A video–Assisted Teaching for Mothers Toward the Management of Childhood Stunting

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Abstract:

Background: Childhood stunting remains a critical global health issue, with significant consequences for physical and cognitive development. Effective maternal education is essential for proper stunting management. This study evaluated the effect of a video-assisted teaching program on mothers' knowledge and practices regarding childhood stunting management. **Methods:** A quasi-experimental pre-post-test design was conducted among 82 mothers of stunted children attending pediatric and nutrition clinics at Ain Shams University Hospitals. The intervention consisted of a three-day video-assisted teaching program covering theoretical knowledge and practical skills. Data were collected using a validated Arabic questionnaire assessing knowledge (33 items) and self-reported practices (74 items). **Results:** Post-intervention, mothers demonstrated significant improvements in all knowledge domains: stunting (0.27±0.45 to 8.55±0.69, $p<0.001$), nutritional care (0.66±0.82 to 12.76±0.43, $p<0.001$), and growth hormone therapy (0.09±0.28 to 9.91±0.28, $p<0.001$). Practice scores also increased markedly, particularly in nutrition (1.15±0.86 to 13.95±1.47, $p<0.001$) and growth hormone administration (0.17±0.38 to 10.09±1.19, $p<0.001$). The intervention was effective across all demographic groups, with older (>35 years) and working mothers showing marginally higher gains ($p<0.05$). **Conclusion:** Video-assisted teaching significantly enhances the mother's knowledge and practices in stunting management, regardless of education or socioeconomic status. This approach should be integrated into routine maternal education programs to combat childhood stunting effectively.

Keywords: Childhood stunting, Video-assisted teaching, Maternal education, Growth hormone therapy, Nutritional practices.

Introduction

Stunting is the outcome of persistent malnutrition which is defined as a height-for-age z-score more than two standard deviations below the WHO Child Growth Standards reference median **(WHO Multicentre Growth Reference Study Group, 2006)**, affects approximately 171 million children globally, with 167 million cases in developing countries **(UNICEF, WHO, & World Bank Group, 2023)**. This irreparable condition significantly hinders children's mental and physical development, exacerbated by inadequate nutrition, recurrent infections, poor hygiene, and limited healthcare access, particularly during the critical first 1,000 days of life **(Mansour, 2019)**.

The problem persists as a significant issue in developing nations like Egypt, with devastating consequences including increased morbidity and mortality, impaired adult productivity, and decreased cognitive functioning **(Mistry, 2022)**. Despite global recognition and targets set for 2025 to address linear growth failure, the challenge remains substantial. Growing attention to stunting stems from four key factors: its widespread prevalence, severe short- and long-term health consequences, standardized definition, and the established critical window from conception to two years

when interventions are most effective **(Shaban et al., 2021)**.

Current approaches emphasize improving food/nutrition security, education, WASH initiatives, health services, poverty reduction, and women's status **(Shaban et al., 2021)**. Among these, raising maternal awareness through education shows particular promise. Effective knowledge transfer should cover nutrient diversity in accessible dietary alternatives, recognition of stunting and nutritional status, and proper childcare **practices (Abd El-Fatah & Abu-Elenin, 2020)**.

While maternal education is recognized as a crucial strategy for stunting prevention and mangement **(Abd El-Fatah & Abu-Elenin, 2020)**, there is limited evidence on how video-assisted teaching programs specifically improve mothers' knowledge and practices regarding childhood stunting management. Existing studies highlight the benefits of video-based learning for health education **(Mansour, 2019; Shaban et al., 2021)**, but few focus on its targeted effectiveness in changing maternal behaviors related to nutritional practices (e.g., dietary diversity, complementary feeding),early detection of growth faltering and hygiene and infection prevention (WASH).

The technique of electronically capturing, recording, storing, transmitting, and reconstructing moving images (video) helps overcome language barriers since pictures communicate without words **(Shaban et al., 2021)**. Video-assisted teaching conveys complex themes clearly by integrating sight, sound, and concepts, breaking educational obstacles that verbal descriptions alone cannot overcome **(Mansour, 2019)**. This approach is particularly valuable for mothers and nurses with reading difficulties, as demonstrated by its growing use in continuing education **(Abd El-Fatah & Abu-Elenin, 2020)**.

Additionally, most research on stunting interventions emphasizes clinical or policy-level solutions rather than community-based educational tools that could be expanded in low-resource settings like Egypt **(Mistry, 2022)**. As one of the most significant emerging educational technologies, video-assisted teaching supports healthcare workers through audible explanations and visual demonstrations of figures, gestures, and procedures **(Mistry, 2022; Shaban et al., 2021)**. Community health nurses play a critical role in this educational process, with preventive care being an essential societal necessity **(Abd El-Fatah & Abu-Elenin, 2020)**. This study addresses these gaps by evaluating whether a structured video-assisted teaching program significantly enhances knowledge retention about stunting and practical application of improved childcare and feeding practices.

Significance of study

The stunting rate in Egypt is higher than in other low-Middle-income countries and is similar to that of low-income countries. This study is significant as it explores the effectiveness of a video-assisted teaching program in improving maternal knowledge and practices related to stunting care. Video-based education offers an accessible, engaging method to overcome literacy and language barriers, making it especially valuable in low-resource settings. By focusing on key practices like nutrition, hygiene, and early growth monitoring, the program empowers mothers to take practical steps toward better child health. The study also highlights the vital role of community health nurses in delivering education and adds to the limited evidence on technology-driven interventions in maternal and child health. Its findings may guide future community health strategies and policy development.

The aim of the study:

This study aimed to evaluate the effect of video-assisted teaching on mothers' knowledge and practices regarding management of childhood stunting through:

-Assessing mothers' knowledge regarding stunting growth problem and its management on their children.

- Assessing mothers' practices regarding stunting growth problem and its management on their children.

-Designing and implementing video-assisted structured teaching programs regarding

raise awareness of mothers about stunting growth problem and its management on their children.

-Evaluating the effect of video-assisted structured teaching program on mothers' knowledge and practices regarding stunting growth problem and its management on their children.

Research hypotheses:

Three research hypotheses were formulated to fulfill the aim of the study:

1.Mothers' knowledge about stunting, nutritional care, and growth hormone therapy would be significantly improved after the video-assisted teaching intervention.

2.Mothers' practices related to child nutrition, hygiene, growth monitoring, and safety would be significantly improved after the intervention.

3.Mothers' demographic characteristics (age, education level, and employment status) would significantly influence the improvement in their knowledge and practices regarding stunting and child care after the video-assisted teaching intervention.

Subjects and Method

Research design:

A quasi-experimental research design using one-group pre- post-test approach was utilized in this study.

Setting:

The study was conducted in pediatrics and nutrition outpatient clinics affiliated to Ain Shams university hospitals. These settings were selected because they serve a large population of children in the region.

Sampling:

A purposive sample of 82 mothers was included in the study based on the following inclusion criteria; mothers accompanied children diagnosed with childhood stunting and enrolled growth hormone therapy.

Data collection tools:

Tool I: A structured Interview Questionnaire:

It was developed by the researchers and guided by WHO growth chart **(WHO, 2006)** and modified into simple clear Arabic language. The tool's design incorporated insights from a comprehensive review of literature and consultations with experts and validated references on childhood stunning management. This questionnaire aimed to assess mothers' knowledge and self-reported practices and consists of three parts:

First part: Sociodemographic Characteristics: This part of the tool collected sociodemographic data from mothers (age, marital status, education, employment, height, weight, BMI) and children's characteristics (age, gender, age at stunting diagnosis, and birth order).

Second part: Knowledge Assessment Tool: It was developed by the researchers to assess mothers' knowledge regarding management of their stunted children through 33 questions, including:

1.Mothers' knowledge about stunting including definition, types, signs and symptoms, causes, maternal risk factors, family-related risk factors, complications and treatment methods of stunting.

2.Mothers' knowledge about nutritional care provided for stunned children, including child nutrition, breast feeding, weaning, child nutrition after age 2 years, meal components for the child, number of daily meals and source of nutritional information for the child.

3.Mothers' knowledge about growth hormone therapy and personal hygiene practices. It involves recommended time for growth hormone injection, methods of injection, importance of change injection sites and managing missed doses. Furthermore, it covers personal hygiene for stunted child, (e.g., hand washing routines), precautions to prevent food contamination for the child, importance of

exercises and home adjustments for the stunted child.

Scoring system:

Each knowledge-related question was scored as 1 point for a correct answer and 0 points for an incorrect answer or "I don't know" response. The total knowledge score was calculated as the sum of all correct answers, with a maximum possible score of 33 points. Mothers' overall knowledge was classified into two levels based on their total scores: satisfactory (≥23.1 points) or unsatisfactory (<23.1 points), where 23.1 represents the 70% threshold of the total possible score.

Third part: Self-Reported Practices: It includes 74 questions to assess the mother's self-reported practices concerning reported pregnancy status, heath care and follow-up for child growth, prevention measures for gastrointestinal disorders, personal and nutritional hygiene, precaution for food safety, child nutrition, growth hormone injection, sleeping and child safety at home.

Scoring system for mothers' self-reported practices:

Each correctly performed practice was assigned a score of 1, while practices not performed received a score of 0. The total possible score ranged from 0 to 74. For classification, we established a threshold of ≥51.8 points (equivalent to 70% of the maximum score) to indicate adequate practice performance, while scores below 51.8 points were considered inadequate.

Pilot study

A Pilot study was carried out on eight mothers representing 10% of the recruited study sample, to assess clarity and completeness of the questionnaires and test the feasibility of the research process. It was also used to estimate the average time needed for participants to complete the tools.

Content Validity and Reliability:

Validity:

The tools of the study were developed by the researchers and were validated by a jury of nursing professors to assure the content validity of the Arabic version.

Reliability

The reliability test of Arabic version was established by using the Cronbach's alpha coefficient test; it was 0.789 for questionnaire questions.

Fieldwork:

Ethical approval for the study was obtained from the ethics and research committee at Ain Shams University. Data collection of this study was conducted over a six-month period from May to November 2023. The implementation followed three phases: assessment, intervention, and evaluation.

Assessment Phase (Pre-Test)

The first phase occurred during the initial hour (10:00-11:00 AM) of the first day's orientation session focusing on establishing a baseline understanding of mothers' existing knowledge and practices related to childhood stunting management. The researchers explained to mothers the objectives and expected outcomes of the study before collecting data. A structured questionnaire was administered. This initial assessment provided critical insights into gaps in knowledge and areas needing improvement, ensuring that the subsequent intervention was tailored to the participants' needs.

Intervention Phase (Video-Assisted Teaching Program)

The stunting management intervention program was conducted over three consecutive days per week, with each day consisting of a structured two-hour session combining theoretical knowledge and practical skills training. Participants were divided into small learning groups of 8-10 mothers. On the second hour of first day, the orientation session introduced participants to key concepts about

stunting through distributing Arabic-language booklets and interactive discussions. This established a foundation for the subsequent training days.

The intervention program's second and third days followed a structured schedule from 10:00 AM to 12:00 PM daily, with each session divided into two complementary components. The morning theoretical sessions (10:00-11:00 AM) provided comprehensive video-based instruction organized around three essential knowledge areas. First, participants learned foundational concepts about stunting, including clear definitions, classification systems, observable symptoms, underlying causes (both maternal and family-related factors), potential health consequences, and current treatment approaches. Second, the videos detailed crucial nutritional strategies, covering proper breastfeeding methods, appropriate weaning practices, specialized dietary needs for children over two years old, ideal meal components, recommended feeding schedules, and trustworthy sources of nutritional information. Third, the sessions addressed specialized care requirements, particularly focusing on correct growth hormone therapy procedures - including administration timing, proper injection methods, site rotation importance, and protocols for missed doses - along with vital hygiene practices like effective hand washing techniques, food safety precautions, beneficial physical activities, and necessary home environment adjustments.

The afternoon practical sessions (11:00 AM-12:00 PM) shifted focus to hands-on skill development through detailed demonstration videos. These applied learning modules covered numerous critical aspects of daily care, beginning with important considerations for both prenatal and postnatal care. Participants learned standardized protocols for regular growth monitoring and effective prevention methods against common gastrointestinal infections. The videos demonstrated proper personal hygiene routines and safe food handling practices, along with specific nutritional intervention techniques tailored for stunted children. Special attention was given to the correct and safe administration of growth hormone therapy when medically indicated. Additional modules addressed the implementation of healthy sleep patterns and necessary safety modifications within the home environment to accommodate and support children affected by stunting.

Evaluation Phase (Post-Test)

The final phase measured the effectiveness of the video-assisted teaching program by comparing pre- and post-intervention outcomes. The same assessment tools used in the pre-test were re-administered.

Administrative Design:

Official permission was obtained through an issued letter from the dean of faculty of nursing, Ain Shams University, to conduct this study and the directors of the pediatric outpatient clinics at Ain Shams University. The aim of the study was explained to obtain permission to collect the research data from the hospital.

Statistical design:

The collected data were categorized, organized, analyzed and tabulated using the statistical package for social sciences (SPSS Version 21). Descriptive statistics were applied (e.g., mean, standard deviation, frequency, and percentages). Chi-square is used to test the study hypothesis. Person correlation analysis and the degree of significance were identified. A highly statistical difference was considered at P-value < 0.001, a statistical significant difference was considered at p- value < 0.05, and no statistically significant difference was considered at P-value>0.05.

Results

The table 1 revealed key sociodemographic characteristics among 82 mothers. The mothers were nearly evenly split between younger (20-29 years,47.5%) and older (30-39 years,52.5%) age groups. Age at marriage showed the majority (63.4%) married between 18-35 years, a notable 28.3% married after 35 years and 7.3% married before 18 years. Over a third (34.1%) had basic literacy(read/write), and 20.7% completed primary education, but 14.6% were illiterate, and only 8.5% attained university-level education. Marital status showed that 91.5% were married, while8.5%

were widowed. The majority (67.1%) of mothers were unemployed. Physical characteristics showed that the majority (64.4%) of mothers were measuring 145-155 cm in height. Weight distribution was evenly split, with 50% in the 50-59kg range and 50% in 60-70 kg range. Body Mass Index(BMI) data showed 86.6% of mothers fell within the normal range (18.5-24.9), while 13.4% were overweight (25-29.5).

The figure 1 revealed demographic and clinical characteristics among 82 children. The majority of children (42.7%) were aged 25-36 months, followed by those aged 13-24 months (28%),37-48 months (22%), and 49-60 months (7. 3%).Male predominance in gender was observed, with male comprising 68.3% of the sample compared to females (31. 7%).Age at diagnosis highlighted early identification:59.7% of children were diagnosed within the first year of life, while 40.3% were diagnosed between 1-2 years of age. Birth order data revealed that nearly half of the children (46.3%) were second-born, followed by first-born (29.3%), third-born (23.2%), and fourth-born (1.2%).

Table 3 revealed a statistically significant improvement in mothers' knowledge across all three domains following the video-assisted teaching intervention. In the domain of knowledge of stunting, the mean score increased from 0.27 ± 0.45 at baseline to 8.55 ± 0.69 post-intervention (t = -98.91, p = .000), indicating a substantial gain in understanding stunting-related concepts. Similarly, in the domain of knowledge of nutritional care for stunted children, the mean score increased significantly from 0.66 ± 0.82 to 12.76 ± 0.43 (t = -1.14, p = .000), reflecting improved awareness of child feeding practices and nutritional management. In the domain of knowledge of growth hormone therapy and hygiene practices, the mean score improved significantly from 0.09 ± 0.28 to 9.91 ± 0.28 (t = -2.17, p = .000), suggesting enhanced knowledge of therapeutic procedures and hygienic care for stunted children. Overall, the total knowledge score increased markedly from 1.01 ± 0.99 pre-intervention to 31.22 ± 0.92 post-intervention (t = -1.91, p = .000).

Table 4 presented a highly significant improvement in mothers' practices across all measured domains following the intervention. The p-values for all domains were .000, indicating statistical significance at the 0.001 level, which highlights the effectiveness of the intervention. The most significant improvements were observed in prevention measures for gastrointestinal infections, child nutrition, and growth hormone injection practices, where post-intervention scores were substantially higher than baseline levels. The prevention measures for gastrointestinal infections increased from 2.52 to 20.05, while child nutrition scores increased from 1.15 to 13.95 and growth hormone injection practices increased from .17 to10.09.

Additionally, domains with initially low baseline scores, such as pregnancy status (0.17), health care follow-up for child growth (0.17), and child safety at home (0.17), showed marked increases post-intervention, reaching 5.5, 7.28, and 6.28, respectively. This indicates that the intervention was particularly effective in areas where mothers had limited prior knowledge.

Table 5 showed the analysis of pre- and post-intervention total knowledge scores across demographic groups. First, examining age groups shows that while there were no significant baseline differences (F=0.827, p=0.483), post-intervention results demonstrate significant variation (F=2.919, p=0.039*), with participants over 35 years achieving the highest scores (31.61±0.50). This suggests the intervention was particularly effective for older participants, possibly due to greater life experience or engagement with the material. For education levels, neither pre- nor post-intervention scores showed significant differences (pre: F=2.051, p=0.095; post: F=0.508, p=0.731), indicating the intervention's effectiveness was consistent across all education groups. Interestingly, university-educated participants had the highest baseline knowledge (1.86±1.35) but showed similar post-intervention results to other groups, suggesting the intervention helped equalize knowledge across education levels. Marital status analysis revealed no significant differences in either pre- (F=0.182, p=0.671) or post-intervention (F=0.038, p=0.845) scores, indicating relationship status did not influence outcomes. However, work status showed that non-working participants had marginally higher baseline knowledge

(1.16±1.05 vs 0.70±0.82, p=0.050*), working participants had significantly higher knowledge post-intervention (31.52±0.55 vs 31.07±1.02, p=0.041*).

Table 6 showed the analysis of pre- and post-intervention practice scores demographic groups. For age groups, while there was a marginally significant difference in baseline scores (F=2.295, p=0.064) with the 18-35 group showing the highest initial scores (5.37±3.53), these differences disappeared post-intervention (F=0.271, p=0.846) as all age groups achieved remarkably similar high scores (54.50-55.42).

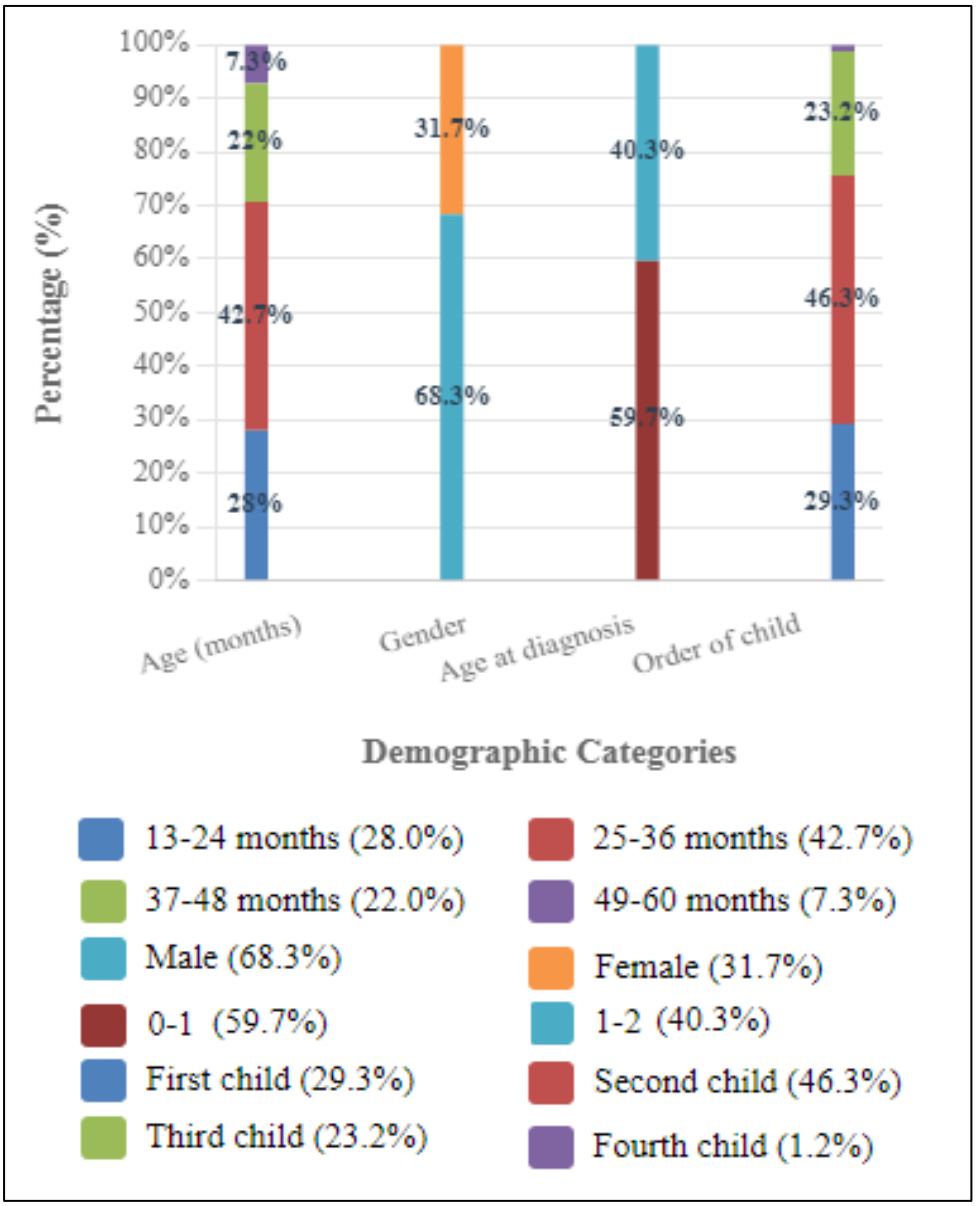
Education level analysis showed no significant differences either pre- (F=1.942, p=0.112) or post-intervention (F=0.641, p=0.635). Interestingly, while university-educated participants had the highest baseline scores (7.29±3.45), they showed the lowest post-intervention scores (52.86±6.77), though this difference was not statistically significant. Secondary-educated participants maintained the highest post-intervention scores (56.22±3.93).

Marital status had no significant impact on practice scores at either time point (pre: F=0.518, p=0.474; post: F=0.053, p=0.819), with both married and widowed participants achieving nearly identical post-intervention scores (55.28±4.80 vs 55.71±4.72). Similarly, work status showed no significant differences (pre: F=1.189, p=0.279; post: F=0.074, p=0.786), though non-working participants maintained slightly higher scores at both times.

Table 7 presented the Spearman's rank correlation analysis, which revealed no significant relationship between knowledge and practice scores, either before or after the intervention. For pre-intervention scores, the correlation coefficient of 0.111 (p=0.320) indicates an extremely weak association that fails to reach statistical significance, suggesting that mothers' initial knowledge levels had virtually no bearing on their practical behaviors. Similarly, post-intervention results show only a marginally stronger but still non-significant correlation (ρ=0.131, p=0.241).

Table (1): Socio-demographic characteristics of studied mothers(n=82)

Item	No.	%
Age (Years)		
20-29	39	47.5
30-39	43	52.5
Age at marriage(Years)		
<18	6	7.3
18-35	52	63.4
>35	24	28.3
Education		
Illiterate	12	14.6
Read and write	28	34.1
Primary	17	20.7
High school	18	22.0
University	7	8.5
Marital status		
Married	75	91.5
Widow	7	8.5
Work		
Yes	27	32.9
no	55	67.1
Height (CM)		
145-155	53	64.6
156-168	29	35.4
Weight (KG)		
50-59	41	50.0
60-70	41	50.0
BMI		
18.5-24.9	71	86.6
25-29.5	11	13.4



Figure(1): Demographic and clinical characteristics of studied children (n=82)

Table (3): Pre-post comparison of mothers' knowledge

Domain	Pre (Mean ± SD)	Post (Mean ± SD)	t-value	p-value
Knowledge of Stunting	.2683±.44580	8.5488±.68768	-98.913-	.000**
Knowledge of Nutritional Care for Stunted Children	.6585±.81981	12.7561±.43208	-1.137	.000**
Knowledge of Growth Hormone Therapy and Hygiene Practices	0.085±.281	9.91±.281	-2.17	.000**
Total knowledge	1.01±.99	31.22±.92	-.1.91	.000**

Paired t-tests (t).
***The p-value is significant at the 0.05 level.**
****The p-value is highly significant at the 0.001 level**

Table (4): Pre-post comparison of mothers' practice

Domain	Pre (Mean ± SD)	Post (Mean ± SD)	t-value	p-value
Pregnancy status	.17±.37	5.5±.61	-62.22-	.000**
Heath care and follow-up for child growth	.17±.38	7.28±.97	-58.52	.000**
Prevention measures for gastrointestinal infection and diarrhea	2.52± 2.127	20.049±1.216	-57.9-	.000**
Child nutrition	1.15±.86	13.95±1.47	-61.8-	.000**
Growth hormone injection	.17±.38	10.09±1.19	-68.48-	.000**
Sleeping	.85±.99	4.9 ±.24	-36.24-	.000**
Child safety at home	.17±.38	6.28±.97	-50.29-	.000**
Total practice	4.87±3.31	55.32±4.77	-69.81-	.000**

Paired t-tests (t).
***The p-value is significant at the 0.05 level.**
****The p-value is highly significant at the 0.001 level**

Table (5): Total Knowledge Scores Pre vs. Post Intervention by Demographic Groups

Demographic	Group	N	Pre Mean±SD	Post Mean±SD	F-value (Pre)	p-value (Pre)	F-value (Post)	p-value (Post)
Age Group	<18	6	1.00±0.89	31.50±0.55	0.827	0.483	2.919	0.039*
	18-35	52	1.13±1.01	31.00±1.05				
	>35	23	0.74±1.01	31.61±0.50				
Education Level	Illiterate	12	0.75±0.75	31.50±0.52	2.051	0.095	0.508	0.731
	Read & Write	28	1.00±0.94	31.25±0.99				
	Primary	17	1.18±1.19	31.24±1.15				
	Secondary	18	0.72±0.75	31.06±0.94				
	University	7	1.86±1.35	31.00±0.82				
Marital Status	Married	75	1.03±1.01	31.21±0.95	0.182	0.671	0.038	0.845
	Widow	7	0.86±0.90	31.30±0.76				
Work Status	Working	27	0.70±0.82	31.52±0.55	3.872	0.050*	4.333	0.041*
	Non-working	55	1.16±1.05	31.07±1.02				

One Way ANOVA
***The p-value is significant at the 0.05 level.**
****The p-value is highly significant at the 0.001 level**

Table (6): Total Practice Scores (Pre vs. Post Intervention) by Demographic Groups

Demographic	Group	N	Pre Mean±SD	Post Mean±SD	F-value (Pre)	p-value (Pre)	F-value (Post)	p-value (Post)
Age Group	<18	6	2.50 ± 1.64	54.50 ± 5.05	2.295	0.064	0.271	0.846
	18-35	52	5.37 ± 3.53	55.42 ± 4.83				
	>35	23	4.57 ± 2.78	55.13 ± 4.79				
Education Level	Illiterate	12	4.08 ± 2.31	55.69 ± 4.98	1.942	0.112	0.641	0.635
	Read & Write	28	4.50 ± 3.43	55.32 ± 4.44				
	Primary	17	4.00 ± 3.61	55.12 ± 5.31				
	Secondary	18	5.83 ± 3.01	56.22 ± 3.93				
	University	7	7.29 ± 3.45	52.86 ± 6.77				
Marital Status	Married	75	4.95 ± 3.30	55.28 ± 4.80	0.518	0.474	0.053	0.819
	Widow	7	4.00 ± 3.61	55.71 ± 4.72				
Work Status	Working	27	4.30 ± 3.36	55.11 ± 4.92	1.189	0.279	0.074	0.786
	Non-working	55	5.15 ± 3.29	55.42 ± 4.73				

One Way ANOVA
***The p-value is significant at the 0.05 level.**
****The p-value is highly significant at the 0.001 level**

Table (7): Correlations Between Knowledge and Practice Scores

Variable Pair	Correlation (ρ)	p-value
Pre-Knowledge vs. Pre-Practice	0.111	0.320
Post-Knowledge vs. Post-Practice	0.131	0.241

Spearman's correlation coefficient
***The p-value is significant at the 0.05 level.**
****The p-value is highly significant at the 0.001 level**

Discussion

Childhood stunting remains a critical global health challenge, with long-term consequences on physical growth, cognitive development, and economic productivity **(Akbar et al., 2023)**. Effective management requires a combination of nutritional interventions, medical therapy, and caregiver education—particularly for mothers, who play a central role in implementing treatment plans **(Mulyani et al., 2025)**. Prior to this study, standard education for mothers of stunted children at Ain Shams University Hospital's pediatric and nutrition clinics primarily involved verbal counseling and printed materials, which may have limitations in retention and practical application. In response to the need for more engaging, accessible, and standardized maternal education, we introduced a video-assisted teaching program designed to improve mothers' knowledge and practices in managing childhood stunting, particularly for children undergoing growth hormone therapy. This study evaluated the effectiveness of this intervention in a high-need clinical setting, where stunting prevalence is significant and healthcare resources are often stretched.

Our study demonstrated highly

significant improvements across all measured domains and in the total knowledge scores. The video-assisted program significantly improved mothers' knowledge of childhood stunting by transforming complex concepts into visually engaging demonstrations, consistent with Mayer's Cognitive Theory of Multimedia Learning **(Mayer, 2024)**. This visual and auditory approach proved particularly effective for low-literacy populations, as it presented abstract health information in concrete, actionable steps while offering consistent message delivery and opportunities for repeated viewing, thereby enhancing both comprehension and retention of stunting management **(Galmarini et al., 2024)**.This study's findings align with the experimental research by **Priya et al. (2024)**, which involved 60 primigravida mothers (30 per group), which demonstrated the significant impact of video-assisted education on childbirth knowledge. Similarly, **Hamdan et al. (2022)** evaluated the effect of video-assisted education versus conventional leaflets/verbal instructions on caregivers of pediatric patients undergoing intrathecal chemotherapy. They reported that the video group demonstrated significantly greater knowledge enhancement and reduced anxiety levels compared to the conventional education group. Like our study, their results confirm that video-assisted teaching improves comprehension effectively, as both visual and auditory senses are involved. **Burah et al. (2024)** also found that video-based nutrition education was more effective than leaflets at improving mothers' knowledge and attitudes about stunting. In line with our approach, Siokal et al. **(2024)** demonstrated that playback video demonstration education significantly enhances maternal knowledge.

Regarding the relationship of knowledge by sociodemographic factors, the universal effectiveness of the intervention across demographic groups, including mothers with varying education levels, supports findings that visual teaching methods can overcome literacy barriers **(Deshpande et al., 2023)**.Older mothers showed greater knowledge retention, consistent with studies suggesting life experience enhances learning outcomes **(Alqurashi et al., 2021)**. Working mothers' superior performance post-intervention may reflect workplace skills facilitating knowledge application, as observed in employment-related health behavior studies **(Ernawati et al., 2022)**.

Our results found that, in addition to better knowledge scores, the video-assisted teaching program achieved higher mean post-test practice scores across all measured domains, with highly significant improvements in maternal practices related to child stunting management. Although this suggests the effectiveness of video-assisted learning in improving behavior, the weak correlation between knowledge and practice indicates that factors beyond knowledge acquisition likely contributed to these behavioral changes. The results may depend on the quality and content of the video. In our study, the video employed demonstration of health practices that allowing learners to observe and replicate appropriate behaviors. This aligns with a systematic review, by **Abu Abed et al.(2014)**, which found that videos featuring real individuals performing health-related tasks were more effective in modifying patient behavior than those merely presenting information. Video-assisted teaching offers significant flexibility and accessibility, enabling learners to engage with educational materials at their convenience and pace. This adaptability is particularly beneficial in community health settings, where individuals may have varying schedules and learning preferences **(Li et al., 2020)**. Our study's findings align with previous studies demonstrating that multimedia interventions enhance not only comprehension but also the real-world application of health behaviors. A quasi-experimental study, by **Huriah, Nurjannah, and Prasetyo.(2023)**, assessed the impact of online video education on maternal nutritional behavior and the nutritional status of stunted children. The intervention group showed significant improvements in maternal nutritional behaviors. A randomized controlled trial **(C TS et al., 2024)**investigated the effect of video-assisted teaching on preventing constipation among postpartum women. The study found that women who received video-assisted teaching had a significantly lower incidence of constipation compared to those who received routine care. These findings suggest that multimedia education can effectively promote healthy dietary practices among postpartum women. In our study, the intervention's success

across all demographic groups—regardless of age, education, or marital status—suggests its scalability for diverse populations.

This study represents the first comprehensive evaluation of video-assisted teaching for improving both maternal knowledge and practical skills in childhood stunting management. Unlike previous research that focused narrowly on nutritional knowledge, our study demonstrates significant improvements across multiple domains, including hygiene practices, growth monitoring, hormone injection protocols, and infection prevention. The video-assisted approach proved particularly innovative in bridging the persistent knowledge-practice gap, as evidenced by measurable behavioral changes alongside knowledge acquisition. However, subsequent studies should incorporate longer follow-up periods to evaluate the sustainability of intervention effects and include control groups to strengthen causal inferences.

Conclusion

Based on the results of this study, we concluded that our study illustrates that video-assisted teaching is a highly effective intervention for enhancing both knowledge and practice in mothers of stunned children. Results revealed highly significant improvement across all areas of knowledge and practice, including knowledge of stunting, nutritional care, growth hormone therapy, hygiene practices, pregnancy status, heath care and follow-up for child growth, prevention measures for gastrointestinal infection and diarrhea, sleeping, child safety at home. Importantly, the intervention worked irrespective of the age of mothers, education, marital status, and work status, indicating its applicability across diverse sociodemographic groups.

The findings strongly advocate for incorporating video-based teaching into standard maternal education initiatives for stunting management, particularly where there are literacy barriers in resource-constrained environments. This is an affordable, scalable, and interactive means of empowering mothers to improve child health outcomes.

Recommendations

To enhance maternal education on childhood stunting, healthcare institutions should implement video-assisted learning programs in nutrition and pediatric clinics to standardize and improve knowledge dissemination. Future research should focus on conducting Randomized Controlled Trials (RCTs) to compare the effectiveness of video-assisted teaching against traditional methods like pamphlets and verbal counseling, thereby strengthening the evidence base. Additionally, studies should investigate whether improved maternal practices lead to measurable reductions in stunting severity and developmental delays in children. Further exploration into digital accessibility is also needed to assess the feasibility of mobile-based video education, particularly for rural and low-resource communities where stunting prevalence is often highest. Longitudinal studies should be conducted to track mothers' retention of stunting-related knowledge and consistency in applying best practices over extended periods.

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