

The Knowledge, Attitude and Practices about the Prevention and Caring for Children with Acute Respiratory Infection among Mothers in the Rural Area, Viet Nam

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ABSTRACT

Background: In Vietnam, acute respiratory infection (ARI) has high morbidity and mortality rates in children under 5 years old.

Objective: The study aimed at assessing the knowledge, attitude, and practices of mothers in prevention and caring for children with ARI in rural area, Vietnam.

Methods: The descriptive study was conducted among 194 mothers have under 5 years old in the rural area of Vu Ban District, Nam Dinh province from October 2020 to June 2021. The questionnaire was used to assess the knowledge, attitude, and practices of mothers about prevention and caring for children with ARI. Then the data was collected, analyzed and entered into the SPSS 25.0 program. The frequency of knowledge, attitude, and practices among mothers was expressed in proportions.

Results: The study was conducted on 194 mothers having children under 5 years old in the rural area in Viet Nam. The results showed that unsatisfactory knowledge, attitude, and practices of mothers about prevention and caring for children with ARI accounted for high rates: 75.8%; 45.4% and 61.9% respectively. 67.5% of mothers feed their children with enough nutrients. 36.1% of mothers recognized the sign of chest in drawing and 40.2% of mothers recognized the breathing difficulty in children with ARI. 33% of mothers went to the pharmacy when their children had a fever or cough.

Conclusions: The knowledge, attitude, and practices of mothers about prevention and caring for children with acute respiratory infections were low. So, there is a need of teaching program to improve their knowledge, attitude, and practices.

Keywords: Acute respiratory infection (ARI), Children under 5 years old, Knowledge, KAP of mothers

INTRODUCTION

Acute respiratory infection (ARI) is a common syndrome in children, especially children under 5 years old who leading position in morbidity and mortality in the world [1,2]. There were 68.9 million cases (95% CI 65.1-72.7 million) of ARI in Australia in one year, equating to an incidence of 3.2 (95% CI 3.0-3.4) cases of ARI per person annually, children aged under 5 years had the highest incidence of ARI compared to other age groups [3]. In particular, pneumonia is the leading cause of death in children [4]. The management, prevention, and caring for children with acute respiratory infections depend not only on healthcare providers but also on the knowledge, attitude, and practices (KAP) of mothers when they prevent and take care of their children with ARI. The KAP of mothers about ARI play an important role in prevention. Mothers are the caregivers of their children and thus their KAP could be used as a preventive measure for the

disease [5]. A previous revealed that mothers with a poor score on KAP showed a higher incidence (28.9%) of ARI. Incidence was measured at 24.78% for mothers with a fair KAP score and 20.83% for mothers with a good score [6]. The lack of knowledge about

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the danger signs of the disease has prompted a proposal for a community-based education program for mothers about ARI [7].

Aim of the study: The study aimed at assessing the knowledge, attitude, and practices of mothers about the prevention and caring for children with acute respiratory infection in the rural area, Vietnam in 2020-2021.

Research Questions: What are the knowledge, attitude, and practices of mothers in prevention and caring for children with acute respiratory infection?

Research subject: Mothers having children under 5 years old in the rural area, Vietnam.

METHODS

Research setting

A cross-sectional survey conducted in the rural area of Vietnam. There are 8 villages in commune of Vu Ban district. It was estimated that about 248 times of children were hospitalized for treatment of acute respiratory infections at Vu Ban district hospital in the first 9 months of 2020. In addition, the people's ability to access health services as well as information about health care remains low. Therefore, this rural area of Viet Nam was selected for this study.

Data collection

Data were collected from October 2020 to December 2020. All mothers having children less than 5 years old in the rural selected in the community. Mothers were invited to participate in this study and then, the research members in Nam Dinh University of Nursing or healthcare providers at the commune health station guides mothers to fill out the survey and evaluate the knowledge, attitude, and practices of mothers in prevention and caring for children with ARI at the mother's home or the commune health station in about 20 min.

Sample: Mothers who fulfill the inclusion criteria

The sample size:

$$n = Z^2_{(1-\alpha/2)} \frac{p(1-p)}{d^2}$$

Where $Z^2_{(1-\alpha/2)}$: 1.96 (95% confidence level); $d= 0.05$ (5% error); $p = 0.46$ [5]

The corrected sample is 194 mothers. Hence the researcher collected in 3 months was 194 mothers as the sample size to conduct this research.

Sampling technique: The purposive sampling technique used to select the samples based on inclusion and exclusion criteria

Sampling criteria:

Inclusion criteria:

Mothers who:

- Have children under 5 years old
- Were present in the selected community
- Were willing to participate in the study
- Were living in a rural area from October 2020 to December 2020.

Exclusion criteria: Mothers are unable to write or communicate.

Measurements

The questionnaire was based on the WHO guidelines [8]. The tool was validated by 5 pediatric experts with CVI = 0.98. And then, the questionnaire was tested for structural validity and reliability by testing on 130 mothers with children under 5 years old in rural areas in Viet Nam (these 130 mothers didn't participate in the later survey). The result of reliability with Cronbach's Alpha value was greater than 0.70 for the total scale of the knowledge, attitude and practices. Evaluating the structural validity of the questionnaire by analyzing the exploratory factor (EFA) with the KMO coefficient (Kaiser-Meyer-Olkin) was 0.57. Therefore, this questionnaire meets the standards used in this study. The questionnaire contains 34 items, including 8 items about the general information characteristics of mothers and 26 items to assess the knowledge, attitude, and practices of mothers in the prevention and caring for children with ARI. It is divided into 2 sections.

Section A: This section deals with the general information characteristics of mothers: The information about the age, educational level, occupation, residence and number of children of mothers. This section includes 8 items.

Section B: Including 3 parts:

Part 1: This section deals with the knowledge about the ARI disease including 2 main contents: Signs and symptoms; Prevention and caring for children with acute respiratory infections including 2 main contents: Nutrition and nasal hygiene for children. This section includes 8 multiple-choice questions. The different levels of knowledge are categorized as follows:

Satisfactory knowledge $\geq 70\%$

Unsatisfactory knowledge $< 70\%$

Part 2: This section deals with the attitude of mothers about ARI including 3 main contents: Mother's attitude about the disease, care, and prevention of ARI. This section includes 10 items using a five-point Likert scale with answers in 5 levels corresponding to the score 1, 2, 3, 4, 5: Strongly disagree, disagree, neutral, agree, strongly agree. The items score was added to calculate the total scores, where a higher score indicates a better attitude. The total score of the attitude divides by 10 (items). Satisfactory level of attitude from 4 - 5 points (the answer: strongly agree, agree). In contradiction, an

unsatisfactory level of attitude is less than 4 points (the answer: strongly disagree, neutral, disagree).

Part 3: This section deals with the practices of mothers in caring for children with ARI including 4 main contents: Practice taking children to go to the doctor; giving them water to drink, relieving cough, cleaning the nose; About prevention of ARI including 4 main contents: Avoid to cigarette smoke, dust and animal hair, breastfeed, vaccinated fully according to regulations. This section includes 8 multiple-choice questions. The different levels of practice are categorized as follows:

Satisfactory practices $\geq 70\%$

Unsatisfactory practices $< 70\%$

Research ethics: This study was approved by the Ethical Review Committee of Nam Dinh University of Nursing

(no.2359/GCN-HĐĐD), and permission for data collection from the authorities of the community. Participants were informed verbally and in writing about the study's aim and their role. All participants reviewed and signed the study informed consent form as their agreement to participate. Research respondents participated voluntarily and were free to withdraw from the study without consequence.

Statistical analysis: All variables entered into the regression models were coded or transformed into categorical measurements. Collected data were coded and tabulated using a personal computer. Using an SPSS 25.0 program for Windows. The data was analyzed based on objectives and hypotheses using descriptive and inferential statistics. The result was projected with appropriate figure and tables (Tables 1-7 & Figure 1).

RESULTS

Table 1. Socio-demographic characteristics of research subjects (N = 194).

General information (N)	Frequencies (N)	Percentages (%)
Age		
≤ 25 years	36	18.6
26-35 years	123	63.4
36-45 years	33	17.0
> 45 years	2	1.0
Educational level		
Middle school or below	48	24.7
High school	88	45.4
Diploma/Bachelor/Postgraduate	58	29.9
Occupation		
Civil servants	25	12.9
Worker	111	57.2
Farmer	10	5.2
Housework	32	16,5
Others	16	8,2
Number of children		
1 child	32	16.5
≥ 2 children	162	83,5

Table 2. The knowledge of mothers about signs and symptoms of children with ARI.

Items	Answers	
	N	%
Signs of ARI		
Fever	167	86.1
Cough	174	89.7
Difficulty of breathing	78	40.2
Wheeze	79	40.7
Others	16	8.2
Signs need to take your children to the doctor right away		
Breathing difficulty	152	78.4
Unable to drink or refuse to breastfeed	93	47.9
Breathing faster (rapid respiration)	66	34.0
Lethargic or difficulty in waking	78	40.2
Breathe with the hissing sound	57	29.4
Others	15	7.7
Signs of serious ARI disease		
Unable to drink or refuse to breastfeed	94	48.5
Chest in drawing	70	36.1
Convulsion	139	71.6
Lethargic or difficult waking	60	30.9
Breathe with the hissing sound	51	26.3
Others	9	4.6

ARI: Acute respiratory infection

Table 3. The knowledge of mothers about caring for children with ARI (N= 194).

Items	Answers	
	N	%
Feeding your children when they having acute respiratory infections		
Eating enough nutrients	131	67.5
No abstinence	36	18.6
Feeding your child many small meals	107	55.2
Feeding your child as usual	46	23.7
Feeding your child less than usual	32	16.5
Feeding your child according to the needs	7	3.6
Clean your nose		
Need to suck your child's nose by mouth	46	23.7
Need to clean your child's nose with trumpet paper or soft tissue	57	29.4
Need to wipe your child's nose with a towel	47	24.2
No need to do anything	3	1.5
Need to suck your child's nose with a specialized suction device/ clean the nose with physiological saline	39	20.1
Need to drop your child's nose with medicine	2	1.0

Table 4. The knowledge of mothers about the prevention of ARI (N= 194).

Items	Answers	
	N	%
Keep your child's neck and chest warm in the cold season	161	83.0
Avoid dust for your child	113	58.2
Avoid smoke for your child	129	66.5
Breastfeeding for your child	83	42.8
Vaccinated fully for your child	110	56.7
Isolate your child from people who have ARI	85	43.8
Washing hands before and after feeding or eating	71	36.6
Others: Enough nutrition, vitamin supplements, hygiene your child's nose and throat	8	4.1

Table 5. Attitude scores of mothers about ARI.

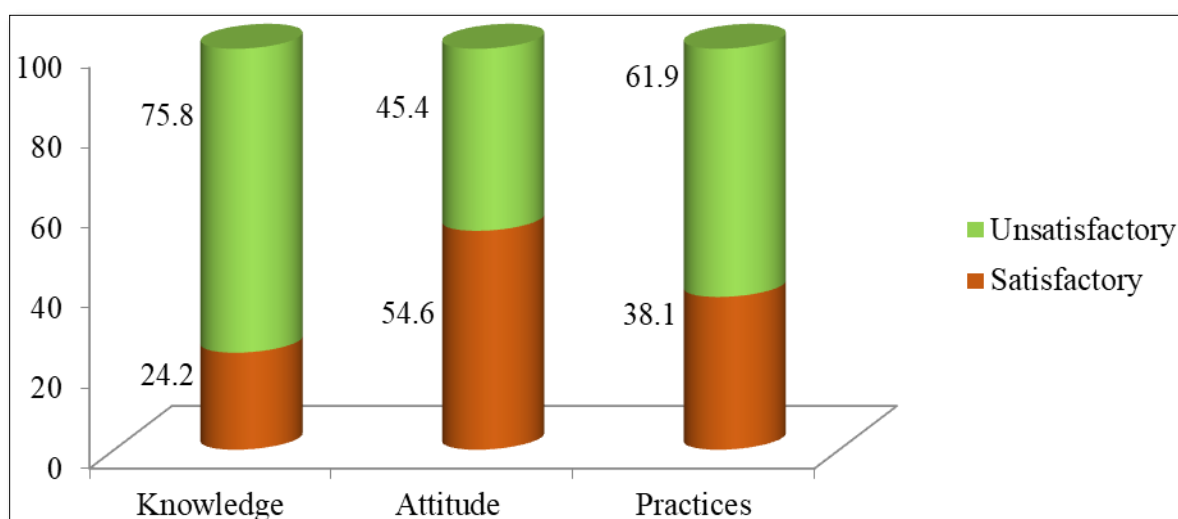
Variables	$\bar{X} \pm SD$	Min	Max
The attitude about ARI disease	3.9 ± 0.6	1	5
The attitude about caring for children	3.9 ± 0.5	1	5
The attitude about prevention of ARI	4.1 ± 0.6	1	5
Total	4.0 ± 0.5	1	5

Table 6. Practices of mothers about caring for children with ARI.

Items	Answers	
	N	%
The practice of mothers about selecting the place for examination		
The pharmacy	64	33.0
Medical station or hospitals	67	34.5
Private doctors	63	32.5
The practice about giving water for children when they have a fever or cough		
Drinking as usual	95	49.0
Drinking less than usual	9	4.6
Drinking more than usual	60	30.9
Increase drinking or breastfeeding	64	33.0
Drinking fruit juice	67	34.5
Using medicine to relieve the cough		
Safe medicine in the folk	94	48.5
Medicine cough syrup	64	33.0
Antibiotics	33	17.0
Others	3	1.5
Practice about cleaning your child's nose		
Sucking your child's nose by mouth	51	26.3
Cleaning your child's nose with trumpet paper or soft tissue	61	31.4
Wiping your child's nose with a towel	41	21.1
Not do anything	1	0.5
Sucking your child's nose with a specialized suction device/ clean the nose with physiological saline	38	19.6
Dropping your child's nose with medicine	2	1.0

Table 7. Practices of mothers about prevention of ARI (N = 194).

Items		Answers	
		N	%
Smoking in your house	Yes	152	78.4
	No	42	21.6
Avoiding to exposure to smoke, dust and animal hair	Yes	149	76.8
	No	45	23.2
Breastfeeding for your child	Yes	185	95.4
	No	9	4.6
Vaccinated fully for your child	Yes	192	99.0
	No	2	1.0

**Figure 1.** The mothers' knowledge, attitude and practices about ARI (N = 194).

DISCUSSION

Our study has assessed the knowledge, attitude, and practices among mothers of children under five years in caring and prevention of acute respiratory infection in rural Vietnam. According to research results, the most well-known signs of ARI disease were fever and cough: 86.1% and 89.7%, respectively. Those results were similar to the study of author Kumar [9] mothers recognized clinical symptoms in children with ARI with the signs of cough and fever were the highest at 76% and 72% respectively. The percentage of mothers who recognize breathing difficulty was the lowest. Meanwhile, breathing difficulty helps healthcare providers classify children with pneumonia or without pneumonia at the medical station. It is necessary to pay attention to the medical director to guide the mothers to recognize the breathing difficulty at home to take their children quickly, avoiding dangerous complications. In this study, most mothers took their children

to the doctor as soon as their children had breathing difficulty accounting for 78.4%. Only 29.4% of mothers knew to take their children to the doctor as soon as their children show signs of breathing with the hissing sound. Therefore, improving knowledge about recognizing signs of ARI is extremely necessary to reduce the mortality rate for children. This result reflected the fact that many children with ARI were hospitalized in very serious conditions. The results were also consistent with the study of Kumar [9], which indicated that the knowledge of mothers about ARI was remaining low. There were 44% of mothers didn't aware of the serious signs of ARI disease [9]. In addition, most mothers knew to feed their children with enough nutrients (67.5%) but only 55.2% of mothers know how to feed their children with many small meals when their children were sick. Nutrition plays an important role in the health of children with ARI to improve, strengthen their resistance and recover soon. However, 81.4%

of mothers thought that it was necessary to abstain from certain foods such as fat, shrimp, crab. Our study also showed that only 29.4% of mothers knew how to clean the nose of their children with tissue paper or a soft towel. Mothers should be informed about health promotion measures such as clearing the child's nose and providing warmth in cold weather [6]. Keeping the neck and chest warm in the cold season for children accounts for the highest rate, 83%. It can be explained that this is a simple and effective measure for mothers, especially mothers in rural areas. Moreover, preventive measures for children by avoiding exposure to tobacco smoke account for 66.5%. The harmful effects of tobacco on children's health, especially the effects on the respiratory function of children are well known by mothers. Most mothers had satisfactory attitudes about caring for children with ARI.

Mothers agree and strongly agree that guidelines from health care providers at home are necessary. The mothers' attitude about disease and acceptance of measures about caring for their children with the same: 3.9 ± 0.6 and 3.9 ± 0.5 respectively. In this study, many mothers had strongly agreed and agree with attitudes about measures to prevent ARI for their children with the highest score of 4.1 ± 0.6 . In which, the percentage of mothers accept their children vaccinated fully and keep them warm in cold weather accounting for a high rate. This study also revealed that the attitude of mothers about ARI disease, prevention, and caring for children with ARI was remain low. The percentage of mothers with an unsatisfactory attitude was 45.4%. This finding was consistent with some previous studies that the poor attitude of mothers about ARI accounted for the high percentage [5], [10]. The results showed that the percentage of mothers who choose a medical examination place was the health station or the hospital accounted for 34.5%. While 33% of mothers went to the pharmacy when their children had a fever or cough. In the study of Bham [11] and colleagues in 2016 on 335 mothers at the Pediatric Department, Darul Sehat Hospital, the percentage of mothers who self-medication for their children with ARI was 58% [11]. The study of Prajapati and colleagues revealed a similar result: 35.2% of mothers preferred the private set up as a place of choice for treatment [12]. Our study showed that 48.5% of mothers used safe medicine with the folk method to relieve the cough of their children. This is a simple, effective, and safe measure for children under 5 years old. Mothers should apply this method to relieve their child's cough at home. The previous research revealed the effectiveness of honey for acute cough in children. Honey probably reduces cough duration better than placebo and salbutamol [13]. However, 17% of mothers relieved cough for their children by using antibiotics. According to the study of Peker [14] and colleagues in 2014, 28.6% of mothers used antibiotics, and 27.8% of mothers used antipyretic drugs for their children before going to the doctor for treatment [14]. The percentage of mothers using antibiotics without a prescription was 12.3%. The knowledge

of mothers about using the drug for children was remaining low. The percentage of mothers using antibiotics without a prescription was high. In this study, the majority of mothers prevented ARI for their children by vaccinating and breastfeeding their children. The study showed that the mothers' practices in the prevention and caring for children with ARI were low at 38.1%. In addition, only 33% of mothers increased children's drinking water or breastfeeding when their children had a cough. A previous study revealed that high rates of ARI were also observed among 41.36% of children living in households with firewood fuel usage, and 35.04% of children with pets in the household [6]. Our research showed that 76.8% of mothers knew that avoiding exposure to smoke, dust, and animal hair as a prevention of ARI for their children.

Mothers with unsatisfactory knowledge, attitude, and practice account for a high percentage: 75.8%; 45.4%; and 61.9% respectively. Those results were also consistent with the study of Mutalik and Raje showed that KAP of mothers about ARI were very low. The percentage of mothers with poor knowledge, attitude and practices accounted for 68.9%; 74.3%; and 68.9% respectively. The number of mothers with poor KAP accounted for a high rate, 71.6% [10]. The results were similar to the study of Alluqmani [5]. A and colleagues in 2017, the management and prevention of ARI is a global problem, especially in developing countries. The research revealed that mothers had poor knowledge about using antibiotics. The percentage of mothers with poor knowledge was still high accounting for 54%, and over 50% of mothers have poor attitudes and practices [5]. Therefore, it is necessary to improve the KAP of mothers about ARI. Furthermore, mothers are the primary caregivers for their children in society. Their KAP have a significant influence on the ARI disease and the survival of children under 5 years old [10]. Instructions and advice for mothers are necessary to improve the KAP of mothers having children with ARI. Moreover, mothers with good KAP in prevention and caring for children with ARI will contribute to reduce the burden on the family and society. The results reflect a similar recommendation that community education programs should focus on specific issues such as: avoiding restriction of feeds, identification of respiratory illness, access to healthcare, proper immunization practices, hygiene, breastfeeding of infants and nutrition of children, and about reducing domestic air pollution [6]. The limitations of the study: The data collection method was the survey by filling in the answers. So, the recall error was needed to be considered. In addition, due to the time and the funding was limited; the study was conducted in the small district of the rural area. There is a need for more extensive studies on the mothers' knowledge, attitude, and practices about the prevention and caring for children with acute respiratory infection.

CONCLUSION

Knowledge, attitude, and practices of mothers having children

with acute respiratory infection were low. The percentage of mothers with unsatisfactory knowledge, attitude, and practices accounted for a high rate: 75.8%; 45.4%; and 61.9% respectively.

RECOMMENDATION

Based on the study results, the following recommendations are suggested: This study recommends updating health interventional programs to improve the knowledge, attitude, and practices of mothers having children with ARI. Health workers need to strengthen health education for mothers about prevention and caring for children with ARI. When counseling and health education for caregivers, contents need to be more attention such as the signs of serious ARI, proper nutrition, using medicine, and cleaning the nose for children with ARI.

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