ISSN: 2457-0400

Impact Factor: 7.675

WORLD JOURNAL OF ADVANCE HEALTHCARE RESEARCH

www.wjahr.com

Volume: 10, Issue: 7

Page N. 290-295

Year: 2026

Original Article

Coden USA: WJAMA3

# EFFECTIVENESS OF VIDEO-ASSISTED TEACHING ON KNOWLEDGE REGARDING PREVENTION OF HOME ACCIDENTS AMONG MOTHERS OF UNDER-FIVE CHILDREN: A PRE-EXPERIMENTAL STUDY

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**Article Received:** 31 May 2026 **Article Revised:** 21 June 2026 **Article Published:** 01 July 2026

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**DOI:** https://doi.org/10.5281/zenodo.21028967

**How to cite this Article:** Ms. Deepanshi*1, Prof. Ms. Rajeshwari Jeyaraj2, Ms. Poonam3, Yashwant Ramawat4 (2026). Effectiveness of Video-Assisted Teaching on Knowledge Regarding Prevention Of Home Accidents Among Mothers Of Under-Five Children: A Pre-Experimental Study. World Journal of Advance Healthcare Research, 10(7), 290–295.



## ABSTRACT

**Background:** Home accidents among children under five years of age are a significant public health concern globally. Mothers, as the primary caregivers, play a pivotal role in preventing such accidents. This study aimed to investigate the effectiveness of video-assisted teaching (VAT) in enhancing mothers' knowledge regarding home accident prevention for children under five years of age. **Methods:** A pre-experimental one-group pretest-posttest design was used. Fifty mothers of under-five children were selected through purposive sampling from Shibbanpura, Ghaziabad, Uttar Pradesh. Data were collected using a structured questionnaire containing 25 knowledge items. A video-assisted teaching session of 20 minutes was administered as the intervention. The post-test was conducted 15 days after the intervention. Data were analysed using descriptive statistics, paired t-test, and chi-square test. **Results:** The mean pre-test knowledge score was 14.74 (SD = 5.558), which increased significantly to 18.94 (SD = 4.264) in the post-test. The paired t-test value was 6.668 ($p = 0.001$), confirming a statistically significant improvement. In the pre-test, 32% of mothers had inadequate knowledge, 38% had moderately adequate knowledge, and 30% had adequate knowledge. In the post-test, only 6% had inadequate knowledge, 28% had moderately adequate knowledge, and 66% had adequate knowledge. Chi-square analysis revealed significant associations between post-test knowledge and educational status ($\chi^2 = 25.320$, $p = 0.03$) and occupation ($\chi^2 = 21.370$, $p = 0.02$). **Conclusion:** Video-assisted teaching is an effective educational tool for enhancing mothers' knowledge about preventing home accidents among children under five. The findings recommend integrating VAT into community health programs as a sustainable strategy to improve accident prevention practices and maternal awareness.

**KEYWORDS:** Home accidents; accident prevention; video-assisted teaching; under-five children; maternal knowledge; child safety; health education.

## INTRODUCTION

Children under five years of age are highly vulnerable to home accidents due to their developmental curiosity, limited motor skills, and inability to judge risks accurately. Globally, unintentional injuries remain a leading cause of morbidity and mortality in this age group, and the World Health Organization has identified them as a priority area for child health interventions.[1,2]

India is home to nearly 500 million young people, among whom children less than 15 years constitute approximately 37%. While communicable and nutritional diseases have been declining, injuries at home, on roads, and in recreational places are emerging as significant threats to child health.[3,4] Studies from various Indian states and developing countries have consistently reported a high prevalence of domestic accidents among under-five children, with falls being the

most common type of injury, followed by burns and poisoning.[5-8] In rural settings, the prevalence of home accidents has been reported to be as high as 78%, with toddlers and preschoolers being the most affected groups.[9]

Mothers, as the primary caregivers, play an essential role in ensuring the safety and well-being of their children. Their ability to recognize potential hazards and take preventive measures can significantly reduce the risk of home accidents. However, studies have reported that a large proportion of mothers have inadequate knowledge regarding home accident prevention and first-aid management. Gouda et al. found that 90.5% of mothers had unsatisfactory knowledge and 83% had inadequate practices related to first aid for home injuries among preschool children.[10]

Educational interventions aimed at mothers have proven to be effective in enhancing home safety awareness. Various teaching methods have been utilized, including structured teaching programs, seminars, and workshops. Among these, video-assisted teaching (VAT) has emerged as a particularly effective strategy due to its visual and engaging nature. VAT uses multimedia content to demonstrate real-life scenarios and safety measures, facilitating better understanding and retention of information compared to traditional didactic methods.

Despite the growing body of evidence supporting the effectiveness of educational interventions, there remains a gap in research focusing specifically on the use of VAT for educating mothers in peri-urban communities of North India. The present study was therefore undertaken to evaluate the effectiveness of video-assisted teaching on knowledge regarding the prevention of home accidents among mothers of under-five children in a selected area of Ghaziabad, Uttar Pradesh.

## MATERIALS AND METHODS

### Research Design and Approach

A pre-experimental one-group pretest-posttest design with a quantitative approach was adopted for this study. This design was chosen to evaluate the effect of the video-assisted teaching intervention on the knowledge of mothers regarding the prevention of home accidents.

### Setting and Sample

The study was conducted in Shibbanpura, Ghaziabad, Uttar Pradesh, India, during December 2024. A total of 50 mothers of under-five children were selected using purposive non-probability sampling technique. The inclusion criteria were: (a) mothers of children aged 0–5 years; (b) willingness to participate in the study; and (c) ability to understand Hindi or English. Mothers with any diagnosed psychiatric illness or those who had received formal training on home safety within the past six months were excluded.

### Variables

The independent variable was the video-assisted teaching programme on knowledge regarding home accident prevention. The dependent variable was the knowledge level of mothers regarding the prevention of home accidents. Demographic variables included age of mother, educational status, occupation, monthly family income, number of children, residential area, type of family, and age of the child.

### Description of the Tool

The data collection tool consisted of two parts. Part I comprised items on socio-demographic data of the participants. Part II comprised a structured knowledge questionnaire containing 25 items covering general knowledge of home accidents, prevention of choking, prevention of burns, prevention of drowning, prevention of poisoning, and prevention of falls. Each correct response was awarded one mark, with a maximum possible score of 25. Knowledge was categorised as: inadequate (0–12), moderately adequate (13–18), and adequate (19–25).

### Validity and Reliability

Content validity was established by submitting the tool to seven experts from the fields of medical-surgical and paediatric nursing. Modifications were made based on their recommendations. The reliability of the tool was established using the test-retest method, yielding a correlation coefficient of 0.81, indicating good reliability.

### Intervention

The intervention consisted of a 20-minute video-assisted teaching session on home accident prevention. The video covered common types of home accidents in children under five years (falls, burns, choking, poisoning, drowning), risk factors, and evidence-based preventive measures. The content was presented in Hindi using simple language, real-life demonstrations, and visual aids to ensure comprehension.

### Data Collection Procedure

Data collection was conducted from 3 December 2024 to 14 December 2024. The pre-test was administered using the structured questionnaire to assess baseline knowledge. The video-assisted teaching intervention was then delivered immediately after the pre-test. The post-test was conducted 15 days after the intervention using the same questionnaire. Each day, 8–10 mothers were interviewed in their homes or community centres, with each session lasting approximately 20–25 minutes. Informed consent was obtained from all participants, and ethical clearance was obtained from the institutional review board.

### Data Analysis

Data were organised in a master sheet and analysed using SPSS software. Descriptive statistics (frequency, percentage, mean, standard deviation) were used to

describe socio-demographic characteristics and knowledge levels. Inferential statistics included the paired t-test to compare pre-test and post-test knowledge scores, and the chi-square test to determine the association between post-test knowledge scores and selected socio-demographic variables. A p-value of <0.05 was considered statistically significant.

## RESULTS

### Socio-Demographic Characteristics

Among the 50 participants, the majority (34%) were below 20 years of age, 26% were aged 20–25 years, 16% were 26–30 years, 10% were 31–35 years, and 14% were above 35 years. Regarding educational status, 30% had completed primary school, 20% had secondary education, 20% were undergraduates, 10% were postgraduates, and 20% were illiterate. The majority were homemakers (36%), followed by self-employed (32%), private job holders (22%), and government employees (10%). Most participants (32%) reported a monthly family income of ₹40,001–₹60,000. In terms of residential area, 42% were from rural areas, 30% from urban areas, and 28% from semi-urban areas. Joint families constituted 52% of the sample, while 48% lived in nuclear families.

**Table 1: Distribution of Mothers According to Pre-test and Post-test Knowledge Levels (N = 50)**

| Knowledge Level | Scoring | Pre-test f (%) | Post-test f (%) |
|---|---|---|---|
| **Inadequate** | 0–12 | 16 (32%) | 3 (6%) |
| **Moderately Adequate** | 13–18 | 19 (38%) | 14 (28%) |
| **Adequate** | 19–25 | 15 (30%) | 33 (66%) |

Table 1 reveals that in the pre-test, 32% of mothers had inadequate knowledge, 38% had moderately adequate knowledge, and 30% had adequate knowledge. **Following the video-assisted teaching intervention, the post-test showed a marked improvement: only 6% had inadequate knowledge, 28% had moderately adequate knowledge, and a majority of 66% achieved adequate knowledge levels.**

**Figure 1: Comparison of Pre-test and Post-test Knowledge Levels (N = 50)**

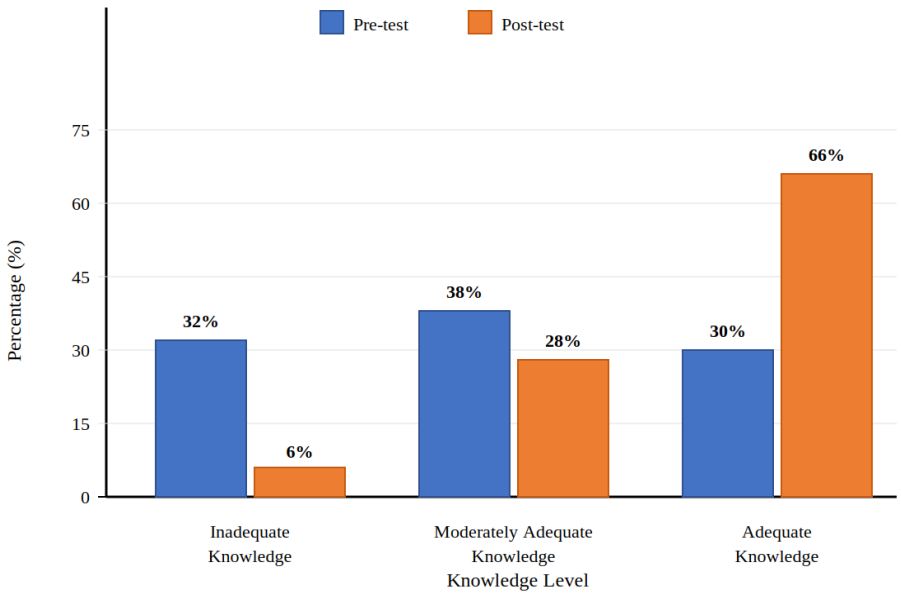


**Figure 1: Comparison of pre-test and post-test knowledge levels regarding prevention of home accidents among mothers of under-five children (N = 50).**

Figure 1 illustrates the comparison of pre-test and post-test knowledge levels. A clear shift from inadequate to adequate knowledge is evident, with the proportion of mothers in the adequate knowledge category more than doubling from 30% to 66% following the video-assisted teaching intervention.

**Table 2: Comparison of Pre-test and Post-test Knowledge Scores Using Paired t-test (N = 50)**

| Test | Mean | SD | Mean Diff. | t-value | p-value | Result |
|---|---|---|---|---|---|---|
| **Pre-test** | 14.74 | 5.558 | 4.20 | 6.668 | 0.001* | Significant |
| **Post-test** | 18.94 | 4.264 | | | | |

**Significant at p < 0.05 level*

Table 2 shows that the mean pre-test knowledge score was 14.74 (SD = 5.558), which increased to 18.94 (SD = 4.264) in the post-test. The mean difference was 4.20, and the paired t-test value was 6.668 (p = 0.001), indicating a statistically significant improvement in knowledge following the intervention. The null hypothesis was rejected, and $H^1$ was accepted.

**Table 3: Association Between Post-test Knowledge and Selected Socio-Demographic Variables (N = 50).**

| Variable | $\chi^2$ Value | df | p-value | Result |
|---|---|---|---|---|
| Age of mother | 8.789 | 8 | 0.360 | NS |
| Educational status | 25.320 | 8 | 0.03* | S |
| Occupation | 21.370 | 6 | 0.02* | S |
| Monthly family income | 8.532 | 6 | 0.202 | NS |
| Number of children | 0.729 | 4 | 0.948 | NS |
| Residential area | 0.651 | 4 | 0.957 | NS |
| Type of family | 2.157 | 2 | 0.340 | NS |
| Age of child | 6.388 | 8 | 0.604 | NS |

**Significant at p < 0.05; S = Significant; NS = Not Significant*

Table 3 reveals that educational status of mothers ($\chi^2$ = 25.320, p = 0.03) and occupation ($\chi^2$ = 21.370, p = 0.02) showed statistically significant associations with post-test knowledge levels. No significant associations were found with age (p = 0.360), monthly family income (p = 0.202), number of children (p = 0.948), residential area (p = 0.957), type of family (p = 0.340), or age of the child (p = 0.604).

## DISCUSSION

The present study evaluated the effectiveness of video-assisted teaching on mothers' knowledge regarding the prevention of home accidents among under-five children. The findings are discussed in relation to the objectives and corroborated with existing literature.

### Pre-test Knowledge Assessment

The pre-test findings revealed that a substantial proportion of mothers (32%) had inadequate knowledge, 38% had moderately adequate knowledge, and only 30% demonstrated adequate knowledge, with a mean score of 14.74 (SD = 5.558). These findings are consistent with those of Adhikari et al.[11] who reported that 35% of mothers had inadequate awareness about childhood accident prevention. Similarly, Mohammed et al.[12] found that only 29% of mothers demonstrated adequate knowledge regarding safety practices for under-five children. Nageh et al.[13] also reported a comparable mean knowledge score of 13.9 (SD = 5.1) among mothers regarding domestic injury prevention. These findings collectively underscore the urgent need for structured educational interventions to bridge the knowledge gap among caregivers.

### Effectiveness of Video-Assisted Teaching

The post-test results demonstrated a significant improvement in knowledge levels, with 66% of mothers achieving adequate knowledge compared to 30% in the pre-test. The mean post-test score increased to 18.94 (SD = 4.264), and the paired t-test (t = 6.668, p = 0.001) confirmed the statistical significance of this improvement. These results are in agreement with Rezapur-Shahkolai et al.[14] who observed significant improvement in maternal awareness following educational interventions on home accident prevention. Megahed et al.[15] similarly found that 65% of mothers achieved adequate knowledge post-intervention using video-based education, closely mirroring the 66% observed in the present study. Akturk and Erci[16] also reported significant increases in post-test scores with audiovisual teaching tools, highlighting the value of multimedia-based health education in promoting knowledge retention and behavioural changes in caregivers.

Several other studies have validated the effectiveness of structured educational interventions for mothers. Silva et al.[17] demonstrated significant improvements in knowledge regarding falls, drowning, and poisoning prevention following educational programmes. Ahmed et al.[18] reported that innovative participatory health education led to a dramatic increase in knowledge scores (from 8.40 to 16.34) and a reduction in household accident rates. Patel et al.[19] found that structured teaching programmes significantly improved maternal knowledge, with mean post-test scores substantially higher than pre-test scores. El Seifi et al.[20] demonstrated that community-based health education significantly improved knowledge (mean score from 10.21 to 18.90), attitudes, and self-efficacy among rural Egyptian mothers. Afshari et al.[21] further confirmed that model-based educational programmes led to significant improvements in knowledge and preventive behaviours among mothers in rural Iran. Negi and Dixit[22] reported that 81.7% of mothers demonstrated good knowledge post-intervention compared to only 53.3% with average knowledge prior to the health education programme.

### Association with Socio-Demographic Variables

Chi-square analysis revealed significant associations between post-test knowledge levels and educational status (p = 0.03) and occupation (p = 0.02) of mothers. Mothers with higher education and those engaged in professional roles demonstrated better knowledge levels. These findings are consistent with Khalil et al.[23] who identified a strong association between maternal

education and knowledge of accident prevention. Jalilian et al.[24] also reported that education and occupation were significant predictors of knowledge levels in their study on empowering rural mothers. Soliman et al.[25] similarly emphasised that educational training programmes significantly improved mothers' knowledge and practices, with improvements sustained for up to two months post-intervention. Other variables such as age, income, residential area, and family type did not show significant associations, consistent with findings in earlier studies.[11,12]

## CONCLUSION

The present study concludes that video-assisted teaching is an effective educational tool for enhancing mothers' knowledge about the prevention of home accidents among children under five years of age. The significant improvement in post-test knowledge scores following the intervention confirms the potential of multimedia-based health education strategies. The findings further emphasise that maternal education and occupation are important predictors of knowledge levels, suggesting the need for tailored interventions targeting less-educated and unemployed mothers. The study recommends that video-assisted teaching programmes be integrated into community health initiatives, antenatal and postnatal programmes, and school health programmes to promote child safety and reduce the burden of preventable childhood injuries.

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