the data collection gave consent to participate. |
| 2             | Parents of under-five children in the age group of 21-50 years. |
| 3             | Both male and female parents were included. |
| 4             | Subjects are selected from rural and urban communities. |
| 5             | Those who understand Hindi and Marathi. |
|               | **Exclusion criteria**             |
| 1             | Those parents of under-five children who were noncooperative and suffered from severe mental disorders. |

**TABLE 1: Sample Selection Criteria**

**Data collection tools**

The approach to the study was experimental. The safe home toolkit intervention was designed to create
awareness among the parents of children under five years. No interventional study was conducted with
models of safe homes and videos on home safety for parents of under-five children. This age group is most
vulnerable to domestic accidents. Hence, the study approach is an experimental study with a control group.
The control group is used to ensure that the improvement in awareness is due to the intervention only.
Simple random sampling is used to select and assign the participants. Every house has safety concerns and
would have qualified for the study. However, the study was restricted to under-five children; hence, simple
random sampling was used to avoid selection bias.

The material used for data collection
There was no standardized tool exactly matching the data collection needs for this study. However, guidelines by the WHO are available for safe homes for under-five children. The investigator prepared the knowledge questionnaire and safe home inventory based on those guidelines and validated them during the pilot study. The tools used for data collection were modified standardized tools. The tools used in this study include a demographic data sheet to collect information regarding the parent’s age, gender, education, occupation, residence, monthly income, religion, type of house, number of under-five age group children, ownership of the house, etc. The researcher developed the knowledge questionnaire and validated it in the pilot study. There are 30 multiple-choice questions (MCQ) on different aspects of domestic accidents. The questions include the causes and preventive measures implemented at home to prevent a particular type of domestic accident. The correct option is scored with “1,” and the wrong answer is scored with “0.” The tool’s reliability was estimated to be r=0.763 by Spearman-Brown correlation coefficient and r=0.762 by Guttman split-half coefficient. The tool was found reliable and hence used for primary study data collection.

Standardized general home safety inventory and intervention
This was developed from the WHO’s guidelines for safe and healthy homes for children under five years. It includes observations in each housing area: hall, kitchen, bedrooms, garage, front courtyard, courtyard staircase, bathrooms, etc. The investigator makes the observations to estimate the level of the general safety of the house for under-five age group children. Each item is ticked on “yes” or “no.” The presence of safety equipment or infrastructure got the score “yes” = 1, and the absence of such gadgets got the score “no” = 0. There is a total of 101 items in the inventory. This inventory was also validated during the pilot study and found reliable. The intervention was the safe home toolkit for under-five children (SHT-UFC). It consists of an information leaflet on home safety, including engineering measures, environmental measures, legislation and standards, development education and skills, videos on home safety, and a safe home model demonstration.

Implementation of SHT-UFC
On day 1, pretest data were collected from the participants. Then, they distributed an information handout regarding home safety. They were then shown the video on home safety. On day 2, they were asked to read the handout before the investigator and asked about any doubts. Their suspicions were clarified, and they were shown the ideal safe home model. They have explained the safety aspects of the model house.

Method of data collection and plan for data analysis
Following the Institutional Ethical Committee (IEC) of Datta Meghe Institute of Medical Sciences approval, the study was carried out. The parents’ written informed consent was taken before recruiting them for the study. Permission from relevant stakeholders was taken. No harm of any nature is foreseen in the study. The data were collected on a one-on-one basis. The investigator prepared the sampling frame of families having under five years of age children in the selected community area. The families were chosen for recruiting in the study by computer-generated table. Only one parent from each family was included in the study. The baseline data were collected through self-reports (knowledge) and observations (practices). The interventions were given in groups of 5-10 parents. Overall data were collected for knowledge two times (baseline and seventh day of the intervention) and for practices three times (baseline, seventh day of the intervention, three months after the intervention, and after six months of intervention to assess the progress in practices). Data were analyzed using Statistical Package for Social Sciences (IBM SPSS Statistics, Armonk, NY) version 24.0.

Ethical aspects
The study proposal was presented to the Institutional Ethical Committee (letter number DMIMS(DU)/IEC/2018-19/7345). Prior permission is obtained from the sarpanch of the community to conduct the pilot study and the research study. Written informed consent is obtained from each study subject. The subjects are assured about the confidentiality of the information they provide. The data sheets are stored safely under lock and key with limited access to only the investigator and statistician. Random assignment of subjects was done to control and experimental groups. To prevent contamination, the control group was taken from a community geographically located at a distance from the experimental group. Both male and female parents were recruited for the study.

Results
Distribution of participants according to their demographic characteristics
Table 2 shows the distribution of participants according to their demographic characteristics.
| Serial Number | Demographic Characteristics | Control Group | Experimental Group |
|---------------|-----------------------------|---------------|--------------------|
|               |                             | Frequency | %     | Frequency | %     |
| 1             | Number of children in the age group 0-6 years |           |       |           |       |
|               | Nil                          | 0         | 0     | 0         | 0     |
|               | 1                            | 73        | 73.0  | 58        | 58.0  |
|               | 2                            | 25        | 25.0  | 37        | 37.0  |
|               | 3                            | 1         | 1.0   | 4         | 4.0   |
|               | 4                            | 1         | 1.0   | 1         | 1.0   |
| 2             | Type of house                |           |       |           |       |
|               | Kaccha                       | 16        | 16.0  | 20        | 20.0  |
|               | Pakka                        | 84        | 84.0  | 80        | 80.0  |
| 3             | Ownership of house           |           |       |           |       |
|               | Owned                        | 96        | 96.0  | 93        | 93.0  |
|               | Rented                       | 4         | 4.0   | 7         | 7.0   |
| 4             | Type of family               |           |       |           |       |
|               | Nuclear                      | 56        | 56.0  | 55        | 55.0  |
|               | Joint                        | 44        | 44.0  | 45        | 45.0  |
| 5             | Number of family members     |           |       |           |       |
|               | 2-4                          | 41        | 41.0  | 48        | 48.0  |
|               | 5-6                          | 44        | 44.0  | 34        | 34.0  |
|               | 7-8                          | 7         | 7.0   | 13        | 13.0  |
|               | More than eight              | 8         | 8.0   | 5         | 5.0   |
| 6             | Age of the father            |           |       |           |       |
|               | 21-30                        | 27        | 27.0  | 24        | 24.0  |
|               | 31-40                        | 69        | 69.0  | 71        | 71.0  |
|               | 41-50                        | 4         | 4.0   | 5         | 5.0   |
| 7             | Age of the mother            |           |       |           |       |
|               | 21-30                        | 77        | 77.0  | 90        | 90.0  |
|               | 31-40                        | 23        | 23.0  | 9         | 9.0   |
|               | 41-50                        | 0         | 0     | 1         | 1.0   |
| 8             | Education of the father      |           |       |           |       |
|               | No formal education          | 2         | 2.0   | 0         | 0     |
|               | Primary                      | 9         | 9.0   | 14        | 14.0  |
|               | Secondary                    | 50        | 50.0  | 51        | 51.0  |
|               | Higher secondary             | 24        | 24.0  | 25        | 25.0  |
|               | Graduate                     | 14        | 14.0  | 5         | 5.0   |
|               | Postgraduate                 | 1         | 1.0   | 4         | 4.0   |
|               | Others                       | 0         | 0     | 1         | 1.0   |
|               | Education of the mother      |           |       |           |       |
### TABLE 2: Characteristics of Study Participants

#### Level of Knowledge and Practices During the Pretest and Post-test

Tables 3-4 display the distribution of study participants according to their level of knowledge regarding the safe home toolkit for under-five children before and after the intervention.

| Level of Knowledge Regarding Safe Home Before the Intervention | Score Range | Percentage Range | Control Group | Experimental Group |
|---------------------------------------------------------------|-------------|------------------|---------------|-------------------|
| Poor                                                          | 0-7         | 0-25             | 4             | 8                 |
| Average                                                       | 8-15        | 26-50            | 22            | 42                |
| Good                                                          | 16-23       | 51-75            | 69            | 46                |
| Excellent                                                     | 24-30       | 76-100           | 5             | 4                 |

### TABLE 3: Level of Knowledge Before the Intervention
| Level of Knowledge Regarding Safe Home After the Intervention | Score Range | Percentage Range | Control Group Frequency | Control Group % | Experimental Group Frequency | Experimental Group % |
|-------------------------------------------------------------|-------------|------------------|-------------------------|----------------|-----------------------------|-------------------|
| Poor                                                        | 0-7         | 0-25             | 0                       | 0              | 0                           | 0                 |
| Average                                                     | 8-15        | 26-50            | 11                      | 11.0           | 1                           | 1.0               |
| Good                                                        | 16-23       | 51-75            | 75                      | 75.0           | 2                           | 2.0               |
| Excellent                                                   | 24-30       | 76-100           | 14                      | 14.0           | 97                          | 97.0              |

**TABLE 4: Level of Knowledge After the Intervention**

Tables 5-6 present the distribution of study participants according to their level of practice regarding the safe home toolkit for under-five children before and after the intervention.

| Level of Practices | Score Range | Percentage Range | Control Group Frequency | Control Group % | Experimental Group Frequency | Experimental Group % |
|--------------------|-------------|------------------|-------------------------|----------------|-----------------------------|-------------------|
| Poor               | 0-24        | 0-25             | 60                      | 60.0           | 72                          | 72.0              |
| Average            | 25-48       | 26-50            | 37                      | 37.0           | 27                          | 27.0              |
| Good               | 49-71       | 51-75            | 2                       | 2.0            | 1                           | 1.0               |
| Excellent          | 72-94       | 76-100           | 1                       | 1.0            | 0                           | 0                 |

**TABLE 5: Level of Practices Regarding Safe Home Toolkit Before the Intervention**

| Level of Practices | Score Range | Percentage Range | Control Group Frequency | Control Group % | Experimental Group Frequency | Experimental Group % |
|--------------------|-------------|------------------|-------------------------|----------------|-----------------------------|-------------------|
| Poor               | 0-24        | 0-25             | 40                      | 40.0           | 0                           | 0                 |
| Average            | 25-48       | 26-50            | 47                      | 47.0           | 13                          | 13.0              |
| Good               | 49-71       | 51-75            | 12                      | 12.0           | 22                          | 22.0              |
| Excellent          | 72-94       | 76-100           | 1                       | 1.0            | 65                          | 65.0              |

**TABLE 6: Level of Practices Regarding Safe Home Toolkit After the Intervention**

Tables 7-8 show the distribution of study participants according to the reported incidence of domestic accidents among children under five years of age before and after the intervention.
### TABLE 7: Reported Incidence of Home Accidents Before the Intervention

| Nature of Domestic Accidents          | Control Group | Experimental Group |
|--------------------------------------|---------------|--------------------|
|                                      | Frequency     | %                  | Frequency     | %                  |
| Falls                                | 34            | 34.0               | 28            | 28.0               |
| Cuts and other injuries              | 9             | 9.0                | 15            | 15.0               |
| Poisoning                            | 0             | 0                  | 0             | 0                  |
| Burns                                | 6             | 6.0                | 6             | 6.0                |
| Drowning                             | 0             | 0                  | 0             | 0                  |
| Strangulation/choking/suffocation    | 3             | 3.0                | 3             | 3.0                |

### TABLE 8: Reported Incidence of Home Accidents After the Intervention

| Nature of Domestic Accidents          | Control Group | Experimental Group |
|--------------------------------------|---------------|--------------------|
|                                      | Frequency     | %                  | Frequency     | %                  |
| Falls                                | 30            | 30.0               | 10            | 10.0               |
| Cuts and other injuries              | 13            | 13.0               | 2             | 2.0                |
| Poisoning                            | 0             | 0                  | 0             | 0                  |
| Burns                                | 1             | 1.0                | 0             | 0                  |
| Drowning                             | 1             | 1.0                | 0             | 0                  |
| Strangulation/choking/suffocation    | 2             | 2.0                | 0             | 0                  |

Table 9 shows the significance level for the difference between the mean scores of knowledge among the study participants in the experimental group before and after the intervention.

| Test        | Mean | SD  | F-value | P-value |
|-------------|------|-----|---------|---------|
| Pretest     | 14.89| 5.19| 20.756  | 0.001, S (p<0.05) |
| Post-test   | 26.72| 1.90|         |         |

### TABLE 9: Level of Significance for Knowledge Regarding Safe Home in the Experimental Group

S: significant

Table 10 shows the significance level for the difference between the mean scores of knowledge among the study participants in the control and experimental groups before the intervention.
### Table 10: Level of Significance for Practices Regarding Safe Home Between Control and Experimental Group in Pretest

| Group      | Mean  | SD    | T-value | P-value       |
|------------|-------|-------|---------|---------------|
| Control    | 17.55 | 4.53  | 3.977   | 0.001, S (p<0.05) |
| Experimental | 14.89 | 5.19  |         |               |

### Table 11: Comparison of Reported Incidence of Domestic Accidents Before and After the Intervention in the Experimental Group

| Nature of Domestic Accidents | Pretest | Post-test |
|-----------------------------|---------|-----------|
|                             | Frequency | %  | Frequency | %  |
| Falls                       | 28       | 28.0 | 10       | 10.0 |
| Cuts and other injuries     | 15       | 15.0 | 2        | 2.0  |
| Poisoning                   | 0        | 0    | 0        | 0    |
| Burns                       | 6        | 6.0  | 0        | 0    |
| Drowning                    | 0        | 0    | 0        | 0    |
| Strangulation/choking/suffocation | 3     | 3.0  | 0        | 0    |

### Table 12: Level of Significance for Practices Regarding Safe Home Between the Control Group and Experimental Group in Pretest

| Group      | Mean  | SD    | T-value | P-value       |
|------------|-------|-------|---------|---------------|
| Control    | 23.38 | 10.68 | 1.310   | 0.193, NS (p>0.05) |
| Experimental | 21.56 | 9.55  |         |               |

### Table 13: Level of Significance for Practices Regarding Safe Home Between the Control Group and Experimental Group in Posttest

| Nature of Domestic Accidents | Pretest | Post-test |
|-----------------------------|---------|-----------|
|                             | Frequency | %  | Frequency | %  |
| Falls                       | 28       | 28.0 | 10       | 10.0 |
| Cuts and other injuries     | 15       | 15.0 | 2        | 2.0  |
| Poisoning                   | 0        | 0    | 0        | 0    |
| Burns                       | 6        | 6.0  | 0        | 0    |
| Drowning                    | 0        | 0    | 0        | 0    |
| Strangulation/choking/suffocation | 3     | 3.0  | 0        | 0    |
TABLE 13: Level of Significance for Practices Regarding Safe Home Between the Control Group and Experimental Group in Post-test

S: significant

| Group         | Mean  | SD   | T-value | P-value          |
|---------------|-------|------|---------|-----------------|
| Control       | 31.14 | 13.21| 16.431  | 0.000, S (p<0.05) |
| Experimental  | 69.40 | 12.96|         |                  |

Table 14 shows the significance level for the difference between the mean scores of practices among the study participants in three different observations (one before and two after) in the experimental group.

TABLE 14: Level of Significance for Practices Regarding Safe Home in the Experimental Group

S: significant

| Test          | Mean  | SD   | T/F-value | P-value          |
|---------------|-------|------|-----------|-----------------|
| Pretest       | 21.56 | 9.55 | 22.778    | 0.001, S (p<0.05) |
| O2            | 60.67 | 13.10|           |                  |
| O2            | 60.67 | 13.10| 7.828     | 0.001, S (p<0.05) |
| Post-test     | 69.40 | 12.96|           |                  |
| Pretest       | 21.56 | 9.55 | 26.762    | 0.001, S (p<0.05) |
| Post-test     | 69.40 | 12.96|           |                  |

Association of study variables with the demographic characteristics of the study participants

Table 15 shows the association of post-test knowledge with the demographic characteristics of the study participants. It reveals that the post-test knowledge scores are not statistically associated with any of the demographic characteristics of the study participants except for ownership of the house (p=0.044, S, as p<0.05). This significant association with homeownership can be attributed to the skewed distribution of participants, with 93% being owners of the house and only 7% residing on a rental basis.

| Demographic Variables | N | Mean  | SD   | F-value | P-value          |
|-----------------------|---|-------|------|---------|-----------------|
| Number of children under five |   |       |      |         |                 |
| 1                     | 58| 26.78 | 1.60 |         |                 |
| 2                     | 37| 26.60 | 2.32 | 0.338   | 0.796, NS (p>0.05) |
| 3                     | 4 | 26.50 | 2.38 |         |                 |
| 4                     | 1 | 25.00 | -    |         |                 |
| Type of house         |   |       |      |         |                 |
| Kaccha                | 20| 26.60 | 1.82 | 0.044   | 0.835, NS (p>0.05) |
| Pakka                 | 80| 26.70 | 1.94 |         |                 |
| Ownership of house    |   |       |      |         |                 |
| Owned                 | 93| 26.79 | 1.48 | 4.155   | 0.044, S (p<0.05) |
| Rented                | 7 | 25.29 | 4.89 |         |                 |
| Type of family         | Count | Mean   | SD    | t-value | p-value | Notes  |
|-----------------------|-------|--------|-------|---------|---------|--------|
| Nuclear               | 55    | 26.44  | 2.19  |         |         |        |
| Joint                 | 45    | 26.98  | 1.45  | 2.017   | 0.159 NS | p>0.05 |
| Number of family members |      |        |       |         |         |        |
| 2-4                   | 48    | 26.35  | 2.31  |         |         |        |
| 5-6                   | 34    | 26.94  | 1.28  | 1.394   | 0.249 NS | p>0.05 |
| 7-8                   | 13    | 27.39  | 1.61  |         |         |        |
| More than eight       | 5     | 26.20  | 1.48  |         |         |        |
| Age of the father     |       |        |       |         |         |        |
| 21-30                 | 24    | 26.63  | 2.98  |         |         |        |
| 31-40                 | 71    | 26.70  | 1.49  | 0.020   | 0.980 NS | p>0.05 |
| 41-50                 | 5     | 26.80  | 0.55  |         |         |        |
| More than 50          | 0     | -      | -     |         |         |        |
| Age of the mother     |       |        |       |         |         |        |
| 21-30                 | 90    | 26.79  | 1.91  |         |         |        |
| 31-40                 | 9     | 25.56  | 1.67  | 1.753   | 0.179 NS | p>0.05 |
| 41-50                 | 1     | 27.00  | -     |         |         |        |
| More than 50          |       |        |       |         |         |        |
| Education of the father |    |        |       |         |         |        |
| No formal education   | 0     | -      | -     |         |         |        |
| Primary               | 14    | 26.43  | 1.40  |         |         |        |
| Secondary             | 51    | 26.90  | 2.23  |         |         |        |
| Higher secondary      | 25    | 26.48  | 1.69  | 0.429   | 0.827 NS | p>0.05 |
| Graduate              | 5     | 26.80  | 1.30  |         |         |        |
| Postgraduate          | 4     | 26.25  | 0.96  |         |         |        |
| Others                | 1     | 25.00  | -     |         |         |        |
| Education of the mother |    |        |       |         |         |        |
| No formal education   | 0     | -      | -     |         |         |        |
| Primary               | 10    | 26.10  | 2.23  |         |         |        |
| Secondary             | 35    | 26.89  | 1.23  |         |         |        |
| Higher secondary      | 40    | 26.95  | 1.57  | 1.029   | 0.405 NS | p>0.05 |
| Graduate              | 12    | 25.75  | 3.67  |         |         |        |
| Postgraduate          | 2     | 26.50  | 0.71  |         |         |        |
| Others                | 1     | 26.00  | -     |         |         |        |
| Occupation of the father |    |        |       |         |         |        |
| Unemployed            | 0     | -      | -     |         |         |        |
| Self-employed         | 11    | 27.18  | 1.78  |         |         |        |
| Farmer                | 25    | 26.48  | 2.65  | 0.341   | 0.796 NS | p>0.05 |
| Service               | 17    | 26.65  | 1.66  |         |         |        |
| Laborer               | 47    | 26.68  | 1.56  |         |         |        |
### Table 15: Association of Post-test Knowledge Scores With Demographic Variables (One-Way ANOVA-Tukey’s Test)

| Demographic Variables | N  | Mean  | SD   | F-value | P-value   |
|-----------------------|----|-------|------|---------|-----------|
| Number of children under five |    |       |      |         |           |
| 1                     | 58 | 67.55 | 13.92|         |           |
| 2                     | 37 | 71.32 | 11.72| 1.216   | 0.308, NS (p>0.05) |
| 3                     | 4  | 75.75 | 3.69 |         |           |
| 4                     | 1  | 80.00 | -    |         |           |
| Type of house         |    |       |      |         |           |
| Kaccha                | 20 | 73.65 | 10.23| 2.736   | 0.101, NS (p>0.05) |
| Pakka                 | 80 | 68.34 | 13.40|         |           |
| Ownership of house    |    |       |      |         |           |
| Owned                 | 93 | 69.98 | 12.35| 2.692   | 0.104, NS (p>0.05) |
| Rented                | 7  | 61.71 | 18.89|         |           |
| Type of family        |    |       |      |         |           |
| Nuclear               | 55 | 68.49 | 13.83| 0.599   | 0.441, NS (p>0.05) |
| Joint                 | 45 | 70.51 | 11.88|         |           |
| Number of family members |    |       |      |         |           |
| 2-4                   | 48 | 68.02 | 14.10|         |           |
| 5-6                   | 34 | 70.29 | 11.87| 0.389   | 0.762, NS (p>0.05) |
| 7-8                   | 13 | 71.85 | 12.22|         |           |
| More than eight       | 5  | 70.20 | 12.70|         |           |
| Age of the father     |    |       |      |         |           |
| 21-30                 | 24 | 72.54 | 10.40|         |           |
| 31-40                 | 71 | 68.72 | 13.32| 1.244   | 0.293, NS (p>0.05) |
| 41-50                 | 5  | 64.00 | 18.10|         |           |

Table 16 shows the association of post-test practices with the demographic characteristics of the study participants. It reveals that the post-test practice’s scores are not statistically associated with any of the study participants’ demographic characteristics except the father’s occupation (p=0.027, S, as p<0.05). This significant association with the father’s occupation may be attributed to the skewed distribution of participants, with 47% being laborers and 23% being farmers.
| Age of the mother | Number | Age Mean | Age SD | F Value | p Value | Significance |
|-------------------|--------|----------|--------|---------|---------|--------------|
| 21-30             | 90     | 70.14    | 12.78  |         |         |              |
| 31-40             | 9      | 60.56    | 12.18  | 2.817   | 0.065   | NS (p>0.05)  |
| 41-50             | 1      | 82.00    | -      |         |         |              |
| More than 50      | 0      | -        | -      |         |         |              |

| Education of the father | Number | Education Mean | Education SD | F Value | p Value | Significance |
|--------------------------|--------|----------------|--------------|---------|---------|--------------|
| No formal education      | 0      | -              | -            |         |         |              |
| Primary                  | 14     | 71.00          | 13.47        |         |         |              |
| Secondary                | 51     | 71.24          | 12.87        |         |         |              |
| Higher secondary         | 25     | 65.68          | 12.43        | 1.061   | 0.387   | NS (p>0.05)  |
| Graduate                 | 5      | 68.60          | 11.70        |         |         |              |
| Postgraduate             | 4      | 62.00          | 16.81        |         |         |              |
| Others                   | 1      | 80.00          | -            |         |         |              |

| Education of the mother  | Number | Education Mean | Education SD | F Value | p Value | Significance |
|--------------------------|--------|----------------|--------------|---------|---------|--------------|
| No formal education      | 0      | -              | -            |         |         |              |
| Primary                  | 10     | 72.00          | 11.29        |         |         |              |
| Secondary                | 35     | 72.11          | 12.94        |         |         |              |
| Higher Secondary         | 40     | 67.65          | 13.17        | 1.257   | 0.289   | NS (p>0.05)  |
| Graduate                 | 12     | 66.58          | 12.50        |         |         |              |
| Postgraduate             | 2      | 55.50          | 16.26        |         |         |              |
| Others                   | 1      | 80.00          | -            |         |         |              |

| Occupation of the father | Number | Occupation Mean | Occupation SD | F Value | p Value | Significance |
|--------------------------|--------|-----------------|--------------|---------|---------|--------------|
| Unemployed                | 0      | -               | -            |         |         |              |
| Self-employed            | 11     | 75.18           | 6.59         |         |         |              |
| Farmer                   | 25     | 63.56           | 13.91        | 3.193   | 0.027   | S (p<0.05)   |
| Service                  | 17     | 67.88           | 12.28        |         |         |              |
| Laborer                  | 47     | 71.70           | 12.88        |         |         |              |

| Occupation of the mother | Number | Occupation Mean | Occupation SD | F Value | p Value | Significance |
|--------------------------|--------|-----------------|--------------|---------|---------|--------------|
| Homemaker                | 82     | 69.90           | 12.55        |         |         |              |
| Self-employed            | 2      | 76.50           | 4.95         |         |         |              |
| Farmer                   | 0      | -               | -            |         |         |              |
| Service                  | 3      | 61.00           | 10.82        |         |         |              |
| Laborer                  | 13     | 67.08           | 16.35        |         |         |              |

**TABLE 16: Association of Post-test Practices With Demographic Scores (One-Way ANOVA-Tukey’s Test)**

S: significant; NS: non-significant; ANOVA: analysis of variance; N: number

Table 16 shows the relationship between knowledge and practices in the pretest and post-test. It reveals
that pretest knowledge and practices were statistically significantly related (p=0.000). The relationship is strongly positive with r=0.411. Further, it shows that the post-test knowledge and practices were statistically significantly related with a positive correlation coefficient r=0.256 (p=0.010).

| Variables   | Test    | Mean | SD  | R         | P-value       |
|-------------|---------|------|-----|-----------|---------------|
| Knowledge   | Pretest | 14.96| 5.22| 0.411     | 0.000, S (p=0.00) |
| Practices   | Pretest | 21.56| 9.55|           |               |
| Knowledge   | Post-test| 20.11| 3.54| 0.256     | 0.010, S (p<0.05) |
| Practices   | Post-test| 69.40| 12.96|           |               |

**TABLE 17: Correlation Between Knowledge and Practices of Safe Home**

S: significant

**Discussion**

Compared to other diseases, pediatric injuries get far less attention despite their severity and possibility to be prevented [4]. Each year, more than a million kids under the age of 15 are harmed in incidents around the house in the United Kingdom, for which they are transported to accident and emergency departments. By promoting awareness and making changes to the home environment, most of these events are preventable [5]. A recognized risk factor for all types of harm is caregiver depression. Long-term child health issues, residence, and frequent child care provided by a non-household member are additional risk factors [2].

We focused on studying the domestic injury risk factors and their prevention since doing so would help us create interventions that will alter people’s behavior and educate them [6]. For mothers and kids, basic knowledge is necessary, so first aid instruction should begin in kindergarten [7]. According to the current study, mothers had a limited understanding of the four categories of accidents analyzed. This supports a Chinese study’s finding that parents’ awareness of the prevention of an accident and the promotion of its safety was inadequate [8]. However, these results correlate with a study of 230 Iranian mothers, where it was discovered that 75% had a good understanding [3]. Unfortunately, none of the mothers’ information sources were connected to knowledgeable sources about preventing accidents.

A study that conducted a Middle Eastern survey discovered that the majority of detergents and pharmaceuticals were kept in locked or up-high cabinets [9]. According to a study conducted in Porto Alegre, Southern Brazil, storing dangerous substances below 150 cm increases the risk of poisoning in children by almost 17 times when compared to the control group [1]. Only 20% of the caregivers in a US study of 76 individuals to determine their practices in preventing poisoning at home were found to be aware of the poison control center’s phone number [10].

Our findings also showed that there is a lack of awareness regarding how to keep kids away from fire. The greatest risk of home fires is among children under the age of 12. The majority of burns occur in the home from hot water and food-related accidents, whereas direct flame burns are more common as people age [11]. One of the biggest risks to kids is house fires. Children who play with matches and lighters in particular regularly ignite house fires [5].

This study also revealed a lack of the awareness of preventative measures against electrical injury in children. This was in opposition to a 1996 Canadian study that revealed that 63% of mothers protect their kids from electrical device harm [12]. The range of electrical harm includes minor damage, serious multiple-organ involvement, and death. The majority of child injuries occur in the home environment [13]. The Victorian Emergency Minimum Dataset (VEMD) statistics on electrocutions from power points among children aged 0-9 years suggest that more than 70% of incidents occur in this age range [2].

The kitchen is regarded as the most harmful area for kids [14]. A recent study showed that mothers lacked a clear understanding of how to protect their children away from sharp kitchen equipment. This is in opposition to a study by Black in New York, which discovered that 74% of mothers are knowledgeable on how to safeguard their kids from the dangers of knives and other sharp objects in the kitchen [15].

It was shown that mothers’ awareness of injury prevention was inversely correlated with the number of years of school; this is quite curious and may be explained by the fact that females with more education are typically employed and away from the home for a significant portion of the day. Children are more likely to have accidents as a result, and mothers may lose interest in or become too busy to educate about preventative techniques. This is in line with a study conducted in Iran, which revealed that mothers’ jobs,
high school education, and being away from the house for at least eight hours a day were associated with inadequate knowledge and attitudes about preventing domestic injuries [3]. However, research from Egypt found the opposite, demonstrating that the knowledge of preventing child accidents is statistically improved with higher levels of schooling [16], and according to a Canadian study, education level is inversely correlated with the awareness of how to prevent incidents brought on by household chemicals [17].

Limitation of the study
This study was limited to parents of under-five children from selected communities. Those who could not participate may have different levels of awareness regarding preventing domestic accidents. The study was limited only to six months. Although the intervention suggested some architectural changes to make the homes safer for children under five years, most participants could not implement these changes. It was found that most of the participants had their own houses, which they resisted change. The Indian culture does not accept frequent changes in the structure of a home, as most houses are constructed using Vaastu science. However, the minor modifications advised were implemented by the parents. The changes other than the structure of a safe house, as suggested in safe home practices, were readily accepted and implemented by parents. The domain of home safety is restricted to parents alone. Multidisciplinary actions and interventions are required to make children safe at home. The investigator did not control these disciplines as the study was conceived to create awareness among parents of under-five children.

Conclusions
It can be concluded from this study that the safe home toolkit for under-five children (SHT-UFC) was effective for the awareness of parents regarding the prevention of domestic accidents. Many unusual accidents occur in the home because of the lack of knowledge and preventive practice. Safe home tool kits are helpful in preventing home accidents among children, and they promote a safe environment for children.

Additional Information
Disclosures
Human subjects: Consent was obtained or waived by all participants in this study. The Institutional Ethical Committee of Datta Meghe Institute of Medical Sciences issued approval DMIMS(DU)/IEC/2018-19/7343.
Animal subjects: All authors have confirmed that this study did not involve animal subjects or tissue.
Conflicts of interest: In compliance with the ICMJE uniform disclosure form, all authors declare the following: Payment/services info: All authors have declared that no financial support was received from any organization for the submitted work. Financial relationships: All authors have declared that they have no financial relationships at present or within the previous three years with any organizations that might have an interest in the submitted work. Other relationships: All authors have declared that there are no other relationships or activities that could appear to have influenced the submitted work.

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