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The Relationship between Parents' Knowledge and Behaviors with The Acute Respiratory Infection Incidence of Children Under Five in Tangerang

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ABSTRACT
Acute Respiratory Infections (ARI) are the biggest cause of mortality in toddlers in Indonesia. An initial study showed 48% of toddlers with ARI signs and symptoms went to the health centers in Tangerang between January and February 2020. The purpose of the study was to obtain the relationship between the parents' knowledge and behaviours towards the ARI incidence in children under five years. This research used a descriptive quantitative methods The population was parents who have children under five years in one sub-district in Tangerang. 180 samples were taken using total sampling technique. The data collection was collected online with a valid and reliable questionnaire. Univariate test results showed 94 respondents (52.2%) had a high level of knowledge, and 131 respondents (72.8%) had good behaviours. There was a significant relationship between parent's knowledge with ARI incidence (p=0.007). There was also a significant relationship between parents' behavior with ARI incidence (p=0.038). Nurses must be actively providing health education related to ARI to parents and follow up regularly. Further research can develop regarding the factors that influence the knowledge and behavior of parents of ARI in children under five years.

Keywords: Behavior, Knowledge, Parent, Respiratory Infections

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BACKGROUND

Acute Respiratory Tract Infection (ARI) is a disease that attacks the upper respiratory tract to lower respiratory tract caused by viruses, bacteria, and microorganisms that attack parts of the respiratory tract ranging from the nose to alveoli, causing an acute infection process for fourteen days (Silaban, 2015). Symptoms that related to ARI were common cold cough, earache, laryngitis, bronchitis influenza, and sinusitis (Pebrianti & Shalahuddin, 2018).

ARI is one of the most common causes of death in children in developing countries (Pebrianti & Shalahuddin, 2018). According to The World Health Organization (WHO) quoted in Aba and Dewi (2019),13 million children under five in developing countries died every year due to ARI. The Ministry of Health of the Republic of Indonesia (2012), quoted in Andarias et al. (2018) that in Indonesia ARI cases ranked first in the cause of infant mortality. A mortality survey in 2010, showed that ARI was the leading cause of death with a percentage of 22.30%. In Tangerang district, in 2013 there were 7,733 toddlers affected by ARI, in 2014 there were 7,694 toddlers, in 2015 there were 8,813 toddlers, in 2016 there were 8,348 toddlers, in 2017 there were 10,841 toddlers and in 2018 there were 12,842 toddlers (Dinas Kesehatan Provinsi Banten, 2020).

A study by Andarias et al., (2018) found the factors cause ARI were parental knowledge due to the lack of education and socialization from health workers and family environmental factors; air pollution in the house such as cigarette smoke, mosquito repellent use, and the density of the population. Silaban (2015) stated that the individual surrounding the children and parents behavior were the contributing factors to ARI incidences. The cause of high cases of ARI in Indonesia in children under five is parents' lack of knowledge about ARI. Parents had an important role in the prevention of ARI in children under five.

The previous research conducted in the Jatiuwung's community health center stated that the poor prevention practice of ARI by parents can increase the ARI incidence in toddlers by 4.6 times higher compared to parents who had the good prevention practice (Romaito et al., 2015).

Preliminary studies that had been conducted on ten parents who have children under five in one of the sub-districts in Tangerang found seven out of ten parents did not understand t ARI and were confused about how to deal with it. Only three of them have understood how to handle it. The cadre also stated that the number of parents who did not understand ARI was due to the lack of public awareness in maintaining the cleanliness of the environment. The observation data showed that the environment was still not clean, such as the late pick-up garbage, the inundated water, the burning garbage practice, the building construction process, and the dense population. Based on the data, the researchers aimed to find the relationship between the parents' knowledge and behavior of parents towards the ARI incidence in children under five years in one sub-district in Tangerang, Banten.

METHODS

The design used in this study was a descriptive quantitative study to find the relationship between parents' knowledge and behavior towards the ARI incidence in children under five years in one sub-district in Tangerang, Banten.

The population was the parents, the father or the mother, in one sub district in Tangerang, Banten. This study used purposive sampling of as many as 180 parents. The inclusion criteria were the parents who have children under five years and filled the informed consent. The exclusion criteria were parents who had chronic respiratory illnesses and did not complete the online questionnaire. This study was conducted from April 13 to May 13,

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2020.

The instrument consisted of three parts. Part A was to identify demographic data of respondents that consists of five questions such as age, sex, level of education, monthly income, and job type. Part B was to measure the variables of parents' knowledge about ARI disease in children under five of age. Ten questions were valid and showed the reliability Cronbach Alpha of 0.761. Part C was the instrument to measure the variables of parents' behavior regarding ARI in children under five. The ten questions were valid and shown the reliability Cronbach Alpha of 0.746. We used research instruments in the form of questionnaires adopted from Bidaya et al., (2013).

The data were collected through online questionnaires. The respondents were given detailed information about the description of the study, the purpose of the study, and the rights of the respondents during the collecting data process. The respondents who willing to participate filled the informed consent. The approximate time to fill the questionnaire was 2-3 minutes.

The respondent responses were processed and analysed. The univariate analysis was performed on demography data, as well as the parents' knowledge, parents' behaviour, and the incidence of ARI in children under five of age. The Chi-Square analysis was performed to find the relationship between parent's knowledge and parents' behavior with ARI incidence in children under five. The researchers used analytical tests using computerized systems.

This research had been approved an ethics review process to protect the rights of respondents and has been approved by the Ethics Committee of the Faculty of Nursing, Universitas Pelita Harapan with No. 064/KEP-FON/III/2020/Rev1.

RESULTS

The study involved 180 respondents. The characteristics of respondents in this study were shown in table 1.

Table 1. Demographic Data Characteristics of Respondents in One Subdistric in Tangerang on May 2021 (n=180)

Characteristics	n	%
Age		
17-25 Years	27	15
26-35 Years	95	52.8
36-45 Years	54	30
46-55 Years	4	2.2
Education		
Elementary School/ equivalent	21	11.7
Junior High School/ equivalent	150	83.3
Diploma	7	3.9
Higher Education	2	1.1
Parental Gender		
Male	36	20
Female	144	80
Monthly Income		

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Characteristics	n	%
≤ Regional wage Rp 4,206,682	177	98.3
> Regional wage Rp 4,206,682	3	1.7
Job Type		
Housewives	138	76.7
Self-employed	9	5
Civil Servants	1	6
Private Employees	32	17.8

Table 1 describes that the majority of the respondents was female respondents (52%), within the range of age of 26 - 35 years (52.8%), work as housewives (76.7 %), and most of the respondents had a junior high school education level of 150 respondents (83.3%). Most of the respondents had a monthly income of ≤Rp 4,206,682.00 as many as 177 respondents (98.3%).

Table 2. Parents' Level of Knowledge, Parent's Behavior about ARI, and ARI Incidence in Children Under Five in One Sub District in Tangerang on May 2021 (n=180)

Variable	n	%
Parents' Knowledge		
Low	86	47.8
High	94	52.2
Parents' Behavior		
Unimplemented	49	27.2
Well implemented	141	78.8
ARI Incidence		
Exposed	93	51.7
Not exposed	87	48.3

Table 2 describes that more than half of respondents have a high level of knowledge about ARI in children under five, namely 94 respondents (52.2%). The majority of respondents had well implemented the behavior regarding ARI in children under five as many as 131 respondents. (72.8%). It is known that more than half of respondents had children under five who got an acute respiratory infection as many as 93 respondents (51.7%).

Table 3. The Relationship between Parents' Knowledge with ARI Incidence in Children Under Five in One Sub District in Tangerang on May 2021 (n=180)

Level of Knowledge	ARI Incidence						p value	Odd Ratio
	Exposed		Not Exposed		Total			
	n	%	n	%	n	%		
Low	54	62.8	32	37.2	86	100		
High	39	41.5	55	58.5	94	100	0.007	2,380

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Total	93	51.7	87	48.3	

Table 3 shows that 32 respondents (37.2%) who had low knowledge of ARI in children under five were not exposed to ARI, while 55 respondents (58.5%) had high knowledge of ARI in children under five of age were not exposed to ARI. The Chi-Square analysis showed a significant relationship between parents' knowledge about ARI in children under five with the ARI incidence in one sub-district in Tangerang (p=0.007). The odd ratio implied that parents with low knowledge about ARI had a chance of 2,38 times for their under-five children not having been infected by acute respiratory infection.

Table 4. The Relationship between Parents' Behavior with ARI Incidence in Children Under Five in One Sub District in Tangerang on May 2021 (n=180)

Level of Behavior	ARI Incidence						p value	Odd Ratio
	Exposed		Not Exposed		Total			
	n	%	n	%	n	%		
Unimplemented	32	65.3	17	37.2	49	100		
Well implemented	61	46.6	70	53.4	94	100	0.038	2,160
Total	93	51.7	87	48.3				

Table 4. shows that 17 respondents (34.7%) who had unimplemented behavior regarding ARI in children under five were not exposed to ARI, while 70 respondents (53.4%) had well-implemented behavior regarding ARI in children under five were not exposed to ARI. The Chi-Square analysis showed a significant relationship between parents' behavior about ARI in children under five with the ARI incidence (p=0.038). The odd ratio implied that parents with unimplemented behavior about ARI had a chance of 2,16 times for their under-five of age children of not having been infected by acute respiratory infection.

DISCUSSION

This study showed that the majority of respondents were female (52%). Women tend to contribute and communicate on social media more often than men to search and get information (Karman, 2013). More than half respondents aged 26 - 35 years were as many as 95 respondents (52%). Age 26-35 years is productive for humans and suitable age for pregnancy for women. The result was in line with Garamesa, Atameha, and Gunawan (2017) who found that most of the respondents were from 25 – 30 years as many as 16 respondents (40%). Age 26 until 35 years old is the early adulthood in which individuals can reproduce well. Women under 30 can already reproduce well and ready to accept responsibility as a mother (Suresh, 2017). The majority of respondents were finished the junior high school education level as many as 150 respondents (83.3%). This situation can be happened due to economic factors. A previous study stated that the level of education might be influenced by the low economic situation. The parents' low income can make parents only focus on working hard to meet daily needs and tend to ignore education (Kamsihyati et al., 2016).

Most of the respondents were housewives (76.7%). This result was in accordance to previous study that examined the relationship of knowledge with parental behavior regarding the prevention of ARI of toddlers in Ciawi, Bogor. The research found that 87,1% of the respondents were housewives as many as 81 respondents (Lidia & Rahmadiyah, 2018). In this study, the majority of respondents' income was under IDR 4,206,682, This

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amount was less than the regional minimum wage as many as 177 respondents (98.3%). The previous study found that a person's last level of education can affect the amount of income. The higher the level of education, the better the job and income (Putri & Setiawina, 2013). The result was in line with Sari and Fitriyani (2013) study about the level of knowledge, attitudes, and behaviors of families with toddlers suffering from ARI in the work area of the community health center in Depok, West Java. They stated that most of the respondents (73,9%) had income under the regional minimum wage from Depok city. namely 68 respondents.

More than half of the respondents had a high level of knowledge about ARI toddlers (52.2%). The result was in line with the previous study that found most parents (66,7%) had a good knowledge about ARI in toddlers as many as 66 respondents (Lidia & Rahmadiyah, 2018). The parents' good knowledge might be supported by their participation on the health education and counseling towards ARI regularly. Nuraeni and Saptawati (2015) got the same results in their research on the description of knowledge, attitudes, and practice of parents towards ARI in toddlers at Kali Pancur Village. They found that more than half respondents had a good knowledge about ARI in toddlers as many as 47 people (59.5%). Supported study also revealed that most of the parents (83,9%) had a good level of knowledge about ARI as many as 322 respondents (Gyawali et al., 2016). On the contrary, Romaito, Singgih and Zelfino (2015) found that most of the respondents (60,1%) had less knowledge as many as 110 respondents. They also found that more than half of the respondents (53,6%) never participated the health counseling.

This study found that the majority of respondents had good behavior about ARI in children under five, as many as 131 respondents (72.8%). Recent study stated that factors that support good behavior include the availability of facilities or health facilities, medicines, educational media; as the enabling factor, and the attitude of health workers in responding to the community (Lidia & Rahmadiyah, 2018). Furthermore Sundari, Pratiwi and Khairudin (2014) stated that the health care facilities usage behavior and the health seeking behavior affect the toddlers health including the occurrence of ARI, such as immediately bringing treatment to health facilities if the toddler experiences symptoms of ARI. The result of this study was in line with Rahim (2013) that stated most of the respondents had good behavior in implementing the prevention of ARI as many as respondents (63.7%) because of the support from the nearest community health center. Previous study showed that preventive behavior conducted by parents regarding good infant ARI as many as 64 respondents (84.21%) because of health facilities utilization such as health centers to treat sick toddlers including handlers against ARI (Bidaya et al., 2013).

Furthermore Sari and Fitriyani (2015) pointed out that more respondents had well implemented the ARI prevention in toddlers as many as 47 respondents (51.15%). This good behavior was supported due to the healthy behaviors in utilizing the health facilities. On the contrary. Lidia and Rahmadiyah (2018) found that as many as 50 respondents (53.8%) had poor behavior in preventing ARI disease. Widodo, Dewi and Saputri (2016 also found that most of the respondents unimplemented the prevention towards ARI in toddlers as many as 45 people (88.2%). Another study found that most of the respondents (70%) had a low behavior as many as 28 respondents due to the lack of utilizing the nearest health facilities (Garamesa et al., 2017).

The bivariate analysis found the significant relationship between parents' knowledge with the incidence of ARI in children under five in one sub district in Tangerang (p=0.007.). The increased knowledge about ARI amongst the respondents encourage them to behave better in preventing and overcoming ARI, so that children under five can be prevented from

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ARI. Notoatmodjo (2012) stated that knowledge or cognitive aspect was an internal factor that affects the formation of a person's behavior. The behavior will impact on health status. Similar study found significant relationship between mothers' knowledge and ARI incidence in toddlers (p=0.001) (Nurwadidah & Haris, 2018). Wulaningsih, Hastuti and Pradana (2018) found significant relationship between the knowledge of parents about ARI and the incidence of ARI in toddlers in Kendal (p=0.031). On the contrary, Hadisaputra, Suparta and Ananda (2015) found no relationship between maternal knowledge and the recurrent ARI events in toddlers (0.052). Riskayati (2016) also showed no relationship between knowledge and ARI incidence (p=0.936). Furthermore, Jalil, Yasnani and Sety (2018) found that parents whose children suffer from ARI though they have a good level of knowledge can be happened due to their children' lack of knowledge and their busy activities so that parents cannot take precautions as early as possible.

The bivariate analysis found significant relationship between parents' behavior and ARI incidence (p=0.038). The parents had good behavior in responding to diseases such as staying away from toddlers from others who are affected by ARI so that toddlers are protected from ARI disease. This result was in line with the theory that behavior has a huge influence on public health status because one's behavior is facing illness and disease is a passive or active response of a person conducted in connection with the disease (Notoatmodjo, 2012). Similar finding was found in the study that showed significant relationship between mothers' behavior and the ARI incidence in Tangerang (p=0.004) (Romaito et al., 2015). Hadisaputra, Suparta and Ananda (2015) also found the significant relationship between mothers' behavior with ARI's incidence (p=0.001). The increased mothers' good behavior can reduce the numbers of ARI incidence in toddler. On the contrary, previous study found no relationship between family' behavior and the incidence of ARI in toddlers (Widodo et al., 2016)

Due to the COVID-19 pandemic, the data collection was carried out using online questionnaires. During the study, researchers had limitations in giving direct communication about the research explanation which might cause confusing to the respondents about research process.

CONCLUSION

There was a relationship between the knowledge of parents and the parental behavior about ARI with the ARI incidence in children under five. Nurses must be actively involved in providing health education related to ARI to parents and follow up regularly. Further research should focus on factors that influence parents' knowledge and behavior of ARI disease.

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CONFLICTS OF INTEREST

The Authors declare that there is no conflict of interest'.

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