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Factors related to preventive behaviors among parent caregivers of children under five years with acute respiratory tract infection in Myanmar

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Abstract

Background: Acute respiratory tract infection (ARI) is the second-leading cause of death worldwide among children, especially among those aged <5 years. Thus, it is imperative to understand parent caregivers' perception of ARI and their preventive behaviors. **Methods:** This descriptive correlation study included 116 parent caregivers at an out-patient department of a 550-bedded Children Hospital, in Mandalay, Myanmar. The correlation between preventive behaviors and parent caregivers' perception on ARI was measured using Becker's Health Belief Model-based questionnaires. Descriptive statistics and spearman's rank-order correlation test were used for data analysis. **Results:** Our results revealed that parent caregivers' perception was at a moderate level, and preventive behaviors among parent caregivers were at a poor level during wellness and sickness conditions. The average score of the parent caregivers' preventive behaviors in ARI was 23.57 ± 3.22). Significant positive relationships were noted between perceived susceptibility, perceived severity, perceived benefits, and cues to action and preventive behaviors of parent caregivers ($p < 0.05$, $p < 0.01$, $p < 0.05$, and $p < 0.01$, respectively). **Conclusion:** The results supported the health belief model: Health care personnel should provide a theory-based health education program toward improving the parent caregivers' preventive behaviors with ARI children.

Keywords: behaviors; caregivers; preventive; respiratory tract infection

Introduction

Acute respiratory tract infection (ARI) is the most common respiratory disease and also the leading cause of death among children aged <5 years globally.^{1,2} The World Health Organization reported 5.9 million deaths in these age groups annually, 16% of which were caused by pneumonia.³ The incidence and severity of childhood ARI was highest in Africa and Southeast Asia, which accounted for 30% and 39%.^{4,5} Although this is a preventable disease, the incident rate for ARI, particularly pneumonia remains high especially in developing countries.^{6,7}

Myanmar had the highest death among children aged <5 years among all ASEAN countries with 52 per 1000 live births reported in 2012.³ According to the 550-bedded Children Hospital's statistical surveillance from 2014 to 2016, the total number of children with ARI was 7247. An average of over 2000 ARI children (aged <5 years) were admitted in the hospital annually.⁸ ARI, especially pneumonia, was found to be the leading cause of death in small children as it affected the alveolus, the gaseous exchange unit. During an infection, the alveoli gets filled

with pus and fluid, resulting in breathing difficulty, which affects first the breathing and then gas exchange.⁹ Symptoms of ARI include coughing, difficulty in breathing, fast breathing, lower chest wall in-drawing, and wheezing. If a large area is affected, it could cause hypoxia and or even death especially in children aged <5 years whose oxygen reserve is not as sufficient as that of adults.¹⁰

Parents and other family members are the most important people responsible for a child's nurturing and protection.^{11,12} Beside knowing about improved growth and development, individual mothers and caretakers must know how to safeguard their children from illnesses.¹³ Although ARI can be prevented easily, some parent caregivers are unaware of the preventive behaviors and complications of ARI and hence, are unequipped to prevent their children from acquiring ARI.¹⁴ The parent caregivers' preventive behaviors for children are extremely important. Therefore, their perception about ARI disease and preventive behaviors toward their children need to be explored. According to some previous studies, the perception of parent caregivers, especially that of mothers, about the diseases

was positively related to the disease preventive behaviors.^{15,16}

Although ARI is recognized as a major problem in Myanmar, only a few studies have been conducted on caregivers' perceptions and preventive behaviors of ARI in children. Therefore, this study was conducted to explore the perception (i.e., perceived susceptibility, severity, benefits, and barriers, as well as cues to action and preventive behaviors among parent caregivers of children with ARI) and preventive behaviors of parent caregivers on ARI in children aged <5 years as per the Becker's Health Belief Model.¹⁷ We expect that the results of this study can be used to conduct future research in enhancing parent caregivers' preventive behaviors of ARI, which hopes to reduce the incidence of ARI in children aged <5 years in Myanmar.

Methods

A descriptive correlational study was conducted at the outpatient department of the (550) bedded Children Hospital in Mandalay, Myanmar. The sample consisted of 116 parent caregivers who brought children aged <5 years with ARI to the hospital. The sample size was calculated using G*power analysis with an accepted alpha level at 0.05, the power at 0.08, the effect size at 0.28, added up with 20% attrition rate, to total 116 subjects. A purposive sampling technique was used to select the subjects for this study.

Parent caregivers' perception about ARI and preventive behaviors questionnaires were modified from the health beliefs about ARI questionnaire, cues to action questionnaires and preventive behaviors questionnaires developed by Chayannan Jaide in 2013 based on Becker's Health Belief Model.¹⁷ The instruments used in this study consisted of the following 4 parts: (i) demographic questionnaire; (ii) parent caregivers' perception about ARI questionnaire, which is divided further into 4 main concepts: perceived susceptibility (4 items), perceived severity (4 items), perceived benefits (6 items), and perceived barriers (6 items); (iii) cues to action questionnaire (11 items); and (iv) preventive behaviors questionnaire (17 items). A 3-level Likert-type scale was used for all positive and negative answers. The results were identified to 3 levels: low, moderate, and high.¹⁸

The content of the instruments was validated by 5 experts: 2 pediatricians from the University of Medicine, Mandalay, 1 clinical nurse specialist in respiratory care from the Children Hospital in Mandalay, and 2 pediatric educator nurses from the University of Nursing, in Mandalay. The content validity for parent caregivers' perception about ARI questionnaire, cues to action questionnaire, and preventive behaviors questionnaire

were 0.88. The reliability of the instruments was determined with Cronbach's Alpha Coefficient using 30 samples with similar inclusion criteria as the study subjects. The reliability of the instruments was 0.76, 0.88, 0.78, 0.80, 0.75, and 0.89, respectively. This study was approved to collect data by the Institutional Review Board (IRB) at the Faculty of Medicine, Ramathibodi Hospital, Mahidol University, Thailand and Department of Medical Research, Yangon, Myanmar.

The human right of the subjects was respected in this study. The subjects who agreed to participate in this study were assured that the data would be kept confidential and that the researcher would present the research findings as the whole picture and not with the details of each participant. The SPSS 22 program for windows was used to analyze data. Univariate analysis was performed based on descriptive statistics including frequency, percentage, mean, median, and standard deviation to describe the independent variables and the dependent variable. Spearman's rank-order correlation test was used to determine the correlations between perceived susceptibility, severity, benefits, and barriers, as well as cues to action and ARI preventive behaviors of parent caregivers.

Results

The results from the analysis are presented and based on the purpose of the study, including data on the demographic characteristics, levels of parent caregivers' perceptions, parent caregivers' preventive behaviors and relationship between parent caregivers' perception and preventive behaviors.

The demographics characteristics of the subjects were as follows: Most of the parent caregivers were aged 18–29 years and practiced Buddhism. More than half (76.7%, $n = 89$) of the parent caregivers were housewives. Most of them were educated at the middle school level (42.2%, $n = 49$) and only 0.9% ($n = 1$) had graduated. The family income of 87.1% ($n = 101$) caregivers was under 140 USD per month and 12.9% ($n = 15$) earned 140–280 USD per month.

The overall mean score of preventive behaviors was at a low level (23.57 ± 3.22). Only one subscale in preventive behavior, which was care about the child's nutrition, was at the moderate level (5.15 ± 1.27), while the rest were at low levels (3.69 ± 0.89 ; 4.93 ± 1.06 ; 5.20 ± 1.12 ; 4.60 ± 1.16 , respectively) (Table 1). Most of parent caregivers' perception about ARI were at the moderate level, which were perceived susceptibility, perceived severity, and perceived benefits (7.55 ± 1.62 , 7.11 ± 1.23 , and 11.61 ± 2.39 , respectively), while the other two, perceived barriers and cues to action, were at the low level (10.09 ± 1.92 and 8.09 ± 2.69 , respectively) (Table 1).

Table 1. Levels of parent caregivers' preventive behaviors and parent caregivers' perception acute respiratory tract infection (ARI) (n = 116)

Variables	Mean	Standard Deviation	Levels
ARI preventive behaviors			
Overall	23.57	3.22	Low
Prevent from ARI infection	3.69	0.89	Low
Prevent spreading ARI	4.93	1.06	Low
Taking care of the environment	5.20	1.12	Low
Keep the children warm	4.60	1.16	Low
Care of the child's nutrition	5.15	1.27	Moderate
Parent caregivers' perception			
Perceived Susceptibility	7.55	1.62	Moderate
Perceived Severity	7.11	1.23	Moderate
Perceived Benefits	11.61	2.39	Moderate
Perceived Barriers	10.09	1.92	Low
Cues to action	8.09	2.69	Low

Table 2. Correlations between perceived susceptibility, perceived severity, perceived benefits, perceived barriers, cues to action and acute respiratory tract infection preventive behaviors

Variables	1	2	3	4	5	6
Perceived susceptibility	1					
Perceived severity	.016	1				
Perceived benefits	.073	.063	1			
Perceived barriers	-.077	-.024	.039	1		
Cues to action	.039	.198*	.229*	-.038	1	
Preventive behaviors	.212*	.270**	.196*	-.111	.272**	1

* $p < 0.05$, ** $p < 0.01$

Spearman's rank-order correlations test was used to test the correlations between perceived susceptibility, severity, benefits, and barriers, as well as cues to action and ARI preventive behaviors of parent caregivers. Significant correlations were noted between perceived susceptibility, severity, and benefits, as well as cues to action and preventive behaviors of parent caregivers, with $p < 0.05$, $p < 0.01$, $p < 0.05$, and $p < 0.01$ respectively. No correlation was noted between the perceived barriers and preventive behaviors of parent caregivers, with $p = 0.24$ (Table 2).

Discussion

The results revealed that parent caregivers of children aged <5 years in this study exhibited a low ARI preventive behavior in most of the categories, despite having a moderate level of parent caregivers' perception about the disease. These findings revealed a weak correlation between them and only partially supported our study hypothesis. The findings showed that most of the parents were housewives, not well educated, and with low family income. Parent caregivers can care for the basic needs of daily living better than for other things. Most of the information they have regarding health management was sourced from basic media, such as

television, which neither deliver any specific health promotion program nor any direct information source from health care personal.

The overall mean score of the ARI preventive behaviors in this study was at the low level, which meant that most of the parent caregivers in this study did not behave well in ARI prevention. The majority of the subjects were housewives who lived all day at home and, therefore, had no outside work experience. In some cases, while they were suffering from ARI, they still had to take care of their children and could not separate sick children from healthy children because they had no other people to take care of their children. Their house was small and had no extra rooms, to isolate the sick children. In this study, we found that parent caregivers with ARI did not wear masks to prevent the spread of ARI infection which may be attributed to their low income status, poor educational level, and lack of experience in preventing spread of ARI to their children. To prevent ARI, parent caregivers should provide good environment for children and also avoid indoor, outdoor air pollution and avoid smoking near children. The dirty household environment and crowding were identified as factors related to ARI in children aged <5 years.¹⁹ It had been known that overcrowding, using biomass fuels and parental smoking

can cause disadvantages of indoor air pollution.^{20,21} In this study, we found that more than two-third of the parent caregivers did not clean the children room, blanket, bedsheets, and toys every day and used biomass for cooking, which may be attributed to their limitations of resources in terms of both money and knowledge.

More than half of the parent caregivers provide nutritious foods for their children and let their children sleep during the day time for at least 1–2 h. This might be the fact that providing healthy food and good sleep were the basic need for all children that most parent caregivers know and are concerned in every culture. In this study, most families were extended families and lived with older people; such as grandparents and, therefore, knew how to take care of children during good health condition. According to the Myanmar culture, most of the young generation follows the instructions of the elderlies. Our result showed that most of the parent caregivers received information about ARI prevention from the television and not from health care personal, which may be theoretically inappropriate as this information source could be correct or incorrect. Parent caregivers need to obtain the correct information about ARI prevention from health care personal because all parent caregivers need to improve at least some aspect of behavior and instructions in the prevention of ARI in even healthy children. A statistically significant weak correlation was noted between perceived susceptibility, severity, and benefits, as well as cues to action and preventive behaviors among parent caregivers of children with ARI. This finding is partially supported by the Health Belief Model, which mentions that people take action to avoid threats depending on their perceptions, meaning that parent caregivers' preventive behaviors depended on their perceptions.

Conclusions

Although the management of ARI was included in one of the National Plan of Actions for Children, the mortality and morbidity associated with ARI in children remains high in Myanmar. From these findings, we fathom that health care personal need to establish effective inter-vention projects to raise awareness about ARI among parent caregivers via media such as television, which is most preferred medium for the prevention of this preventable disease to improve the lives of children in Myanmar.

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Conflict of Interest Statement

The authors declare no conflict of interest.

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