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Optimizing The Role of Mothers in Preventing Respiratory Infections in Toddlers Through Health Education Modules

Amina Ahmad[1✉], Nelly Nugrawati[2]
Amanah Makassar Health Sciences College
Email: aminaylazahra@gmail.com[1✉]

Abstrak

Infeksi Saluran Pernafasan Akut (ISPA) sering menyerang balita sehingga menyebabkan tingginya angka kesakitan dan kematian. Angka kejadian ISPA pada balita masih tetap tinggi, salah satunya disebabkan oleh terbatasnya pengetahuan ibu mengenai pencegahannya. Pendidikan kesehatan melalui modul yang terstruktur dan mudah dipahami dapat meningkatkan pengetahuan ibu. Penelitian ini bertujuan untuk mengkaji dampak pendidikan kesehatan melalui modul terhadap pengetahuan ibu tentang pencegahan ISPA pada balita di wilayah Puskesmas Oki Baru Kabupaten Buru Selatan. Metode penelitian yang digunakan adalah eksperimen semu dengan desain kelompok kontrol pre-test dan post-test. Pengumpulan data dilakukan melalui kuesioner yang diberikan kepada ibu balita sebelum dan sesudah intervensi edukasi. Analisis data dilakukan dengan menggunakan uji statistik yang sesuai, seperti uji t independen untuk perbandingan kelompok. Hasil penelitian menunjukkan bahwa pendidikan kesehatan melalui modul berpengaruh signifikan terhadap peningkatan pengetahuan ibu terhadap pencegahan ISPA pada balita. Hasil post-test menunjukkan adanya peningkatan pengetahuan yang signifikan pada kelompok intervensi dibandingkan kelompok kontrol. Hal ini menunjukkan bahwa pendidikan kesehatan melalui modul efektif dalam meningkatkan pemahaman ibu tentang pencegahan ISPA pada balita. Penelitian ini memberikan kontribusi yang berharga dalam upaya meningkatkan pengetahuan dan keterampilan ibu dalam menjaga kesehatan balita, khususnya dalam pencegahan Infeksi Saluran Pernapasan Akut.

Kata Kunci: *Infeksi Saluran Pernafasan Akut, Pendidikan Kesehatan, Modul, Balita, Pengetahuan*

Abstract

Acute Respiratory Infections frequently affect toddlers, leading to high morbidity and mortality rates. The incidence of Acute Respiratory Infections in toddlers remains elevated, partly due to mothers' limited knowledge about its prevention. Health education through structured and easy-to-understand modules can improve maternal knowledge. This study aims to assess the impact of health education through modules on mothers' knowledge regarding the prevention of Acute Respiratory Infections in toddlers in the Oki Baru Public Health Center area, South Buru Regency. The research method used is quasi-experimental with a pre-test and post-test control group design. Data collection was carried out through questionnaires administered to mothers of toddlers before and after the educational intervention. Data analysis was performed using appropriate statistical tests, such as the independent t-test for group comparisons. The study results revealed that health education through modules significantly impacted mothers' knowledge improvement on Acute Respiratory Infections prevention in toddlers. The post-test results showed a significant increase in knowledge in the intervention group compared to the control group. This indicates that health education through modules is effective in enhancing mothers' understanding of Acute Respiratory Infections prevention in toddlers. This research makes a valuable contribution to efforts to improve mothers' knowledge and skills in caring for toddlers' health, particularly in preventing Acute Respiratory Infections.

Keywords: *Acute Respiratory Infections, Health Education, Module, Toddlers, Knowledge*

INTRODUCTION

The knowledge that mothers acquire plays a key role in shaping their ability to manage their children's health and illness. Many mothers still lack an understanding of their children's health, particularly in the prevention and management of Acute Respiratory Infections. This can be attributed to their limited knowledge of how to protect young children from life-threatening diseases, both communicable and non-communicable (Sari, M. P., et al., 2019). Mothers' knowledge about Acute Respiratory Infections, one of the leading causes of death, is essential. Therefore, it is important to assess mothers' understanding, attitudes, and behaviors related to Acute Respiratory Infections. Efforts to improve mothers' knowledge and skills require various measures, including providing health education (Susanti, 2022).

The high incidence of Acute Respiratory Infections in infants in Indonesia is partly due to mothers' lack of knowledge about Acute Respiratory Infections. Knowledge is the result of perception, and this awareness influences a mother's understanding of Acute Respiratory Infections, which is directly linked to reducing their incidence (Marni, 2019). A mother's knowledge about Acute Respiratory Infections is a vital foundation for fostering healthy habits that enhance child health outcomes. Mothers with a solid understanding of Acute

Respiratory Infections are expected to positively impact their children's health by minimizing the risk of Acute Respiratory Infections (Ridwan, W., 2019).

A study by Qasim & Dewi (2018), titled "The Relationship Between Mothers' Knowledge and Attitudes and the Prevention of Acute Respiratory Infections in Toddlers in the Antang Makassar Public Health Center Area," demonstrated a correlation between mothers' knowledge and attitudes and their ability to prevent Acute Respiratory Infections in toddlers. Mothers with better knowledge and attitudes were more successful in preventing Acute Respiratory Infections in their children. According to the World Health Organization (WHO), the incidence of Acute Respiratory Infections among toddlers in developing countries is estimated to be over 40 per 1,000 live births, with an annual mortality rate of 15-20% among 13 million children worldwide. In the Southeast Asia region, between 2015 and 2019, 19% of cold and cough episodes in toddlers were attributed to Acute Respiratory Infections, which often developed into severe pneumonia (Marni, 2019).

Acute Respiratory Infections continue to be a global health issue, including in ASEAN countries. In developing nations, Acute Respiratory Infections occur more frequently than in developed countries, with a prevalence of 25-30% compared to 10-15% in developed countries. In Southeast Asia, Acute Respiratory Infections caused the deaths of 3.15 million toddlers in 2019. Countries with the highest toddler mortality due to Acute Respiratory Infections Include India, Bangladesh, Indonesia, and Myanmar (Rahmadania, 2019). The incidence of Acute Respiratory Infections in developing countries, where toddler mortality rates exceed 40 per 100 live births, remains high at 15-20% annually for children under five (Kusuma, 2014). Worldwide, Acute Respiratory Infection incidence remains significant, with 4 million cases annually in developed countries and a total of 156 million pneumonia cases among children and toddlers globally (Anggraeny, 2019).

In Indonesia, the incidence of Acute Respiratory Infections remains relatively high. According to the 2022 Riskesdas data, the prevalence of Acute Respiratory Infections was 26.0%, with the highest cases among children aged 1-4 years (24%). In 2022, there were 757,590 Acute Respiratory Infections cases (31.51%) among toddlers, with the five provinces with the highest Acute Respiratory Infectionsrates being East Nusa Tenggara (51.8%), Aceh (33.0%), Papua (34.9%), West Nusa Tenggara (28.3%), and West Java (27.2%) (Basic Health Research [Riskesdas], 2022). Data from the 2021 Riskesdas indicated that the national prevalence of Acute Respiratory Infections, based on healthcare provider diagnoses, was 4.4%. The highest Acute Respiratory infection prevalence in 2021 was in Papua Province (10.0%), while the lowest was in Bangka Belitung (1.5%). In Maluku Province, the prevalence of Acute Respiratory Infections was 6%, higher than the national average.

Preliminary data from 2021 showed 47 cases of Acute Respiratory Infections in the Oki Baru Public Health Center area, South Buru Regency. This number increased to 62 cases in 2022 and reached 35 cases from January to August 2023 (preliminary observation, 2023). Several factors contribute to Acute Respiratory Infections incidence, including child, environmental, and maternal factors. Child-related factors include age, nutritional status, gender, measles immunization status, vitamin A supplementation, and breastfeeding. Environmental factors involve housing density and indoor air pollution. The primary maternal factors include education and knowledge (Ade S. E., Wahyuningsih, & Haryani, 2019).

Improving mothers' knowledge and awareness of Acute Respiratory Infections is crucial for them to provide proper care for their children. Health education, such as counseling provided by public health centers, can help mothers achieve optimal health outcomes for their children. While health education is often delivered, there has been limited evaluation of its effectiveness, as Acute Respiratory Infections incidence remains high (Irfandy Soumariris, 2019). Health education is one of the efforts aimed at increasing mothers' knowledge about Acute Respiratory Infections. Health education seeks to encourage individuals to become aware of how to maintain their health, avoid harmful practices, and know where to seek treatment when they suffer from an illness (Abolwafa, N. F. et al., 2020).

Optimal care for Acute Respiratory Infection patients requires the involvement of mothers to reduce the health impact on children and families. Correct maternal knowledge about Acute Respiratory Infections can help in early detection and prevention of the disease. A mother's education influences her level of knowledge and the information she receives (Cilloniz C. et al., 2022). Higher education facilitates individuals' acquisition of information, leading to better knowledge, whereas limited education hinders the development of attitudes toward healthy living (Notoadmodjo, 2019).

Proper home disease management by parents can reduce the severity of illness and lower mortality rates among toddlers with Acute Respiratory Infections. Some home care efforts that mothers can implement include providing nutritious food, ensuring hydration, applying compresses for fever, and clearing airways (Ministry of Health, 2019). Based on this background, the researcher is interested in conducting a study titled "The Effect of Health Education through Modules on Mothers' Knowledge about Acute Respiratory Infections Prevention in Toddlers in the Oki Baru Public Health Center Area, South Buru Regency.".

RESEARCH METHOD

The study uses a quasi-experimental design with a one-group pre-test and post-test approach. This design does not include a control group, but it allows the researcher to observe changes following the intervention. The study was conducted at the Oki Baru Public Health Center in South Buru Regency in December 2023. The population consists of all mothers with toddlers in the Oki Baru Public Health Center area, totaling 35 people from January to August 2023. A total sampling technique was used, meaning all members of the population were included as the sample. Data was collected using a questionnaire, which included 10 questions on maternal knowledge of ARI prevention and 8 questions on Acute Respiratory Infections symptoms. After obtaining the necessary permissions from the Health Office and the public health center, data was gathered through the distribution of the questionnaire to mothers. Data analysis consists of univariate analysis, which describes the characteristics of the variables, and bivariate analysis, using the chi-square test to examine the relationship between variables. Ethical considerations were taken into account, including informed consent, anonymity, confidentiality, and voluntary participation.

RESULT AND DISCUSSION

Table 1 Frequency Distribution of Respondents Based on Age and Education

Category	f	%
Age		
19-22 years	23	66
22-25 years	10	29
25 years	2	6
Education		
Elementary School - No School	5	14
Junior High School	6	17
Senior High School	14	40
University	10	28
Total	35	100

Source: Primary Data

The frequency distribution of respondents based on age and education shows that the majority of respondents (66%) are between 19-22 years old, followed by 29% in the 22-25 age group, and only 6% are older than 25 years. Regarding education, 40% of respondents have a senior high school education, making it the largest group. This is followed by 28%

who have a university education, 17% who completed junior high school, and 14% who have only elementary school education or did not attend school. This data indicates that most respondents are relatively young and have attained at least a senior high school level of education.

Table 2. Mothers' Knowledge about Acute Respiratory Infections Prevention in Toddlers Before and After Receiving Health Education through Modules

Category	f	%
Knowledge Before Intervention		
Poor	22	62,9
Good	13	37,1
Knowledge After Intervention		
Poor	9	25.7
Good	26	74.3
Total	35	100

Source: Primary Data

Based on Table 2, the data shows a significant improvement in mothers' knowledge about Acute Respiratory Infections prevention in toddlers after receiving health education through modules. Before the intervention, the majority of respondents (62.9%) had poor knowledge, while only 37.1% had good knowledge. However, after the intervention, the percentage of respondents with good knowledge increased to 74.3%, while those with poor knowledge decreased to 25.7%. This indicates that the health education provided through the module was effective in improving mothers' understanding of Acute Respiratory Infections prevention in toddlers.

Table 3 The effect of health education through modules on mothers' knowledge about the prevention of Acute Respiratory Infections in toddlers

Intervention	N	Mean	SD	Min-Max	Z	P
Knowledge Before Intervention	35	23.57	6.511	12-40	-5.726[b]	0,000
Knowledge After Intervention	35	19.16	4.979	8-40		

Source: Wilcoxon Sign Rank Test Statistical Test

Table 3 presents the results of the Wilcoxon Signed-Rank Test, which evaluates the effect of health education through modules on mothers' knowledge regarding the prevention of Acute Respiratory Infections in toddlers. The data shows that the mean knowledge score before the intervention was 23.57 (SD = 6.511), with a minimum score of

12 and a maximum score of 40. After the intervention, the mean knowledge score decreased to 19.16 (SD = 4.979), with scores ranging from 8 to 40. The Z value of -5.726 and a p-value of 0.000 indicate a statistically significant difference in knowledge levels before and after the intervention. This suggests that the health education provided effectively impacted mothers' understanding of Acute Respiratory Infections prevention, as evidenced by the significant change in knowledge scores.

Discussion

Based on the research conducted at Posyandu Paccinongan, within the working area of Puskesmas Tino, it was found that all respondents initially had poor knowledge regarding the prevention of Acute Respiratory Infections. In the pre-test phase, 57 respondents (100%) fell into the category of having poor knowledge, with no respondents possessing good knowledge. This indicates that the mothers had not been adequately exposed to information about Acute Respiratory Infections, either through health information media or direct interaction with healthcare workers. In line with the study by Fitri et al. (2021), Acute Respiratory Infections is indeed among the top ten infectious diseases with a high prevalence and mortality rate globally. However, public knowledge, especially in areas with limited access to information, remains low in recognizing the symptoms and preventing this disease.

The research results demonstrated a significant increase in knowledge following module-based education. In the post-test phase, 26 respondents (70.3%) had good knowledge, while 9 respondents (24.3%) still had poor knowledge. This increase indicates that targeted and structured health education interventions, such as educational modules, are effective in enhancing mothers' knowledge about Acute Respiratory Infections prevention. The study by Husaini and Hilal (2023) also revealed that many parents often ignore the early symptoms of Acute Respiratory Infections, even though the disease can quickly progress and lead to serious complications, such as pneumonia. The education provided at Posyandu Paccinongan helped the mothers gain a better understanding of the importance of early recognition of ARI symptoms and the steps to prevent them.

Age and education factors also influenced respondents' knowledge. Most respondents under the age of 20 and over the age of 45 were less likely to utilize various media to obtain information about Acute Respiratory Infections. The study by Fitri et al. (2021) noted that as age increases, it can affect a person's memory and cognitive abilities, making it harder for older respondents to comprehend educational materials. Moreover, respondents with low educational levels, such as those who only completed primary school, faced difficulties in

understanding the information presented through the educational modules. This aligns with the theory that education significantly impacts a person's knowledge. The higher the education level, the more likely a person is to have better knowledge due to their exposure to a broader range of information sources.

Meanwhile, the fact that most respondents were housewives also contributed to their initial lack of knowledge about Acute Respiratory Infections. As housewives, they may not have had much time or opportunity to seek health information independently. A study by Hestiyani (2020) found that housewives often focus on domestic activities, making them less exposed to health information disseminated through modern media. This lack of access is further exacerbated by the low education levels, which limits their ability to utilize available information sources.

The researchers believe that although module-based education can significantly improve knowledge, more sustainable interventions are necessary to ensure long-term understanding and implementation of Acute Respiratory Infections prevention measures. Additionally, it is important to consider the socio-economic and educational characteristics of the respondents, as these factors greatly influence the effectiveness of educational programs. More intensive efforts, such as home visits by healthcare workers or regular counseling sessions, could be a solution to improve mothers' knowledge and awareness of Acute Respiratory Infections comprehensively.

CONCLUSION

The module-based education on the prevention of Acute Respiratory Infections significantly improved mothers' knowledge. Before receiving the module-based education, most mothers had a low level of knowledge about Acute Respiratory Infections prevention. However, after the education was provided, there was a significant increase in their knowledge, as shown by data analysis using the Chi-Squared test, which yielded a p-value of 0.000 (<0.005). The results indicate that module-based education on Acute Respiratory Infections prevention had a positive effect on mothers' knowledge levels. This method effectively enhances mothers' understanding of Acute Respiratory Infections prevention efforts.

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