Original Research
Indonesian Midwifery and Health Sciences Journal

Volume 8 No. 3. July 2024
Received: 6 May 2024 Revised: 20 May 2024
Accepted: 5 June 2024 Published: 28 July 2024
Available online at: http://e-journal.unair.ac.id/index.php/IMHSJ

THE EFFECT OF PNEUMOCOCCAL CONJUGATE VACCINE PENTABIO, AND MULTI-INJECTION IMMUNIZATION EDUCATION ON KNOWLEDGE AND ACCEPTANCE OF MULTI-INJECTION IMMUNIZATION

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Abstract

Background: Pneumonia is the main caused of morbidity and mortality in children under five years of worldwide. According to the Health Profile Data (2021), the province with the highest coverage of pneumonia among under-fives was in East Java (50%) and in Blitar Regency at 40%. Indonesia was tried to control pneumonia by increasing PCV immunization efforts. PCV immunization is first given at the age of two months along with pentabio immunization or known as multi injectable immunization. Based on the results of a preliminary study conducted at the Talun Primary Health Care in Blitar Regency on pregnant women in the 3rd trimester and mothers who have babies aged 0-2 months, it was found that 71% of mothers did not know about the existence of multiple immunization injections between pcv and pentabio. Knowledge about one's health can be done by providing health education. This study aims to analyze the effect of health education on knowledge of PCV immunization, pentabio and multi-injection immunization and acceptance of multi-injection immunization in respondents. **Methods:** This study used pre-experimental design with a one group pretest-posttest. The number of samples was 40 respondents with sampling techniques used purposive sampling. The independent variable was health education which was given once with lecture method. The dependent variable was knowledge and acceptance of multi-injection immunization. The instrument used was a questionnaire. Data analysis used Wilcoxon signed rank test and Mc Nemar test. **Results:** After providing education showed that the knowledge of respondents in the good category increased from 25% to 95%, in the sufficient category 5% and there were no respondents in the poor category. Acceptance of multiple immunization injections after providing education showed that respondents receiving multiple immunization injections increased from 30% to 97.5%. Wilcoxon signed rank test results $p = \leq 0.01$ and Mc nemar test results $p = \leq 0.01$, indicating significant effect of pneumococcal conjugated vaccine, pentabio, and multi-injection immunization education on knowledge and acceptance of multi-injection immunization. **Conclusion:** There is an effect of providing education on pneumococcal conjugated vaccine, pentabio, and multi-injection immunization on knowledge and acceptance of multi-injection immunization

keyword : Health education , Multi-injection acceptance, PCV immunization, Pentabio Immunization

INTRODUCTION

DOI: 10.20473/imhsj.v8i3.2024.220-229

Pneumonia remains a leading cause of morbidity and mortality among children under 5 years of age worldwide. Currently, respiratory viruses are recognized as the main causative agents. Hypoxemia (oxygen saturation ≤96%) and increased work of breathing are the signs most associated with pneumonia (Nascimento-Carvalho, 2020). The PIDS/IDSA guidelines state that infants and young children have the highest risk of exposure to pneumonia (Dean and Florin, 2018).

According to the United Nations International Children's Emergency Fund (UNICEF, 2019), pneumonia claimed the lives of more than 800,000 children under five worldwide in 2018. According to WHO (2022), there are an estimated 5.5 million cases of pneumonia in the world. According to Health Profile Data (2021), the provinces with the highest coverage of pneumonia among under-fives were East Java (50%), Banten (46.2%), and Lampung (40.6%). Pneumonia coverage in Blitar is 40% which is still below the national target of 65%.

Indonesia has committed in international forums to pneumonia control efforts by increasing immunization efforts, improving access to health services in controlling pneumonia, especially in children under five years of age. Comprehensive pneumonia coverage and interventions as well as expanding pneumonia treatment, namely Pneumonia Conjugated Vaccine (PCV) immunization in all provinces in Indonesia (Kemenkes RI, 2020).

PCV immunization is given for the first time at the age of two months which is also the same time as pentabio immunization. The World Health Organization (WHO) recommends that to balance the need to protect children from bacteria and viruses, injectable vaccines can be given simultaneously, especially pentabio vaccine and pneumococcal conjugate vaccine (PCV). South Africa showed that 5 years after the implementation of an immunization schedule with multiple injections at one immunization visit 97% of caregivers were satisfied (Dolan et al., 2017). The low achievement of multi-injection immunization coverage in Indonesia is influenced by several factors, one of which is knowledge (Pratiwi, Sriatmi and Agushybaha, 2022).

Based on the results of a preliminary study conducted at the Talun Community Health Center in Blitar Regency on pregnant women in the 3rd

trimester and mothers who have babies aged 0-2 months, it was found that 71% of mothers did not know about the existence of multiple immunization injections between pcv and pentabio. From the results of interviews with midwives at the Talun Puskesmas, it was found that some mothers did not agree to give multiple injections of PCV and pentabio immunization so that immunization was given at different times with a one-month gap. Based on this phenomenon, it is important to conduct research to determine the effect of providing PCV, pentabio, and multi-injection immunization education on knowledge and acceptance of multi-injection immunization at the Talun Puskesmas, Blitar Regency.

METHOD

The sample size was determined using the formula compare two proportions (paired before-after) to distinguish the effect before and after treatment resulting in a minimum of 30 respondents, in this case the researcher used 40 respondents. The inclusion criteria in this research were pregnant women in the 3rd trimester, mothers who had babies aged 0-2 months and were willing to become respondents while the exclusion criteria in this research were mothers in intensive care, mothers of babies in a state of chronic disease/congenital abnormalities and mothers of babies with contraindications to pentabio administration (critical babies, seizures, and early stage whooping coug). The sampling technique used is purposive sampling, which uses certain considerations in accordance with the desired criteria to determine the number of samples to be research. The independent variable was health education which was given once with lecture method. The dependent variable was knowledge and acceptance of multi-injection immunization. The instrument used was a questionnaire. The validity test on the questionnaire obtained a value of r count greater than r table so that the instrument is considered valid. The reliability test uses Cronbach's alpha with values ranging from 0.916, which indicates high reliability. The data analysis of this study was carried out using statistical analysis of paired data comparison test Wilcoxon Sign Rank Test to determine the difference between two groups of ordinal scale paired data and Mc Nemar to determine the difference between two groups of nominal scale paired data with the help of IBM

SPSS Statistics 25 application. In this research, an ethical review test was carried out at the Faculty of Medicine, Airlangga University.

RESULT AND DISCUSSION

The results of the research are presented in tables, frequency distribution of respondents' characteristics in Table 1, Analysis of the Effect of Providing Education on Respondents' Knowledge in Table 2, and Analysis of Providing Education on Acceptance of Multiple Injection Immunization Respondents in Table 3.

Table 1. Frequency Distribution of Respondent Characteristics

Respondent characteristics	Frequency	Percentage (%)
Age		
21-30	22	55
31-40	15	37,5
>40	3	7,5
Employment status		
Employed	7	82,5
Not Employed	33	17,5
Education level		
Elementary school	2	5
Junior high school	11	27,5
Senior high school	19	47,5
D3	2	5
S1	6	15
Experience		
Received Information		
Yes	11	27,5
No	29	72,5

Based on the characteristics of age, the majority of respondents were aged 21-30 years as many as 22 respondents or 55%. Age 21-30 years is a healthy reproductive age. This is in accordance with the theory which states that age has an influence on a person's mindset and capacity to catch. The increasing age of a person's maturity level is more mature in thinking and working. There is an adult age range of better knowledge and until the limit of old age someone will tend to have decreased knowledge (Dewi, 2020 in Wijayanti, 2023).

In terms of employment status, the majority of respondents did not work as many as 33 respondents (82.5%). This is in accordance with the theory which states that work is an activity that must be carried out to support his life and the life of his family (Dewi, 2020 in Wijayanti, 2023). The work environment can provide

information to a person either directly or indirectly (Budiman 2013, in Widyandini et al., 2022).

Based on the last educational level characteristic, the majority are high school as many as 19 respondents or 47.5%. The theory conveyed by (Wati 2013 in Pendit, Astika and Supriyatna, 2019) the higher a person's education, the easier it is to receive information and vice versa, lack of education will hinder the development of a person's attitude. Education can influence a person in making decisions and acting (Mulyana, 2006 in Pendit et al, 2019).

Regarding the characteristics of respondents based on the experience of received information about PCV immunization, pentabio, and multi-injection immunization, the majority were not as many as 29 respondents or 72.5%. According to the theory that states a person's experience of something he has experienced can affect a person's level of knowledge (Budiman, 2013 in Widyandini et al., 2022).

Table 2. Analysis of the Effect of Providing Education on Respondents' Knowledge

Knowledge	Pre Test		Post Test		p value
	Frequency	Percentage	Frequency	Percentage	
Less	18	45	0	0	≤0.01
Enough	12	30	2	5	
Good	10	25	38	95	
Sum	40	100	40	100	

Based on table 2, before being given health education, the majority of respondents had less knowledge, namely 18 respondents (45%), enough knowledge as many as 12 respondents (30%), and good knowledge as many as 10 respondents (25%). Then after being given health education the majority of respondents had good knowledge as many as 38 respondents (95%), enough knowledge as many as 2 respondents (5%) and no respondents who had less knowledge.

Based on the results of the Wilcoxon test analysis, it shows the effect of providing health education on knowledge with p value of ≤0.01. These results are in line with research conducted by Indriani, Natalia and Sari (2022) with the title Effect of Health Education on the Level of Knowledge about Polio and Pentabio Immunization in Mothers Who Have Children (Age 0-6 Months) at UPTD Puskesmas Kayon Palangka Raya. In this research, the results of statistical tests

using the Wilcoxon test obtained a p value of 0.003, which is less than the value of 0.05, this showing the effect of health education on knowledge.

Other research that supported was research conducted by Widyandini et al., (2022) with the title Analysis of the Effect of Health Education on the Importance of Immunization in Infants on the Level of Knowledge and Attitudes of Mothers. The results obtained p value is 0.002 which means less than the value of 0.05 so it can be concluded that there is an effect of health education on the importance of immunization in infants on the level of maternal knowledge.

Research that also supports the results of this study is research conducted by Dayani and Tafwidhah (2018) with the title Effectiveness of Health Education on Knowledge and Compliance of Mothers in Providing Basic Immunization to Infants 0-11 Months of Age in the South Pontianak Pratama. The results obtained the results of p velue 0.01, meaning that there is an effect of education on maternal knowledge.

Table 3. Analysis of Providing Education on Acceptance of Multiple Injection Immunization Respondents

Acceptance	Pre Test		Post Test		p value
	Frequency	Percentage	Frequency	Percentage	
Refuse	28	70	1	97,5	≤0.01
Receive	12	30	39	2,5	
Sum	40	100	40	100	

Based on table 3 before being given health education, the majority of respondents refused multiple immunization injections, namely 28 respondents (70%) while respondents who received multiple immunization injections were 12 respondents (30%). After being given health education, the majority of respondents accepted multiple immunization injections as many as 39 respondents (97.5%) while 1 respondent (2.5%) refused multiple immunization injections. So that there is an increase in acceptance of multiple immunization injections after providing health education.

The results of the Mc Nemar test analysis show the effect of providing health education on the acceptance of multiple immunization injections with a p value ≤0.01. This is in line with research conducted by Simanjuntak and Nurnisa (2019) with the title Improving Maternal Knowledge and Attitudes About Immunization with a Health Promotion Approach to Basic Immunization. In this

study obtained p ≤0.01value meaning that there is an effect of providing health education on maternal attitudes.

Another research that is in line is a research conducted by Hidayati, Ekasari and Zakiyyah (2023) entitled The Effect of DPT Immunization Health Education on Maternal Attitudes in Providing Immunization in Kalidilem Village, Randuagung District, Lumajang Regency. From the statistical test, the p ≤0.01 value is obtained, which means that there is an effect of health education on maternal attitudes the effect of providing health education on maternal attitudes. Health education has a significant influence on maternal attitudes in immunization immunization in Kalidilem Village, Randuagung District, Lumajang Regency. Lumajang district.

Another study conducted by Defilza, Neherta and Deswita (2021) entitled The Effect of Health Education with Whatsapp on DPT (Diphtheria, Pertussis and Tetanus) Immunization and KIPI (Post-Immunization Adverse Events) on Mother's Knowledge and Attitudes found a significant effect on attitudes in the intervention group given health education with a p value of 0.000. Attitude here is a response that shows acceptance or rejection of a stimulus or object in this case the mother has an attitude that supports or receives to immunize her child.

CONCLUSION AND SUGGESTION

The data showed that there was an effect of health education on knowledge and acceptance of multiple immunization injections in respondents. Future researchers are expected to be able to conduct similar research by using a research design that compares two groups, namely with a treatment group and a control group. In addition, it can also consider the type of learning media used in research such as videos because they are more interactive. It is expected that health center officers need to improve services and counseling, especially regarding PCV immunization, pentabio and multi-injection immunization so that with increasing maternal knowledge. It is expected that community leaders will be more involved in supporting counseling activities regarding PCV immunization, pentabio and multi-injection immunization in mothers, starting with providing information and working together with health workers.

DECLARATION

Conflict of Interest

Author declare there is no conflict of interest in this research.

Authors' Contribution

All author contribute from concept until writing draff article.

Ethical Approval

Research Ethics Committee of Faculty o Medicine, Universitas Airlangga.

No. 163/EC/KEPK/FKUA/2023

Funding Source

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Data Availability

The data supporting this research are available from the authors on reasonable request

Acknowledgements

The authors thank the participants who volunteered to give all the relevant information for the study.

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