

Research Article

A Study to Evaluate the Effectiveness of Video Assisted Teaching Programme on Prevention of Acute Respiratory Tract Infections among Mothers of Under Five Age Group Children at Selected Rural Areas in Visakhapatnam District, Andhra Pradesh

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ABSTRACT

Acute Respiratory Infections (ARI) are major public health problems and remain one of the leading causes of morbidity and mortality among children under five years of age. ARI may affect either the upper respiratory tract, causing conditions such as common cold, pharyngitis, sinusitis and laryngitis, or the lower respiratory tract, causing bronchitis, bronchiolitis and pneumonia. Under-five children are highly vulnerable due to immature immunity, frequent exposure to infectious agents and environmental risk factors. Malnutrition, overcrowding, passive smoking, indoor and outdoor air pollution, poor sanitation, lack of exclusive breastfeeding and inadequate maternal awareness further increase the risk. The present study aimed to evaluate the effectiveness of video-assisted teaching on prevention of acute respiratory tract infections among mothers of under-five children.

Methodology: A quantitative research approach with one-group pre-test and post-test quasi-experimental design was adopted. The study was conducted in selected rural areas of Visakhapatnam District, Andhra Pradesh. A total of 100 mothers and primary caregivers of under-five children were selected by convenience sampling technique. Data were collected using a structured knowledge questionnaire. After the pre-test, a pre-recorded video-assisted teaching programme on ARI prevention was administered, covering causes, risk factors, preventive measures, early identification of symptoms and home-based care. The post-test was conducted seven days after the intervention.

Results: The study findings showed a significant improvement in knowledge after the intervention. The mean pre-test knowledge score was 13.98, which increased to 22.45 in the post-test. The calculated paired t-value was 22.77, which was greater than the table value of 1.98 at $p < 0.05$, indicating a statistically significant difference. No significant association was found between post-test knowledge scores and selected demographic variables.

Conclusion: The study concluded that video-assisted teaching was effective in improving mothers' knowledge regarding prevention of acute respiratory infections among under-five children.

Keywords: Mothers, under-five children, acute respiratory infection, ARI prevention, video-assisted teaching.

INTRODUCTION

Acute respiratory tract infections (ARTIs) are among the most common childhood illnesses and remain an important public health concern, especially among children below five years of age. These infections may involve the upper or lower respiratory tract and range from mild conditions such as common cold, rhinitis, pharyngitis and otitis media to more severe conditions such as bronchitis, bronchiolitis and pneumonia. Under-five

children are more vulnerable to respiratory infections because of their developing immune system, narrow airways, close contact with caregivers and siblings, and increased exposure to household and environmental risk factors. Among ARTIs, pneumonia is considered the most serious form because it directly affects the lungs and may lead to breathing difficulty, hypoxia, hospitalization and death if not identified and managed early [1].

Globally, childhood pneumonia continues to be one of the leading infectious causes of mortality among children under five years. The World Health Organization has reported that pneumonia accounted for 14% of all deaths among children below five years of age, causing approximately 740,180 deaths in 2019 [1]. UNICEF further highlights that pneumonia kills more children than any other infectious disease and claims the lives of over 700,000 children under five every year, although most of these deaths are preventable [2]. The burden is highest in low- and middle-income countries, particularly in South Asia and sub-Saharan Africa, where poverty, undernutrition, indoor air pollution, overcrowding and delayed access to health care contribute significantly to disease occurrence and complications [2,3].

The prevention of ARTIs in children requires an integrated approach involving child protection, disease prevention and timely treatment. Preventive measures include exclusive breastfeeding, adequate nutrition, complete immunization, hand hygiene, cough etiquette, avoidance of exposure to tobacco smoke and indoor air pollution, reduction of overcrowding, early recognition of danger signs and timely health-care seeking [1,3]. The Integrated Global Action Plan for the Prevention and Control of Pneumonia and Diarrhoea emphasizes that parents, communities, health workers and health systems have a shared role in protecting children from preventable respiratory illness and ensuring early access to appropriate care [3].

In India, acute respiratory infections remain a significant cause of morbidity among under-five children. The National Family Health Survey-5 reported symptoms of ARI among children below five years and highlighted the importance of timely care-seeking for fever and ARI symptoms [4]. A national analysis of NFHS-5 data found that 2.8% of children under five had symptoms of ARI in the two weeks preceding the survey, while only 56.1% of children with ARI symptoms were taken for treatment [6]. The same study identified younger age of the child, recent diarrhoeal episode, maternal history of asthma and household tobacco smoke exposure as important factors associated with ARI, while transport-related difficulty reduced the likelihood of treatment-seeking [6]. In Andhra Pradesh, NFHS-5 data also indicate the continued presence of ARI symptoms among

under-five children and the need to strengthen preventive awareness and timely care-seeking practices among mothers [5].

Mothers are usually the primary caregivers of under-five children and are often the first to observe respiratory symptoms such as cough, fever, fast breathing, chest indrawing, difficulty in feeding, lethargy and worsening illness. Their knowledge and decision-making directly influence home care, prevention practices, early identification of danger signs and timely use of health services. Studies conducted in India have shown that parental knowledge regarding ARTIs may be inadequate in important areas such as rational antibiotic use, immunization, indoor air pollution and avoidance of unsafe home remedies [10]. Therefore, empowering mothers through planned health education is essential to reduce preventable morbidity and complications related to ARTIs.

Video-assisted teaching is an effective educational strategy because it combines visual, auditory and demonstrative learning. It can simplify health information, improve understanding among mothers with different literacy levels and reinforce correct practices through repeated viewing. Previous studies have shown that structured teaching programmes and video-assisted educational interventions improve knowledge and practices related to prevention and management of respiratory infections among parents and mothers of under-five children [11,12]. Hence, the present study was undertaken to evaluate the effectiveness of a video-assisted teaching programme on prevention of acute respiratory tract infections among mothers of under-five children in selected rural areas of Visakhapatnam district, Andhra Pradesh.

Need for the Study

Children below five years of age represent a highly vulnerable group for acute respiratory tract infections because the disease can progress rapidly from mild symptoms to severe respiratory distress if preventive measures and timely treatment are delayed. In rural communities, the risk may be further increased by factors such as overcrowded housing, use of biomass fuels, exposure to smoke, low awareness of danger signs, delayed health-care seeking, incomplete immunization, malnutrition and dependence on home remedies. Although many ARTIs are preventable, lack of maternal knowledge can

contribute to delayed recognition, inappropriate home management and unnecessary complications.

The need for the present study arises from the fact that mothers are central to the prevention and early management of ARTIs in under-five children. A mother's knowledge regarding hand washing, breastfeeding, nutrition, immunization, environmental sanitation, smoke-free household practices, cough hygiene, adequate fluids, danger signs and early consultation can greatly influence the child's health outcome. Evidence from Indian studies suggests that caregivers may be aware of common symptoms, but important gaps persist regarding risk factors, antibiotic use, immunization and prevention of indoor air pollution [10]. These gaps indicate the need for focused, simple and culturally acceptable educational interventions.

Health education through routine verbal instruction may not always be sufficient, especially in rural settings where mothers may have varied educational backgrounds. Video-assisted teaching provides a practical method to deliver uniform, clear and visual information. It can demonstrate preventive practices, explain warning signs and motivate mothers to seek timely care. Studies have shown that educational interventions, including structured teaching and video-assisted programmes, significantly improve knowledge scores of mothers and parents regarding respiratory infection prevention and management [11,12]. Therefore, evaluating such an intervention in a rural community setting is relevant for nursing practice, community health education and child health promotion.

In Visakhapatnam district, rural mothers may have limited access to structured child-health education regarding prevention of ARTIs. Although national and state-level data provide information on ARI burden and care-seeking, there is a need for local evidence on whether video-assisted teaching can improve mothers' knowledge regarding prevention of ARTIs. The present study will help identify the existing knowledge level of mothers, determine the effectiveness of video-assisted teaching and assess whether selected demographic variables are associated with post-test knowledge scores. The findings may support community health nurses, primary health centres and public health workers in planning effective maternal education programmes for

prevention of ARTIs among under-five children.

Objectives of the Study:

- To assess the existing knowledge of mothers of under-five children regarding ARI prevention.
- To evaluate the effectiveness of video-assisted teaching in enhancing maternal knowledge related to ARI prevention.
- To identify associations between post-test knowledge scores and selected demographic variables.

Hypotheses:

- **H₁:** Mothers of children under five years will demonstrate a significant increase in post-test knowledge regarding the prevention of acute respiratory tract infections following the video-assisted teaching intervention.
- **H₂:** There will be a significant association between post-test knowledge scores and selected demographic variables of the mothers.

METHODOLOGY:

The present study was undertaken to evaluate the effectiveness of a video-assisted teaching program on the prevention of acute respiratory tract infections (ARTIs) among mothers of under-five children so a quantitative pre-experimental research approach was adopted. For this study, the investigator selected a one-group pre-test-post-test pre-experimental design. The video-assisted teaching program on the prevention of ARTIs is the independent variable and dependent variable was knowledge of mothers of under-five children regarding ARTI prevention. The data were collected in Akkireddypalem village, situated in Pendurthi Mandal, under the jurisdiction of the Pendurthi Primary Health Centre (PHC) in Visakhapatnam district, Andhra Pradesh. 100 sample consisted of selected mothers of under-five children from specific rural areas of Visakhapatnam district through convenient sampling technique. The data was collected by structured knowledge questionnaire regarding prevention of ARIs. To assess the stability of the tool test retest method was used which revealed $r = 0.82$, hence the tool is found to be highly reliable.

RESULTS

Table No. 1: Frequency and percentage distribution of demographic variables of mothers of under five children

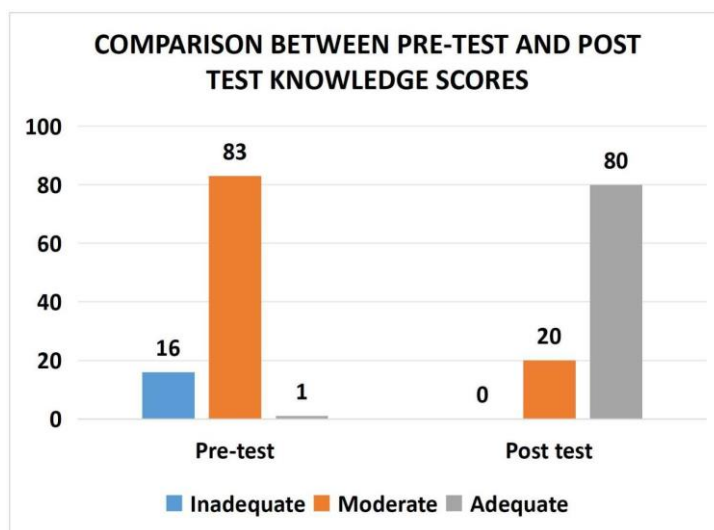
S. No	Demographic variables	Frequency	Percentage
1	Age of the Mother		
	18-20 years	27	27%
	21-23 years	23	23%
	24-26 years	24	24%
	Above 26 years	26	26%
2	Educational Qualification		
	Primary	12	12%
	Secondary	31	31%
	Intermediate	31	31%
	Graduate and above	26	26%
3	Occupation		
	Housewife	22	22%
	Daily wage worker	23	23%
	Private employee	28	28%
	Government employee	27	27%
4	Monthly Family Income		
	Below ₹5,000	33	33%
	₹5,001–₹10,000	19	19%
	₹10,001–₹20,000	24	24%
	Above ₹20,000	24	24%
5	Type of Family		
	Nuclear	25	25%
	Joint	29	29%
	Extended	17	17%
	Single-parent	29	29%
6	Number of Children Under 5 Years		
	One	28	28%
	Two	38	38%
	More than two	34	34%
7	Source of information		
	Books	26	26%
	Net references	26	26%
	Multi media	23	23%
	News papers	25	25%

The above table no. 1 revealed that Among the study participants, the majority were distributed across different age groups 27% of the mothers were between 18–20 years, 31% of the mothers had completed secondary or intermediate education, an analysis of occupational status showed that 28% of the mothers were employed in private organizations, economic status of the families was assessed through monthly income levels findings indicated that 33% of mothers

belonged to families with an income below ₹5,000 per month, the results showed notable variation 29% of mothers were part of joint families, distribution of participants according to the number of children under five years revealed that 38% of mothers had two children in this age group, about their primary sources of health-related information, mothers reported multiple channels. 26% relied on books and internet sources.

Table No.: 2: Comparison of Pretest and Post-Test Knowledge Scores

S. No.	Level Knowledge	Scoring Category	Pretest Frequency	Pretest %	Post-Test Frequency	Post-Test %
1	Inadequate	≤ 50%	16	16%	0	0%
2	Moderate	51–75%	83	83%	20	20%
3	Adequate	>75%	1	1%	80	80%



The table no. 2 and figure no. 1 show that marked improvement in maternal knowledge levels following the video-assisted teaching program. In the pre-test assessment, the majority of mothers (83%) demonstrated only a moderate level of knowledge, while 16% fell into the inadequate category and merely 1% exhibited adequate knowledge. In contrast, the post-test results revealed a substantial shift, with 80% of mothers achieving an

adequate level of knowledge and the remaining 20% retaining a moderate level. Notably, no participants were classified under the inadequate category after the intervention. These results provide clear evidence of the effectiveness of the video-assisted teaching program in enhancing mothers' awareness and understanding of preventive measures against acute respiratory tract infections.

Table no. 3: Mean, Standard Deviation and 't' Value of Pretest and Post-Test Knowledge Scores

Knowledge Scores	Mean	Standard Deviation (SD)	Paired 't' Value	Table Value (p<0.05)	Result
Pretest	13.04	2.88			
Post-Test	21.26	3.17	20.53	1.98	Significant

The table no. 3 indicate a substantial improvement in maternal knowledge following the intervention. The mean post-test knowledge score (21.26) was significantly higher than the mean pre-test score (13.04). The calculated t-value of 20.53 far exceeded

the table value of 1.98 at the 0.05 level of significance, demonstrating that the video-assisted teaching program was highly effective in enhancing mothers' knowledge regarding the prevention of acute respiratory tract infections in children under five.

Table No. 4: Association between Post-Test Knowledge Scores and Selected Demographic Variables

Demographic Variables	Moderate Knowledge 51-75%	Adequate Knowledge >75%	Total	χ ² value	Table value	Df	P value
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	F	%	F	%				
1.Age of the Mother								
a.18-20 years	2	2%	25	25%	27	6.357	7.815	3
b.21-23 years	5	5%	18	18%	23			
c.24-26 years	4	4%	20	20%	24			
above 26 years	9	9%	17	17%	26			
2.Educational Qualification								
a. Primary	1	1%	11	11%	12	3.429	7.815	3
b. Secondary	4	4%	27	27%	31			
c. Intermediate	8	8%	23	23%	31			
d. Graduate and above	7	7%	19	19%	26			
3.Occupation								
a. House wife	7	7%	15	15%	22	2.552	7.815	3
b. daily wage worker	4	4%	19	19%	23			
c. private employee	5	5%	23	23%	28			
d. government employee	4	4%	23	23%	27			
4.Monthly family income								
a) Below ₹5,000	8	8%	25	25%	33	6.461	7.815	3
b) ₹5,000 -₹10,000	1	1%	18	18%	19			
c) ₹10,001-₹20,000	3	3%	21	21%	24			
d) Above ₹20,000	8	8%	16	16%	24			
5.Type of Family								
a) Nuclear family	5	5%	20	20%	25	0.579	7.815	3
b) Joint family	5	5%	25	25%	30			
c) Extended family	3	3%	14	14%	17			
d) Single-parent	7	7%	22	22%	29			
6.Number of Children Under five Years								
a) one	4	4%	24	24%	28	0.862	5.991	2
b) two	8	8%	30	30%	38			
c) more than two	8	8%	26	26%	34			
7.Source of information								
a) Books	4	4%	22	22%	26	3.04	7.815	3
b) Net references	4	4%	22	22%	26			
c) Multi media	4	4%	19	19%	23			
d News papers	8	8%	17	17%	25			

The analysis revealed that there was no statistically significant association between mothers' post-test knowledge scores and their demographic characteristics, including age, occupation, type of family, number of children, educational qualification, monthly family income, and primary source of health-related information. These findings suggest that the improvement in knowledge following the video-assisted teaching program was independent of demographic factors, indicating that the intervention was broadly effective

across diverse groups of mothers.

DISCUSSION

The present study evaluated the effectiveness of a video-assisted teaching programme on prevention of acute respiratory tract infections among mothers of under-five children in selected rural areas of Visakhapatnam district. The pre-test findings showed that 16% of mothers had inadequate knowledge, 83% had moderate knowledge and only 1% had

adequate knowledge. This indicates that, before the intervention, most mothers had only partial awareness regarding prevention of acute respiratory tract infections. Similar findings were reported by Bhalla et al., who observed knowledge gaps among parents regarding prevention, indoor air pollution, immunization and appropriate care-seeking for acute respiratory infections in children [7].

After the video-assisted teaching programme, the post-test findings showed a marked improvement in knowledge. None of the mothers remained in the inadequate knowledge category, 20% had moderate knowledge and 80% achieved adequate knowledge. The mean knowledge score increased from 13.04 ± 2.88 in the pre-test to 21.26 ± 3.17 in the post-test. The calculated paired 't' value was 20.53, which was higher than the table value of 1.98 at $p < 0.05$, showing a statistically significant improvement. This finding is consistent with Sujata et al., who reported significant improvement in mothers' knowledge after a structured teaching programme on acute respiratory tract infections [6]. Similarly, Dharmarajlu et al. found that video-assisted teaching significantly improved parents' knowledge regarding prevention and management of upper respiratory infections among under-five children [8].

The association between post-test knowledge scores and selected demographic variables showed no statistically significant association with age, education, occupation, income, type of family, number of under-five children or source of information. This suggests that the intervention was effective across different demographic groups. Overall, the findings support the hypothesis that video-assisted teaching is an effective educational strategy for improving maternal knowledge regarding prevention of acute respiratory tract infections among under-five children

CONCLUSION

The study findings clearly demonstrated that video-assisted teaching is an effective and reliable educational method for enhancing the knowledge of mothers regarding the prevention of acute respiratory infections in under-five children. The substantial increase in post-test knowledge scores validated the hypothesis and highlighted the potential of audio-visual health education tools in rural community settings.

By equipping mothers with improved awareness and preventive practices, such interventions can play a crucial role in reducing the burden of ARI-related morbidity and mortality among vulnerable child populations. The study also emphasizes the importance of incorporating innovative teaching methods like video-assisted learning in community health nursing practices to promote preventive care at the grassroots level.

Recommendations

Based on the study findings and nursing implications, the following recommendations are proposed:

- Similar studies can be replicated with larger sample sizes to enhance the generalizability of results.
- Longitudinal studies may be conducted to evaluate knowledge retention and changes in maternal practices over time.
- Comparative studies can be undertaken to assess the effectiveness of video-assisted teaching relative to other educational methods, such as pamphlets, posters, or direct demonstrations.
- Regular health education programs should be organized in both rural and urban communities to increase maternal awareness regarding the prevention and management of childhood illnesses, particularly ARTIs.

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