

Quality Improvement Project

EFFECTS OF VIDEO-ASSISTED TEACHING PROGRAM ON KNOWLEDGE OF UPPER RESPIRATORY INFECTION MANAGEMENT AND PREVENTION AMONG PARENTS OF THE CHILDREN UNDER FIVE YEARS OLD, FARASAN, KINGDOM OF SAUDI ARABIA

Santhi Muttipoll Dharmarajlu^{1*}, Sadeem Yahya Najmi¹, Salha Adnan Edriss¹, Khlood Ahmed Redhwan¹, Soad Omar Sultan¹, Hayam Ahmed¹

Author information: ¹ College of Nursing, Jazan University, Jazan, Kingdom of Saudi Arabia.

Received: 05-22-2021; Accepted: 08-18-2022; Published: 08-22-2022.

Abstract: Acute upper respiratory infections (URI) are the leading cause of morbidity and mortality among children. It accounts for 4 million of the 15 million child deaths in the World annually. Globally, 30-60% of pediatric outpatient attendance and 20-30% of hospital admissions are due to URIs. Recognizing that mothers are the main caregivers for their children, their behaviors may be used as a disease prevention technique. The study aimed to identify the parental knowledge and practice of URI prevention in children under five. One hundred four parents were selected to participate in the study using the purposive sampling technique. The knowledge and practice were assessed using a structured interview schedule and checklist. A video-assisted educational program was implicated in increasing parental knowledge of URIs. The study results show that the total mean score for the pre-test before the program was implemented was 2.33 ± 0.886 , whereas the post-test (after the program) was 8.89 ± 0.81 , which showed the proposed program's effectiveness. The overall mean score of evaluation of URI prevention knowledge increased from 6.85 ± 1.413 to 20.49 ± 1.115 , with a mean difference of 13.64.

Conclusion: The study showed the need for and importance of parents' educational programs for preventing and managing URIs, particularly among younger parents, of young children living in urban areas. Infection prevention is critical in children under five, including handwashing while caring for children with respiratory infections, breastfeeding, hydration support, and timely health care provider visits. A parental educational program is a strong instrument to prevent URIs in children.

Keywords: knowledge, preventive practice, upper respiratory infections, children, video assisted teaching, educational program

INTRODUCTION Upper respiratory infections (URIs) affect the upper respiratory tract, including the nose, sinuses, pharynx, and larynx. The symptomatology includes nasal obstruction, sore throat, tonsillitis, pharyngitis, laryngitis, sinusitis, otitis media, and the common cold symptoms. Most infections are caused by viruses, while bacteria cause some. Fungal or helminthic infections of the upper respiratory tract are also possible, although much less common [1]. Among etiological bacterial agents are *Staphylococcus aureus*, *Hemophilus influenzae* type b (Hib), and *Streptococcus pneumoniae*. The most common viruses

are respiratory syncytial (RSV), influenza, human parainfluenza, and others, including the recent COVID-19 pandemic [2].

Acute URIs are the most common cause of morbidity and mortality in children under five, resulting in high economic costs and the most common reason for children seeking medical attention [3]. The frequency of URI in children is much higher than in adults [4]. Approximately 10 million hospital visits are made annually for upper respiratory tract infections. Every year, more than 12 million children in developing countries die from acute respiratory illness before their fifth birthday, with many dying in their first year of life [5].

Corresponding Author: Santhi Muttipoll Dharmarajlu
Assistant Professor, College of Nursing, Jazan University,
Jazan, Kingdom of Saudi Arabia, santhi_pooja@gmail.com,
srajalu@jazanu.edu.sa, 0533081247

During the first few weeks of illness, the most common reason for seeing medical help is the need for symptom relief. Children are suffered from high fever, dehydration, and anorexia, especially if vomiting or diarrhea is present. The family requires counseling, motivation, and practical advice on comfort measures and medical management [6]. Furthermore, many mothers are using herbals and remedies. Unfortunately, some of those children are getting unnecessary antibiotic prescriptions.

A prevention-focused educational program was needed [7]. This study aimed to assess the effectiveness of video-assisted teaching on the preventable practice of URIs among parents of children under five years old.

We hypothesized that there would be a significant improvement in parental knowledge of URI prevention among young children after introducing a video-assistant teaching (VAT) program.

The goals of this quality improvement project were to implement VAT program for the parents of children under five years and assess the impacts of program implementation.

MATERIALS AND METHODS This quantitative cross-sectional study was conducted among the parents of children younger than five years old from the Farasan community, Saudi Arabia, after obtaining Informed Consent and ethical administrative approval. Additional inclusion criteria were based on parental ability to read and write Arabic.

The semi-structured interview included demographics, such as a child's age, age of the parents, parent's education, monthly income, occupation, residence, number of children under five age group, and number of times visited the pediatrician due to respiratory infections. The structured interview assessed the knowledge of URI among parents of children under five years old. The checklist assessed the practical knowledge about pediatric URI practice and included 25 items before and after the introduction of the video-assisted teaching (VAT) program on management and prevention of URIs.

The data were analyzed by descriptive and inferential statistics and presented as mean (M), standard deviation (SD), and percentages. The t-test was used for hypothesis testing. The paired sample chi-square was also used, for questions that showed a positive percentile increase in rating, with a significance value of $p < 0.05$. The correlation reflected the relationship between obtained knowledge

and change in management approach. Microsoft Excel (Microsoft 2020) was used.

RESULTS One hundred four parents participated in the VAT program. Most of the parents (38%) were younger than 28 years. The majority of the children (40%) were 4-5 years old. Sixty percent of respondents had bachelor's degrees and worked as a government employee. The highest percentage (24%) of respondents have a monthly income of SR 5000-10000. Seventy-five percent of families had one to three kids under the age of five. Most (70%) of them resided in urban areas. Families (72.6%) visited a pediatrician due to respiration infection in their children. When the parents were tested on the knowledge of URI, the pre-educational test showed very low results. Thus, only 28% of the parents acknowledged that they understood what URIs are, could list the examples (24%), and recognize causes (29.8%). Surprisingly, only 15.4 % of parents recognized risk factors for URIs, know signs and symptoms (26.9%), diagnostic approaches (18.3%), effects on overall health (27%), preventive (33.7%), and treatment measurements (29.8%) and which home remedies could be used (32.7%).

Video-assisted teaching program increase parental knowledge substantially (95.2%). After the education, 92.3% of the parents could list URIs, understood the common risk factors (92.3%), causes of URIs (84%), signs and symptoms (87.5%), diagnostic approach (81%), and impacts of URI on health. 93.3 % of the parents required knowledge of preventive measurements and treatment (88.5%) and home remedies' role (98.1%).

The frequency and percentage distribution checklist pre- and post-test VAT program "Practice questions" on URI among the patens showed that 99% of the parents adopted the practice of placing a child on the back during sleep (Table 1). A substantial increase in knowledge of other preventive techniques and treatment approaches was demonstrated. Thus, 95.2% learned to clean a child's nose daily and use woolen clothes instead of cotton clothes to keep the child from cold (94.2%). Similarly, around 90% of the parents started using compresses to reduce a child's body temperature, 90.4% started using home remedies, and 88.5% followed a physician's instructions and advice. The post-test showed that 99% of the parents started to use the medicines available in the house before consulting a doctor, and 94.2% started to measure a child's temperature when a URI occurred. Before the introduction of the VAT program, only 37.5% were admitted even to measure temperature in a child.

Practices of URI prevention				
Questions	Pre-test		Post-test	
	Number	%	Number	%
1. How often do you follow all the physician's instructions and advice?	35	35.7%	92	88.5%
2. Where the births of your child take place?	90	86.5%	90	86.5%
3. Was your child delivery normal?	62	59.6%	62	59.6%
4. Was your child born at term?	87	83.7%	87	83.7%
5. Do you clean your baby's nose daily?	29	27.9%	99	95.2%
6. Do you use cold compresses to reduce body temperature?	39	37.5%	94	90.4%
7. Do you use of woolen clothes instead of cotton clothes to keep the child from cold?	53	50.9%	98	94.2%
8. Does your child sleep on the back to prevent apnea and improve breathing?	18	17.3%	103	99%
Practices of fever management				
9. Do you measure the temperature of the child?	23	22.1%	98	94.2%
10. Do you use medications available in the house before consulting your doctor?	58	55.8%	99	99%
11. Do you visit the health institutions or a doctor if baby has fever?	22	21.2%	96	92.3%
12. Do you use home remedies on your child to reduce/relieve any signs and symptoms of URI before obtaining medical advice?	78	75%	94	90.4%
13. Do you give more fluids to the child during his/her illness?	63	60.6%	97	93.3%
Practices of cough management				
14. Do you use ever practice reducing the malnourishment of your child?	43	41.3%	97	93.3%
15. Do use medications during a respiratory infection?	56	53.8%	102	98.1%
16. Do you use herbs to reduce the severity of the cough?	78	75%	103	99%
17. Do you practice increase the drink of warm liquids for the child	32	30.8%	102	98.1%
18. Give anti - cough drugs without consulting a doctor?	79	75.9%	104	100%
19. Do you make your child inhale the warm steam to reduce coughing and nasal congestion?	26	25%	102	98.1%
20. Do you renew the air of the house to avoid continuous cough?	78	75%	103	99%
21. During respiratory infection do you continue breastfeeding children?	54	51.9%	104	100%
22. When symptoms appeared during infection do you consult a doctor immediately?	67	64.4%	104	100%

Table 1. Checklist of frequency and percentage distribution pre- and post-test VAT program "Practice questions" on URI among the patens.

Substantially increased knowledge of hydration needs during URIs (93.3%, pre-test showed only 60.6% were awarded of such needs). A very low percentage of parents visited health care providers before acquiring knowledge about URIs (21.2%); the VAT program helped to understand all risks that a child's illness poses, and after the program, already 92.3% of parents were willing to use physician advice.

Understanding a baby's breastfeeding needs during URIs increased from 53.8% to 98.1%, which showed the effectiveness of the introduced educational program. In addition, for older children, warm drinking needs practice increased from 30.8% to 98% after the parental training. 98.1% used a warm humidifier to reduce cough and nasal congestion, and 99% used house ventilation.

The total score of knowledge assessment about URIs among parents of children under five years old before and after the VAT program introduction is demonstrated in Table 2. The significant improvement in parents' knowledge about URIs after the education became obvious.

No	Knowledge and practice during URI	Max Score	Pre-Intervention		Post-intervention		Mean difference	't' test	P
			Mean	SD	Mean	SD			
1	Knowledge about upper respiratory tract infections	10	2.33	0.886	8.89	0.81	6.56	7.24	0.05
2	Preventable practice of upper respiratory tract infections	22	6.85	1.413	20.49	1.115	13.64	2.914	

Table 2. The total score of knowledge assessment about URIs among parents of children under five years old before

The total score of knowledge assessment about URIs among parents of children under five years old before and after the VAT program introduction is demonstrated in Table 2. The significant improvement in parents' knowledge about URIs after the education became obvious, with the mean total score increasing from 2.33 (pre-test) to 8.89 (post-test). The program led to substantial improvements in URIs practice prevention, with the total score increasing from 6.85 to 20.49 ($p < 0.05$). There was no significant association between age of the parents, education of parents, monthly income, occupation, residence, number of children under five age group, and number of times visited the paediatricians due to respiratory infections. There was a significant

correlation between knowledge and practice scores (0.84) of URIs prevention practice among parents of children under five.

DISCUSSION The findings demonstrated that most parents of children under five were young and had poor knowledge about URIs before the VAT educational program was introduced. Similar results were found in the study, which was done earlier in Iraq [8]. The knowledge of URIs pre-training was surprisingly low despite 60% of participants having bachelor's degrees. The study results were similar to the assessment conducted in Pakistan: "Knowledge, Attitude and Practices of mothers on Acute Respiratory Tract Infection in children under five years of age," where most participants had higher education [9].

The majority of parents who participated in this study and showed poor knowledge on the pre-test before the program introduction resided in urban areas, similar to the previously reported study [10-11]. The need for educational programs is more relevant to the parents of younger children [12].

Overall, our quality improvement project showed the substantial need for the VAT educational program and its obvious benefits. Some other countries identified poor URIs prevention practice and management among the parents of young children and adopted different educational programs to improve knowledge about URIs in their areas [5,13-14].

There was a significant correlation between knowledge and practice scores (0.84) of URIs among parents of children under five, similar to the earlier study in Pakistan and some other countries [15].

CONCLUSION The study showed the need for and importance of parents' educational programs for preventing and management of URIs, particularly among younger parents, of young children living in urban areas. Infection prevention is critical in children under five, including handwashing while caring for children with respiratory infections, breastfeeding, hydration support, and timely health care provider visits. A parental educational program is a strong instrument to prevent URIs in children.

CONFLICTS OF INTERESTS The research received no specific grant from any funding agency in the public, commercial or not-for-profit sectors. The author declared no conflicts of interest.

REFERENCES

- Guppy MP, Mickan SM, Del Mar CB. "Drink plenty of fluid"s: a systematic review of evidence for this recommendation in acute respiratory infections. *BMJ*, 2014, 328 (7438): 499–500.
- Kumar SG, Majumdar A, Kumar V, Naik BN, Selvaraj Kbalajee K. Prevalence of acute respiratory infection among under-five children in urban and rural areas of puducherry, India. *Journal of natural science, biology, and medicine*, 2012, 6: 3-6.
- Williams BG, Gouws E, Boschi-Pinto C, Bryce JDye C. Estimates of world-wide distribution of child deaths from acute respiratory infections. *The Lancet. Infectious diseases*, 2016, 2: 25-32.
- Simasek M, Blandino DA. Treatment of the common cold. *Am Fam Physician*. 2007 Feb 15; 75(4):515-20.
- Mutalik AV, Raje VV. Study to assess the knowledge, attitude, and practice about acute respiratory infections among school going children and their parents in rural Maharashtra. *International Journal of Medical Science and Public Health*, 2017, 6(11), 1584-1587.
- Nath AS. A study to assess the knowledge and practice regarding upper respiratory tract infection among mothers of under five children in a selected rural area at Bangalore with a view to prepare and information booklet", 2012, (A thesis master Nursing Paediatric, Rajiv Gandhi College of Nursing Bangalore.)
- Krishnan A, Amarchand R, Gupta V, Lafond KE, Suliankatchi RA, Saha S. Epidemiology of acute respiratory infections in children - preliminary results of a cohort in a rural north Indian community. *BMC infectious diseases*, 2015, 15: 462.
- Hasan AA. Assessment of Mother's Practice toward Their Children with Upper Respiratory Tract Diseases. *Journal of University of Babylon for Pure and Applied Sciences*, 2017, 25(5), 1814-1822.
- Bham SQ, Saeed F, Shah MA. Knowledge, Attitude and Practice of mothers on acute respiratory infection in children under five years. *Pakistan journal of medical sciences*, 2016, 32(6), 1557.
- Al Shuhayb Z, Al Haddad S, Al Yahya K, Khawaja R. Parents' Management of Acute Upper Respiratory Tract Infections in Children, Al Ahsa, Saudi Arabia. *International Journal of Scientific Study*, 2016, 6(5). <https://doi.org/10.17354/ijss/2018/230>
- Aboulazm SF, Darwish AM, & Okasha M. Mother's knowledge and beliefs about management of acute respiratory infection [ARI] among children in Alexandria City, Alex. *J. Pediatr*, 2008, 12(2), 241-246.
- Keter PK. Knowledge, Attitudes and Practices of Mothers in relation to Childhood Pneumonia and factors associated with Pneumonia and Seeking Health Care in Kapsabet District Hospital in Nandi County, Kenya. 2015, (A thesis submitted in partial fulfilment for the degree of Master of Science in Public Health in the Jomo Kenyatta University of Agriculture and Technology).
- Saeed EAM, Awadalla, H. Knowledge, Attitude and, Practice among Mothers of Under-Five Children about Acute Lower Respiratory Tract Infections and a Locality in Khartoum Urban Area, Sudan. *Journal of Environmental Science and Public Health*, 2020, 4, 455-468.
- Kumar R, Hashmi A, Soomro LA, Ghouri A. Knowledge attitude an practice about acute respiratory infection among the mothers of under five children attending civil Hospital Mithi Tharparkar Desert. *Primary Health Care*, 2012, 2(108), 2167 1079.
- Dagne H, Andualem Z, Dagne B, Taddese, AA. Acute respiratory infection and its associated factors among children under-five years attending pediatric ward at University of Gondar Comprehensive Specialized Hospital, Northwest Ethiopia: institution-based cross-sectional study. *BMC pediatrics*, 2020, 20(1), 1-7.