

# FACTORS RELATED TO MATERNAL SELF-EFFICACY IN PROVIDING HOME CARE FOR UNDER-FIVE CHILDREN WITH PNEUMONIA IN JAMBI CITY, INDONESIA

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## ABSTRACT:

**Background:** Pneumonia is a leading cause of death in children under the age of five globally. It is the second highest cause of death after diarrhea for the same age group in Indonesia. Mother's perception of care and mother's self-efficacy in providing home care is crucial to save the lives of children with pneumonia. The study aimed to identify the association between maternal characteristics, perceptions, knowledge, and self-efficacy in providing home care for children with pneumonia.

**Methods:** A descriptive correlated design was applied in this study. Participants were selected using multi-stage sampling method from three primary health centers in Jambi City, Indonesia. One hundred and twenty three mothers who have children with first time pneumonia were recruited and were asked to complete a self-administered questionnaire. Data were analyzed using descriptive statistics, Point Biserial coefficients, Spearman's Rank, and Pearson Product Moment Correlation Coefficients.

**Results:** The study revealed that maternal age, parents' income, and source of pneumonia-related information had a positively significant correlation with maternal self-efficacy ( $r=.350$ ,  $r=.436$ ,  $r=.206$ ,  $p<.05$  respectively). Maternal perceptions include maternal perceived susceptibility, perceived severity, perceived benefits also had a positively significant correlation with maternal self-efficacy ( $r=.673$ ,  $r=.539$ ,  $r=.570$ ,  $r=.486$ ,  $p<.01$  respectively). While maternal perceived barriers had a slightly negative significant correlation with maternal self-efficacy ( $r=-.191$  and  $p<.05$ ). Maternal knowledge had a positive correlation with maternal self-efficacy. ( $r=.673$  and  $p<.01$ ).

**Conclusion:** The perceptions and knowledge of mother related to pneumonia have significantly influenced to mothers confident to providing care for children with pneumonia at home. Therefore, an implemented program to improve maternal self-efficacy could help to overcome maternal barriers by improving maternal perceptions and knowledge in caring for children with pneumonia.

**Keywords:** Children with pneumonia, Home care, Maternal self-efficacy, Indonesia

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## INTRODUCTION

Pneumonia is a leading cause of death in children under the age of five worldwide [1]. It was estimated that 15% or about 935,000 of the 5 million children died from pneumonia globally [2]. Indonesia was one of the countries which presented the highest mortality rate of pneumonia in children

under the age of five [3]. In 2010, there were about 21,900 children died caused by pneumonia in Indonesia after Mali and Uganda, 24,500 and 24,000 cases respectively [4]. The incident rate of pneumonia has also increased gradually each year. According to the Ministry of Health of Indonesia, pneumonia was the second highest cause of death of children under the age of five after diarrhea [5]. The number of pneumonia incidents in children under five years was 559,114 in 2012 [6]. This number

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increased to 615,025 in 2013 [7].

There are many risk factors that influence pneumonia in children age under five years old. The risk factors were related to the children and environment [8] including malnutrition [9, 10], non-exclusive breastfeeding during the first 4 months of life [11], low birth weight of  $\leq 2500$  grams, lack of measles immunization (with the first 12 months of life), indoor air pollution, living in crowded area [12] and poor awareness of family and caregivers for pneumonia risk prevention [13].

Mothers as the primary caregivers play an important role for nurturing their children. Previous studies found maternal factors effected to providing of care for children with pneumonia including a mother's knowledge and awareness in pneumonia prevention, educational level [14], household income [15], and a mother's confident of practice for caring children at home [16].

Maternal knowledge related to pneumonia in children in many countries was found to be insufficient to provide care for the children. A previous study found that mothers had poor knowledge and inexperience in providing home care for their sick children [17]. Maternal knowledge can influence a mother's perception of home care for children, therefore, these aspects can influence to maternal self-efficacy in providing home care for children with pneumonia [18].

This study adopted a conceptual framework from the Health Belief Model (HBM). The HBM has been used in many studies. The outcome of these study lead to behavioral changes including maternal self-efficacy or maternal confidence related with caring for children with pneumonia [18, 19]. Self-efficacy in HBM is defined as the confidence in one's ability to take action of the mothers to treat and prevent the occurrence of the diseases. Improving an individual's perceive self-efficacy would reduce the level of stress that they experienced [20]. Bandura stated that the caregiver would be consistent in efficiency and continuously caring for their children with illness by an increased level of their self-efficacy [21].

Studies found that maternal characteristics that influenced maternal confidence in providing care for children including age, occupation, educational level, previous experiences with pneumonia in children, family income, and sources of pneumonia information [22, 23].

This study aimed to identify what factors actually influenced maternal self-efficacy in providing home care for children under-five with pneumonia in Jambi city in Sumatra, Indonesia. Jambi province is found to be one of the top ten

provinces with the highest cases of pneumonia of children in Indonesia. The number of pneumonia cases in Jambi has been rising in the past a few years [24]. It was found that most of mothers who had children with pneumonia had poor knowledge in caring for their children with pneumonia [25]. Therefore, the results from this study will provide better understanding information on maternal self-efficacy in providing home care for children with pneumonia and its related factors. Moreover, health care providers in Jambi city can use the results as basic information to develop and implement programs to improve maternal self-efficacy in providing home care for their children which can decrease the rate of pneumonia morbidity and mortality of children age under five years old in Indonesia.

## METHODS

### Design

This study employed a descriptive correlation method to examine the relationship among maternal characteristics, perceptions, knowledge and self-efficacy in providing home care for children with pneumonia. The study was conduct using a cross sectional design. Data was collected during October to November, 2014.

### Sample

A multi-stage sampling technique was carried out to recruit 123 mothers from three public health centers in Jambi City, Indonesia. Sample size was calculated by using G-power with effect size ( $r$ ) = 0.30 (medium), statistical power level = .95,  $p$ -value = .05. The inclusion criteria were mothers of children under the age of five with first time pneumonia, discharged from the PHC within 1 week, living in Jambi City, able to read and write in Indonesia language, and willing to be participants in this study. The exclusion criteria were mothers with children under the age of five who had other illnesses such as chronic diseases, congenital heart diseases, mothers of children with disabilities, Autism and Down syndrome. Mothers who met the inclusion criteria were invited to be participants in this study.

### Research instruments

Data collection was conducted by using 4 instruments as follows;

#### 1. Demographic Information Questionnaire

The Demographic Information Questionnaire was used to assess the mother personal data that includes, age, educational level, family monthly income, and source of pneumonia information.

## 2. *Mothers Self-Efficacy for Home Care of Children with Pneumonia Questionnaire*

The mothers self-efficacy for home care of children with pneumonia questionnaire was modified from the general self-efficacy of universal construct (GSE) revised scale by Scharzer and Jerusalem and was modified based on M-E-T-H-O-D model Sawaengdee [26, 27] to specific for maternal self-efficacy in providing home care for children with pneumonia. This questionnaire consists of 22 items, the response uses a 4-point Likert scale, scores ranges from 1-4, where 1 for not confident to 4 for high confident. The higher score indicate the higher of self-efficacy levels. Maternal self-efficacy in providing home care was categorized into three levels included need to improve, moderate and good self-efficacy. A Cronbach alpha for all dimension of this questionnaire was 0.80.

## 3. *Maternal Perceptions in Home Care for Children with Pneumonia Questionnaire*

This questionnaire was measured using a modified questionnaire adopted from Erkin and Ozsoy which followed the construct of the health belief model [28]. The questionnaire was composed of 17 items covering four constructs including perceived susceptibility for 4 items, perceived severity for 4 items, perceived barriers for 4 items, perceived benefits for 5 items. This questionnaire used a 4-point Likert scale to respond, score ranges from 1-4 which were strongly disagree (1) to strongly agree (4). Maternal perceptions were categorized into three levels including low, moderate and high level. In this study found the internal consistency for overall perceptions had a Cronbach's alpha 0.86.

## 4. *Maternal Knowledge in Home Care Children with Pneumonia Questionnaire*

This questionnaire consists of 8 items. The questionnaire covered maternal knowledge about sign and symptom of pneumonia in children, cause of pneumonia in children and prevention of pneumonia in children. This questionnaires response used a 4-point Likert scale, score ranges from 1-4 which were strongly disagreed (1) to strongly agree (4). The reliability test for this questionnaire obtained a Cronbach's alpha 0.84.

### **Ethical consideration**

Approval to conduct the study was granted by The Ethics Review Board Committee (ERB) for Research Involving Human Research Subjects, Boromarjonani College of Nursing Nopparat Vajira (ERB No. 47/ 2014).

### **Data collection**

Data were collected after the research proposal was approved by the ERB and the permission letter to conduct the study in Jami City was granted. The researcher contacted the head of the PHCs to get permission for conducting the data collection. The physicians and heads of nurse who had responsible in the pediatric ward were given clear explanation about the research procedure. The researcher approached to mothers of children with pneumonia whose age under five years old and provide the information of the study. The mother who meet inclusion criteria were asked to answer a self-administered questionnaire which required approximately 30-45 minutes.

### **Data analysis**

Data analysis was performed using Statistical Software Package for the Social Science. Descriptive statistics were employed to characterize the samples. The relationships of variables were tested using Point Bi-serial coefficients, Spearman's rank, and Pearson Product Moment Correlation Coefficient.

### **RESULTS**

A total of 133 mothers registered in three PHCs in Jambi city were recruited. There were 7.50 % uncompleted questionnaires, and 92.50% of completed questionnaires were used for data analysis. Therefore, the total number of mothers that completed the questionnaires was 123. The characteristics of mothers showed that majority (73.20%) were age 26-35 years old (Mean=31 years, SD= 4.66). Sixty percent (60.20%) were completed senior educational, 68.30% were low monthly income and 78.90% reported never received pneumonia information.

Maternal perceptions in providing home care for children with pneumonia including maternal perceived susceptibility, perceived severity, perceived barriers, perceived benefits were at a moderate level, 71.50%, 63.40%, 62.60%, 61.80% respectively (Table 1).

The result of analysis on maternal knowledge shown that more than half of the mothers (57.70%) had knowledge in providing home care at a fair level (Mean= 21.44, SD=3.68). Only seventeen percent (17.10%) of the mothers had good knowledge in providing home care for children with pneumonia (Table 1).

Table 2, the majority of mothers (66.70%) had a moderate level for overall maternal self-efficacy in providing home care. Regarding to the domains of

**Table 1** Frequencies and percentages of maternal perceptions and knowledge (n = 123)

Variables	Number	%
<b>Maternal perceived susceptibility;</b>		
Low (4-7)	15	12.20
Moderate (8-12)	88	71.50
High (13-15)	20	16.30
Mean=10.65, SD= 2.65, Range 4-15		
<b>Maternal perceived severity;</b>		
Low (4-7)	25	20.30
Moderate (8-12)	76	61.80
High (13-16)	22	17.90
Mean = 10.72, SD=2.64, Range=4-16		
<b>Maternal perceived barriers;</b>		
Low (5-6)	26	21.20
Moderate (7-10)	78	63.40
High (11-14)	19	15.40
Mean = 9.24, SD=2.09, Range =5-14		
<b>Maternal perceived benefits;</b>		
Low (8-10)	27	22.00
Moderate (11-12)	77	62.60
High (13-20)	19	15.40
Mean= 13.29, SD=2.18, Range = 8-20		
<b>Knowledge</b>		
Poor (10-16)	31	25.20
Fair (17-24)	71	57.70
Good (25-31)	21	17.10
Mean = 21,44 SD = 3.68, Range = 10-31		

**Table 2** Frequencies and percentages of maternal self-efficacy (n=123)

Variable of self-efficacy	Number	%
<b>Overall self-efficacy</b>		
Need improvement (38-48)	20	16.30
Moderate (49-66)	71	57.70
Good (67-80)	32	26.00
Mean= 58,28, SD=9.39, Range= 38-80		
<b>Medication</b>		
Need improvement (5-8)	11	8.90
Moderate (9-12)	81	65.90
Good (13-16)	31	25.20
Mean= 11.07, SD=1.93, Range=5-16		
<b>Environment</b>		
Need improvement (3-4)	25	20.30
Moderate (5-8)	65	52.90
Good (9-12)	33	26.80
Mean= 6.67, SD= 2.36, Range= 3-12		
<b>Treatment</b>		
Need improvement (12-17)	12	9.80
Moderate (18-23)	72	58.50
Good (24-29)	39	31.70
Mean= 21.68, SD=3.29, Range=12-29		
<b>Health</b>		
Need improvement (2-3)	17	13.90
Moderate (4-5)	62	50.40
Good (6-8)	44	35.70
Mean= 4.98, SD=1.57, Range=2-8		
<b>Out-patient referral</b>		
Need Improvement (3-4)	12	9.80
Moderate (5-6)	90	73.10
Good (7-8)	21	17.10
Mean= 5.48, SD= 1.12, Range=3-8		
<b>Diet</b>		
Need improvement (3-5)	13	10.60
Moderate (6-9)	67	54.50
Good (10-12)	43	39.90
Mean= 8.39, SD=2.41, Range=3-12		

**Table 3** Relationship between maternal characteristics, perceptions, knowledge and maternal self-efficacy

Variables	Self-efficacy	
	r	p-value
Age <sup>(b)</sup>	.350**	.001
Education level <sup>(a)</sup>	.002	.983
Maternal monthly income <sup>(a)</sup>	.436**	.001
Source of pneumonia information <sup>(c)</sup>	.206*	.022
Perceived susceptibility <sup>(b)</sup>	.539**	.001
Perceived severity <sup>(b)</sup>	.570**	.001
Perceived barriers <sup>(b)</sup>	-.191*	.034
Perceived benefits <sup>(b)</sup>	.486**	.001
Maternal knowledge <sup>(b)</sup>	.673**	.001

Note: (\* $p < .05$  and \*\* $p < .01$ ), <sup>(a)</sup> Spearman correlation coefficient, <sup>(b)</sup> Pearson's product-moment-correlation-coefficient, and <sup>(c)</sup> Point bi-serial correlation coefficient

maternal self-efficacy based on the M-E-T-H-O-D model which involving medication, environment, treatment, health, outpatients referral, diet were at a moderate level (57.70%, 65.90%, 52.80%, 58.50%, 56.90%, 61.00% 54.50% respectively).

Maternal characteristics including age, parents' monthly income, source of pneumonia information had a significant positive correlation with maternal self-efficacy in providing home care ( $r = .350$ ,  $p < 0.01$ ,  $r = .436$ ,  $p < 0.01$ ,  $r = .206$ ,  $p < 0.01$ ). Meanwhile, maternal level education was not associated with mothers self-efficacy (Table 3).

The association between maternal perceptions and maternal self-efficacy in providing home care was analyzed using Person's Product Moment Correlation. The data analysis disclosed a significant positive correlation between maternal self-efficacy and the maternal perceptions; perceived susceptibility ( $r = .539$ ,  $p\text{-value} = .001$ ), perceived severity ( $r = .570$ ,  $p\text{-value} = .001$ ), and perceived benefits  $r = .486$ ,  $p\text{-value} = .001$ ). However, the maternal perceived barriers had a significant negative correlation with the maternal self-efficacy ( $r = -.191$  and  $p\text{-value} = 0.34$ ). In addition, maternal knowledge had also a positive correlation with maternal self-efficacy in providing home care for children ( $r = .673$ ,  $p\text{-value} = .001$ ).

## DISCUSSION

This study identified the importance of various factors that influence maternal self-efficacy in providing home care for children under the age of five with pneumonia in Jambi City, Indonesia. The findings revealed six variables including age, mother education, parents' monthly income and source of pneumonia information, maternal perceptions, maternal knowledge were significantly correlated with maternal self-efficacy in providing home care for children with pneumonia. The findings were consistent with several previous studies.

Maternal self-efficacy in providing home care for children was better in older mothers. It can be explained that older mothers are more likely to gain experience and knowledge for caring their children with illness [29]. Therefore, older mothers become more confident to provide care when their children got pneumonia.

Children with pneumonia were commonly found in families with lower income [8]. According to previous studies, mothers in poverty were more likely to give home remedies for their children which delayed process for getting health service from physicians or nurses [15, 23]. Therefore, mothers with low income family may struggle to provide appropriate care such as giving medications and treatment to their children. However, the majority of mothers in this study (78.90%) had not received pneumonia information. It is possible that only small number of them know that pneumonia is serious illness. Mothers, who received pneumonia information particularly from physicians and nurses, could help them to gained more confidence in providing home care [18]. Receiving pneumonia information could assist the mothers to understand the severity of pneumonia as well as able to identifying the dangerous signs and symptoms of pneumonia that occurred in children [30]. Therefore, mother who had good sources of information could lead them to increase self-efficacy in providing home care for their children [18].

Maternal perceptions including perceived susceptibility, severity, benefits and barriers about pneumonia are necessary to influence the mother's self-efficacy in providing care to children [31]. Infants and children under five years old could develop pneumonia which is more severe than in older children [19]. Maternal perceived susceptibility is related to a mother's belief how serious the problems of pneumonia can get for the children. Therefore, maternal perceived susceptibility

influenced to maternal self-efficacy in providing home care for children under the age of five with pneumonia [16, 18].

It was found that maternal perceived severity was also correlated with maternal self-efficacy. Higher maternal perceived severity level led to increase maternal self-efficacy in providing home care [18]. The dangerous signs that showed the severity of pneumonia in young children are high fever, rapid breathing, chest in-drawing and difficulty drinking [22]. Therefore, it is important for mothers to be aware of these severity signs of pneumonia and be able to be confident in identifying the signs and symptoms of pneumonia that occurred in their children.

Perceived benefits are a person's opinion of the value or usefulness of a new behavior in decreasing the risk of developing a disease [32]. Maternal perceived benefits of providing home care for children with pneumonia includes the benefit of giving appropriated treatment, medication and care as needed for children with pneumonia [17]. Maternal perceived benefits could be improved to shorten the period of illness of their children. On the other hand, a maternal perceived barriers, individual opinion on obstacles to adopt new behavior, could be expenses in treatment, the accessibility and distance to a health care facility, and inexperience of care [15]. The barriers of the mothers in providing care for their children would negative influence the recovering of pneumonia, and increase a chance in the severity and occurrence of pneumonia [17]. Moreover, a high level of barriers would have a negative influence to maternal self-efficacy in caring for their children [18, 33]

Maternal knowledge is one of variable which has found to be a strong influence to maternal self-efficacy in providing home care and this result is consistency with many previous studies [17, 18, 19, 23]. This finding is also congruent with previous studies in Indonesia that maternal knowledge was poor in relation to pneumonia occurrence, signs and symptoms and pneumonia risk prevention [25, 34]. Therefore, the knowledge of mothers need to be improved which could assist them in gaining more confidence in identifying the danger signs and symptoms of pneumonia as well prevent their child from having serious pneumonia.

In addition, knowledge of home environment is also a crucial factor of pneumonia. It is known that the environment in Jambi is risky to pneumonia for children, such as a dusty home environment, high temperatures particularly for summer seasons, and high prevalent of family members with cigarette smoking, smoke from forest fires and living in a

crowned family [24]. A previous study also confirmed that the higher risks for young children to catch acute lower respiratory infections as well as pneumonia can be caused by crowded households [8]. Therefore, mothers of children in Jambi city need to increase their knowledge on home environment which can help to influence self-efficacy in providing home care for their children with pneumonia.

This study has strength that using Health Belief Model as a guideline model and applied questionnaire that appropriate to the culture of family in Jambi had led to enhance the understanding of factors that associated maternal self-efficacy in providing home care for children with pneumonia in Jambi City. This study also used multi-stage sampling approach techniques to minimize the bias of the sampling selection, therefore, better to generalization. However, there was a limitation that using self-administrated questionnaire can limited the accuracy of data.

## CONCLUSION

The present study confirmed that maternal knowledge and perceptions of pneumonia had significantly related to maternal self-efficacy in providing home care for their children. Using M-E-T-H-O-D model had showed the beneficial to understand the mother self-efficacy in more detail. The findings of this study could be viewed as references for further research and practice for community health nurses to spotlight on improving mother self-efficacy to care for their children with pneumonia.

## RECOMMENDATIONS

The findings could be useful in improving maternal self-efficacy by enhancing maternal perceptions and knowledge related to caring for children with pneumonia. Intervention programs for mothers of children with pneumonia should be implemented by using evident information from the results of this study. Further research should be focused on identifying predictors that effect maternal self-efficacy for home care children with pneumonia.

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