



# A Qualitative Study on Family Role in the Care and Prevention of Acute Respiratory Infection Among Children in Primary Health Care

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Alidha Nur Rakhmani<sup>1,3</sup>, Nita Arisanti<sup>2</sup>,  
Meita Dhamayanti<sup>2</sup>, Guswan Wiwaha<sup>2</sup>,  
Kuswandewi Mutyara<sup>2</sup>, and Elsa Pudji Setiawati<sup>2</sup>

## Abstract

**Background.** Acute Respiratory Infection (ARI) is a common reason that parents seek help to primary health care. In 2016, almost 65% (64.4%) pneumonia and less than 36% (35.6%) non-pneumonia cases were found among the children in Malang. Members of families have important roles to play in individual's health, especially the children. The aim of this study was to explore the roles of family members in the care and prevention of children with ARI. **Method.** This was a qualitative study, with a phenomenological approach involving 12 informants. An in-depth interview was conducted on each informant having children with recurrent ARI during a space of 3 months in the primary health care. Information collected from the interviews were transcribed and analyzed into different themes. **Results.** The 4 themes identified include ARI in children, parent roles, influences of family members, and family problems. Different styles of parenting were established between the fathers and mothers also between the mothers and grandmothers on preventing ARI. The behavior of other family members impact both on the risk and prevention of ARI. Some of the identified problems capable of affecting children's health include inability to control the children, unstable income and the stressed condition of most mothers. **Conclusion.** Behavior of family members impacts on the prevention of ARI among the children. Problems within the family could affect the mothers' or caregivers' psychology, which might in turn impact on the care given to the children infected with ARI or in preventing it.

## Keywords

qualitative, family, respiratory, children, primary care

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## Background

Acute Respiratory Infection (ARI) such as influenza is a disease common to all ages including children. These influenza epidemics are approximately 3 to 5 million severe cases and annual deaths of 250 000 to 650 000 worldwide. The condition is more severe in the high risk groups such as children, the elderly, and patients with other chronic diseases. Mortality cases due to ARI among children under 5 years are approximately 900 000 yearly.<sup>1,2</sup>

Similarly in Indonesia, ARI is a common cause of death among children under 5 years. Its mortality rate among this group of children in the country is about

33 per 1000 live births.<sup>3,4</sup> Besides death, ARI also affects a country's economy. The reported total economic losses due to ARI are approximately 87.1 billion US Dollar

<sup>1</sup>Universitas Brawijaya, Malang, Jawa Timur, Indonesia

<sup>2</sup>Universitas Padjadjaran, Bandung, Jawa Barat, Indonesia

<sup>3</sup>Primary Care Medicine Residency Program, Faculty of Medicine, Universitas Padjadjaran, Bandung, Indonesia

### Corresponding Author:

Alidha Nur Rakhmani, Family Medicine Department, Faculty of Medicine, Universitas Brawijaya, Veteran, Malang, Jawa Timur 65145, Indonesia.

Email: alidha@ub.ac.id



every year in the United States. Also, hospitalization of patients usually comes with several disadvantages such as loss of employment due to illness, decreased quality of life due to secondary infection, and continuous absence from school.<sup>5</sup>

According to studies conducted in Indonesia, cases of ARI such as influenza, were commonly found among children under 5 years (57%), followed by children aged 5 to 14 years (29%), and only 14% found among those above 14 years old. In addition, its prevalence was 21.6% in urban areas<sup>6,7</sup> and 66.3% of mothers having children with ARI went to primary health care.<sup>8</sup> In 2016, there were 64.4% pneumonia and 35.6% non-pneumonia cases reported among children in Malang.<sup>9</sup> Puskesmas Dinoyo is one of primary health care centers located in the city and it reported 56 cases of ARI alone in August 2018.<sup>10</sup>

One of the many factors influencing the prevalence of ARI is the family, which is a bond between 2 or more people. This bond could be by birth, marriage, adoption or as a result of living together in a household. Family plays a vital role in child's development which in turn influences the health. Children's health is influenced by love shown in the family, as well as the physical, mental, emotional, and social health of the parents. Good affection in the family usually enhances the optimal development of a child. Also, variations in the mode of parenting might affect the growth and development of a child. Authoritative parenting is considered a good technique due to the fact that it produces children with social competence, high self-confidence, good communication skills, high cognitive, creative, and multiple intelligences.<sup>11</sup> Additionally, lack of knowledge on the part of mothers might contribute to the incidence of ARI in children.<sup>12</sup>

Research conducted among families showed that efforts geared toward preventing ARI in children were not effective. For example, family members with smoking habit increases the risk of children being exposed to ARI due to its smoke which causes irritation of the respiratory tract mucosa, thereby facilitating the entry of bacteria into the tract.<sup>12-14</sup> A research conducted in 1973 found that children suffering from chronic diseases with good family function showed better recovery than those with poor family function.<sup>15</sup> Also, a recent study in 2017 involving some Primary Health Care centers showed that families with good functions had more healthy children (45%) and less ARI cases (21.3%) compared with families having unhealthy functions which had 10.0% healthy children and ARI cases of about 23.8%.<sup>16</sup> According to the Mandala of Health Theory, health of an individual is influenced by that individual, family, and community components. Members of the family play a major role in the health of an individual and vice versa.

For the human biology factors, personal behavior of family members, physical, psycho-socio-economic and environmental conditions, all affect the health of individuals.<sup>17</sup> Also, lack of hand washing and the use of biomass fuel in cooking were reported to also increase the risk of children having ARI.<sup>18</sup>

Previous study in Malawi showed an increased risk of contracting ARI among families with higher density of people at home.<sup>19</sup> Additionally, a longitudinal study conducted between 1947 to 1962 found cases of infection due to staphylococcus germs in children, typically in large family, those with high density of members at home, and among poor mothers.<sup>15</sup> Furthermore, the psychological conditions of stressed parents impact on the onset and prognosis of asthma in children.<sup>20</sup> Based on the background, the aim of this study was to explore the roles of family members in the care and prevention of children with ARI.

## Methods

### Study Design

This was a qualitative study involving parents or caregivers with children diagnosed with ARI using phenomenological approach. The Primary Health Care "Dinoyo" in Malang city was selected as study location.

### Study Population and Sample

The parents or caregivers with children diagnosed with recurrent ARI within a space of 3 months (December 2018-February 2019), who had family relationships and daily interaction with children, were enrolled in this study. However, parents or caregiver with children diagnosed with ARI and malnutrition or heart disease were excluded. In total, 12 informants were enrolled using purposive sampling method, of which 10 were mothers and 2 were grandmothers. These informants were selected until getting saturated data. Also, the participants were given the informed consent before being recruited in the study. In addition, the participants and interviewer did not know each other prior to this study.

### Data Collection and Analysis

The data collection was conducted through in depth interview in the primary health care by the first author using the interview guideline form. The interview process took around 10 to 15 minutes with each participant and the interviewer took some notes during the process. The data was transcribed into complete written forms without adding or deducting from the

recordings. Subsequently, the coding in thematic analysis was conducted to identify the existing themes or concepts. Then, the triangulation test was conducted by checking the data from health volunteer and head of respiratory infection program in the Primary Health Care (Puskesmas) Dinoyo.

The principal investigator took the responsibility of the whole process from data collection to analyzing. The other investigator was a pediatrician responsible for analyzing and writing the results, then another was responsible for analyzing data into generated themes.

## Ethical Consideration

This study was approved by the Ethics Committee of the Faculty of Medicine, Universitas Brawijaya, Malang through decree No. 32/EC/KEPK/02/2019.

## Results

### Demographic Characteristics of Informants

The majority (41.8%) of informants were young mothers within the ages of 20 to 30 years old and with an average age score of  $34.4 \pm 10.7$ . Also, most of the informants had elementary school education. Then, only one informant was in the income range above the Regional Minimum Wage (UMR), while other informants were housewives. In general, the number of family members varies from 3 to 7 people in the house. There were 6 nuclear and 6 extended families, as shown in Table 1. Then, the 4 major themes found include ARI in children, parent roles, influence of family members, and family problems.

### ARI in Children

Some informants conveyed their experiences when their children suffered from ARI which were usually fever for 2 to 3 days accompanied by another symptoms such as cough or runny nose. The mothers normally treat the children based on their personal experiences, and then consulted the health facility when no improvement is seen after 2 or 3 days.

*“Usually, she got a fever and then rhinitis, and after two days, I seek help.” (Mrs. R, 26 years old)*

Most of the informants believed that weather or seasonal changes often cause their children to develop ARI.

*“Due to the weather transition, he usually got cold and cough.” (Mrs. W, 34 years old)*

**Table 1.** Characteristic Demography of Informant.

Variables	n	%
Age of mother		
20-30	5	41.7
31-40	4	33.3
>40	3	25
Mean $\pm$ SD	$34.4 \pm 10.7$	
Education		
Elementary school	7	58.3
Junior high school	3	33.3
Senior high school	2	16.7
Occupation		
Housewives	12	100
Family income		
<Regional minimum wage	11	91.7
>Regional minimum wage	1	8.3
Family member		
1-4	6	50
5-7	6	50
Family type		
Nuclear	6	50
Extended	6	50

Some other informants believed their children developed cough by consuming bottled beverages and cold food.

*“Food like snacks, or something cold always make him cough.” (Mrs. S, 43 years old)*

### Parent Roles

All the informants reported that the fathers were smokers. Although, some said that the fathers smoked outside the house because they mostly worked outside. However, some expressed the fact that the fathers smoked within the house.

*“His father is always at home. He smokes in the living room.” (Mrs. R, 24 years old)*

According to most informants, the fathers worked every day from morning to evening and even at night, except for holidays. However, some fathers did not work every day. Normally, the father would interact with the child before or after work, to nurture and play with the child. Another mother confessed that the father was responsible for taking the children to school,

*“He takes a shower in the morning, takes the children to school, before starting his work.” (Mrs. S, 37 years old)*

Most informants with toddlers and school children said that their husbands were the main decision-makers in the family. However, some informants took the main decision regarding the children's problems, particularly when sick.

All informants said they had made efforts to prevent their children from suffering from the infection again. Some informants with toddlers and school children considered that the provision of vitamins either from food or honey might prevent their children from the recurring ARI.

*"I gave him oral vitamins and honey." (Ms. SF, 23 years old).*

Another effort taken by the mothers was to avoid giving their children packaged food or drinks,

*"I would not give her something like snacks." (Ms. R, 23 years old).*

According to most informants, the mothers were the ones mostly troubled when the children were sick. Therefore, the decisions for taking care of the children were generally made by the mothers.

Mothers with children under 5 years spent more time with the children daily than mothers with children going to school. Children usually played inside or around the house. Also, mothers who had school children would do the house chores after the children had gone to school. However, working mothers only had time to interact with the children after work.

In general, mothers' responses to the needs of the children vary from one to another. Most mothers would only attend to the children's needs when they cried. However, some mothers would not fulfill the child's request when seen harmful to the child's health.

*"Yes, if he cries, I'll buy it." (Mrs. R, 24 years old).*

Mothers with school children usually punished the children if they did something wrong. One of the mothers mentioned that she pinched her child whenever he was lazy doing the homework but found playing. Another mother mentioned that she would punish her child by not giving her pocket money; although, she would eventually give her later.

*"I won't give her pocket money. But, if she later asked in the afternoon, I usually give her." (Mrs. P, 37 years old).*

### **Influence of Family Members**

This study found that in an extended family type, there were smokers such as grandfathers, brother-in-laws, and

even siblings. These people smoked both inside and outside the house.

*"The father usually smokes outside, but the grandfather often smokes inside the house." (Mrs. R, 23 years old).*

Families with more than 1 child were at risk of transmitting ARI among the siblings. A mother revealed that her children got ARI almost simultaneously. Other informants with children under 5 years confessed that her child got rhinitis after taking jackfruit from his sister.

*"He was given a jackfruit by his sister yesterday, then got rhinitis afterwards." (Mrs. S, 37 years old).*

Other families with teenagers said that the older siblings helped the mothers to take care of the younger ones while undergoing treatment at Primary Health Care (*Puskesmas*).

*"When my youngest child was hospitalized, her sister also took care of her after finishing her activities." (Mrs. P, 37 years old).*

In addition, grandfathers and grandmothers help in taking care of the children in families where the parents are working.

*"Yes, he is close to his grandfather. Because he works late in the afternoon, sometimes he helps to babysit." (Mrs. S, 43 years old).*

Some of the informants living in the same house with the grandmothers revealed that the grandmothers were the most troubled whenever the children were sick. One of the informant also mentioned that the grandmother was the person who always initiated to seek help and made decisions as regards treating the children. According to a grandparent, both parents were usually passive and depend on their parents in terms of taking care of their children.

*"Sometimes, I took care of him, I can't bear see him crying." (Mrs. S, 43 years old).*

### **Family Problems**

The results of the interview showed that there were problems in the families. Some of the informants mostly mentioned child and economic problems. Mothers with children under 5 years or those already going to school lamented that the children could not be controlled, as they would always play.

*“Yes, kids are hard to control. The problem is when they are playing and it is time to go home, but not want to.” (Ms. R, 23 years old).*

One of the economic problem mentioned was the uncertain conditions of the father’s job which made the family income not regular.

*“A major challenge is that the father doesn’t work every day, so our income is not regular.” (Mrs. S, 43 years old).*

A mother mentioned the fact that feeling stressed easily made the child sick,

*“Whenever I have a problem, I keep thinking. This affects my breast milk and since he is still breastfeeding, he easily gets a fever.” (Mrs. R, 23 years old).*

Another informant said that the child became fussier whenever the mother get stressed.

*“Fussy, rather fussy. The child was rather fussy whenever I am stressed.” (Mrs. A, 30 years old).*

According to a mother, the child does not fall sick whenever she is stressed, just that she becomes easily irritable to the child,

*“. . . whenever I am angry, he just got my anger, but not sick.” (Mrs. W, 34 years old).*

Majority of the mothers revealed that solving problems in the family was done mainly through discussion with the husbands. However, some mothers said they would rather keep the problems first before discussing it with their husbands. Some informants also said that in addition to discussing it with their husbands, they discussed it with their relatives and parents. Then, in extended family, the problem is usually discussed with the person whenever any came up.

## Discussion

All informants in this study were housewives while the husbands were working. Some informants revealed that although the fathers worked from morning till evening or night, they created time to interact with the children, especially by watching TV together. Some fathers also invited had some outdoor activities with their families on Sundays or during holidays. Both father and mother have important roles to play. Father is an important figure in the family who is more oriented to protection

while the mother is a figure oriented to childcare. The father’s role in giving affection could be in the form of giving attention, sense of security, and concern when the child is sick. The father also helps in the area of nurturing which include allocating time, reminding, and teaching.<sup>21</sup>

Also, some rules or norms must be obeyed by each member of the family. For example, the parents are obliged to provide for their children. The father also acts as the leader of the family.<sup>21,22</sup> This is in accordance with the statements of most mothers that fathers were still the decision makers at home. However, when the children were sick, most husbands tend to be more passive, thereby allowing the wives to take the major decisions. All the mothers answered that they felt disturbed, and that the fathers should take the initiative to find a solution and make decisions than the mothers. This is so important because the fathers have the capacity to decide what best for the children. According to a previous study, the father would take the initiative for the child’s treatment before assigning the care to the mother.<sup>23</sup> However, efforts to prevent children from ARI were mainly made by mothers. One of such as mentioned by the informant was to encourage smoking outside and not inside the house. It is known that smoking increased the risk of ARI and some fathers smoke inside the house. This shows that these fathers played a major role in the development of this infection. Therefore, role of the fathers in preventing the children from getting sick and providing care was still minimal compared to the mothers. However, this could be due to the fact that most fathers were working most times. Previous studies showed that fathers decided everything about the children, ranging from providing money to taking them to the health care facility.<sup>23,24</sup> Generally in this study however, the roles of fathers are more as the head of the family earning a living while the mothers care for children.

In addition, mothers with under 5 years and school children tend to have a permissive parenting type. Some mothers would grant the children’s requests when they cried. Most of these mother believed that the children might had difficulties in eating, so the mothers tend to do what they wanted, such as providing snacks. Similarly, previous studies showed that most caregivers practiced permissive approach, meaning that children were bosses, since the mothers would do whatever they wanted such as providing snacks.<sup>25</sup> However, some of the children come up with ARI symptoms after consuming snacks.

Furthermore, the role of mother to the children is to show love and kindness, develop good language skills, and to teach them to behave well in accordance to their genders.<sup>26</sup> Lack of hand washing is one of the risk factors for contracting ARI and mothers are expected to



teach the children the skill. One of the informants with school children admitted that she had taught her children to wash their hands whenever they are back from school. This is vital to all mothers but most of them failed to control the children's behavior in this regard thereby making the children to be at risk of contracting ARI. This also means that preventive efforts from mothers were not good enough.

Some informants also mentioned that fathers were more assertive to their children compared with mothers, and conversely, some fathers were more tolerant of their children than mothers. The informants' perceptions regarding the parenting styles in most houses were different. Some mothers disallowed their children from consuming chocolate milk due to health reasons while some fathers would allow them. Similarly, most informants with school children mentioned that mothers usually gave the same amount of pocket money to the children every day, but most fathers sometimes gave higher than what was given by the mothers. There were different parenting styles between mothers and fathers. According to a previous research, fathers had a perception that mothers were more permissive and authoritative, but less authoritarian. However, mothers' perception was that they were more authoritarian than the fathers.<sup>27</sup> Differences in parenting styles between fathers and mothers always make the children to choose the one more beneficial for them. However, some of these could lead to the development of ARI, such as drinking chocolate milk, which most fathers would allow.

Most of the preventive efforts of mothers were still not good enough. Some of the mothers assumed that by only providing vitamins and food, children could be prevented from getting sick. Also, most mothers knew that exposure to cigarette smoke was one of the risk factors of ARI, but the effort to prevent it was minimal. Some mothers were as well aware that the children would fall sick by consuming certain foods, but still gave them. Most mothers also failed to properly control their children's behavior in terms of hand washing. According to a previous research, several risk factors of ARI in children include education level, knowledge, attitudes, behavior of the mother, and family.<sup>28</sup> In this study, however, most mothers considered weather or seasonal changes as the main cause of ARI in children. Some other informants stated other factors, such as exposure to rain, taking packaged drinks, consumption of cold foods, and playing outside the house. This shows that mothers' knowledge about the risk of ARI was low. Some mothers considered ARI as not harmful; thus, they delayed seeking help. This is in accordance with the statement of the head of the ARI program in the community health center that most mothers took ARI as a

common disease, thereby taking the children to the community health center after 2 or 3 days when the condition would have become worse. Previous research stated that mothers are more likely to give first treatment before seeking help. This shows that mothers' behavior in seeking help for children is still low.

One of the informants who was a grandmother confessed that she granted all the requests of her grandchild. According to her, she could not bear to see her grandson crying. This is in line with the results of a previous research which stated that grandmothers' caring styles were more permissive.<sup>29</sup> In general, permissive parenting style would make children behave as they wish, making it difficult in controlling them. However, some of these behaviors could make them prone to ARI.

Some of the informants lived in the same house with their grandparents and other extended family members. This form of mixed family is common in Indonesia.<sup>30,31</sup> The number of residents living in a house impacted on the rate at which children develop ARI from other siblings.<sup>19</sup> In this study, 2 siblings aged under 5 years experienced ARI at almost the same time due to contact. Eating behaviors of other family members made the child sick. This is an indication that eating behavior among family members could be a risk factor for ARI.

The smoking behavior of some of the members of a family increases the risk of ARI in children because the smoke irritates the respiratory tract mucosa, thereby facilitating the entry of bacteria into the respiratory tract.<sup>12-14</sup> A previous research showed that the incidence of ARI in children with no family members smoking was 2.53 compared with 3.52 in families having 1 member smoking.<sup>32</sup> However, this study found that smoking habits at home, among male members could increase the risk of ARI in children compared with a nuclear family in which only the father smoked.

The exposure of children to cigarette smoke was high despite the claims of some of the informants of reducing it by opening doors and windows. According to a study, smoke from cigarette could be on the doors, carpets, curtains, pillows, clothes, skin, and hair for several days, weeks, and even months.<sup>33</sup> This certainly is still a risk for children to develop ARI at home.

Every family has one problem or the other and those in mixed families are usually more complex than in nuclear families. Issues in the family could make the mother stressful. Domestic problems, overloaded mother's role, children's poor behavior, difficulty in caring for the children, lack of social support, and negative life events, are some of the issues capable of making the mothers stressful.<sup>34</sup> Most of informants mainly mentioned the problems with children and the economy as the issues faced at home.

Problems related to children under 5 years were mainly the difficulty in controlling them. Then, mothers with school children mentioned the fact that some of the children were lazy to study. Others mentioned the uncertainty in the husbands' economic condition thereby making the income not regular. These problems could impact on the ability of these families in accessing health services.

All these problems could directly or indirectly affect the health of individuals, especially the children. A stressed mother or caregiver would not be able to optimally take care of the children. According to an informant, low production of breast milk impacted on her child coming up with fever. Another mother said that feeling stressed made her child to become easily sick. The existence of problems in the family affect children's health, as they get less care from the parents, thereby disrupting the children's development both physically and mentally.<sup>11,35</sup> This shows that problems in the family make the parents, especially mothers to be stressed up, thereby impacting negatively on the roles of parenting. It makes mothers to be more sensitive, inconsiderate, and even vent the anger on the children, which could make the children become fussier and sick.

The limitations of this study was that the behavior of parents and other family members at home were not considered. Therefore, the answers provided by the informants failed to reflect the real situations in the family. Also, the fathers could not be interviewed in the course of the study, so nothing could be assessed on the role played in caring for the sick children. In addition, there is need to improve the knowledge on preventing ARI within families. This could be achieved through health education using family centered approaches revolving around the mothers and fathers within the primary health care. This should also involve the fathers and other male adult within the family, thereby making them to be more active in providing a safe home devoid of the infection.

## Conclusion

In general behavior of members in both nuclear and extended family types impacts on the prevention of ARI among the children. Problems within the family could affect the mothers' or caregivers' psychology, which might in turn impact on the care given to the children infected with ARI or in preventing it. Therefore, there is need to support mothers or caregivers.

## Author Contributions

ANR: took the responsibility of the whole the process from data collection, analyzing, and writing the results including preparing the manuscript.

NA: responsible for analyzing data into generated themes.

MD, KM, EPS and GW: responsible for analyzing and writing the results.

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## ORCID iDs

Alidha Nur Rakhmani  <https://orcid.org/0000-0001-6075-6342>

Meita Dhamayanti  <https://orcid.org/0000-0001-9661-0708>

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