

The Relationship between Maternal Knowledge, Attitude, and Action with Children's Basic Immunization Status at Permata Depok Hospital

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Abstrak

Salah satu penyebab kematian bayi adalah penyakit infeksi yang dapat dicegah dengan pemberian imunisasi atau disebut juga PD3I (penyakit yang dapat dicegah dengan imunisasi). Ketiga domain perilaku yaitu pengetahuan, sikap, dan tindakan berperan besar bagi ibu dalam melengkapi status imunisasi anaknya agar terpenuhinya cakupan imunisasi minimal 80%, mengacu pada standar Universal Child Immunization (UCI). Keberhasilan dalam pemenuhan cakupan imunisasi diyakini dapat membantu mencapai tingkat kesehatan masyarakat yang setinggi-tingginya. Penelitian ini bertujuan untuk mengetahui hubungan pengetahuan, sikap, dan tindakan ibu tentang imunisasi dasar dengan status imunisasi dasar anak di RS Permata Depok pada tahun 2023. Jenis penelitian ini survey analitik dengan pendekatan *cross sectional*. Populasi penelitian adalah ibu dari pasien anak batita RS Permata Depok yang berkunjung pada hari tersebut dan memenuhi kriteria inklusi. Teknik pengambilan sampel *consecutive sampling*. Besaran sampel dalam penelitian ini adalah 52 peserta. Analisis data bivariat menggunakan uji statistik *Chi-Square* dengan tingkat kepercayaan 95% ($\alpha=5\%$). Berdasarkan hasil penelitian didapatkan bahwa terdapat hubungan yang bermakna antara tingkat pengetahuan ibu dengan status imunisasi dasar anak, ada hubungan yang bermakna antara tingkat sikap ibu dengan status imunisasi dasar anak, serta ada hubungan yang bermakna antara tingkat tindakan ibu dengan status imunisasi dasar anak.

Kata Kunci : *imunisasi dasar; pengetahuan; sikap; tindakan; Universal Child Immunization; anak*

Abstract

One of the common causes of infant death is infectious diseases which can be prevented by immunization also called PD3I (diseases that can be prevented by immunization). The three domains of behavior knowledge, attitude, and action, play a big role in mothers completing their child's immunization status to fulfill immunization coverage by a minimum of 80%, according to the *Universal Child Immunization (UCI)* standards. Successful immunization coverage is believed to help achieve the highest level of public health. The purpose of this research is to identify the relationship between maternal knowledge, attitude, and action toward basic immunization and the basic immunization status of children at Permata Depok Hospital in 2023 for further improvement of immunization coverage and reduce infant mortality rates. This research is an analytical survey with a cross-sectional approach. The research population was mothers of toddler patients at Permata Depok Hospital who visited on the recruitment day and met the inclusion criteria using consecutive sampling techniques. The sample size in this study was 52 participants. The Chi-Square statistical test was used in bivariate data analysis with a confidence level of 95% ($\alpha=5\%$). Based on the research results, it was found that there was a significant relationship between maternal knowledge and the child's basic immunization status ($p=0,010$), there is a significant relationship between the maternal attitude and the child's basic immunization status ($p=0,006$), there is also a significant relationship between the maternal action regarding basic immunization and the child's basic immunization status ($p=,0001$).

Keyword: *actions; attitude; basic immunization; Universal Child Immunization; children*

Introduction

Children's health is one of the global health concerns in Indonesia (1). PD3I (diseases that can be prevented by immunization) was known to be one of the most common causes of infant death. But if many children are vaccinated, and the immunization coverage is high, then children who are

not yet vaccinated have a chance to still be protected, this is called herd immunity (2). Therefore, attempts to fulfill immunization coverage must be considered and prioritized. Currently in Indonesia, the fulfillment of immunization for children are regulated in the 2017 Indonesian Minister of Health Regulation with immunization programs provided by local health facilities as promotive and preventive efforts to achieve the highest level of public health (3).

It was recorded in the Depok City Population and Civil Registration Department that in 2020 the number of babies in Sawangan District was 814 babies, of which only 597 babies had complete basic immunization status (4). This means that immunization coverage in Sawangan District Depok City only reached 73.3% in 2020 according to Sawangan Community Health Center data, while immunization is considered successful according to the World Health Organization (WHO) if at least 80% of the total population of babies are vaccinated to develop adequate immunity or based on Universal Child Immunization (UCI) standards (5). This figure is considered to be one of the impacts that occurred in the health sector during the COVID-19 pandemic, one of which was a decrease in immunization services (6). This low coverage will increase the risk of the emergence of Extraordinary Events (KLB) such as outbreaks of measles, diphtheria, rubella, polio, and other infectious diseases (7).

According to the concept by H.L. Blum health status is influenced by behavioral factors, which consist of the domains of knowledge, attitudes, and actions (8). Therefore, after post-pandemic recovery, an improvement in immunization services were expected from the mother's behavioral change on awareness and compliance towards the implementation of basic infant immunization. It is proven in the 2022 Depok City health profile data that Depok City's immunization coverage has increased to 98.41% from 79.37%. However, Sawangan District has not yet reached the UCI standard immunization coverage and so it is not yet possible to expect herd immunity among Sawangan District children (9).

Methods

This research is an analytical survey using a cross-sectional approach design with consecutive sampling techniques. The independent variable studied was the maternal knowledge, attitudes, and actions regarding basic immunization and the dependent variable studied was the child's basic immunization status. The sampling size was 52 participants who were mothers of toddler patients (aged 13-35 months) in Permata Depok Hospital and were willing to take part in the research. Mothers who don't own the KIA book were excluded from the research.

Primary data was obtained from a 62-question questionnaire with 25 questions on the topics of knowledge, 19 questions on attitudes, and 18 questions on actions towards basic infant

immunization programs. The Guttman scale with categories of good ($\geq 80\%$), adequate, and poor ($\leq 60\%$) was used to evaluate the results of the questionnaires (10). Secondary data regarding the completeness of children's basic immunization status was obtained from the KIA book brought by each participant. The assessment is complete if all basic immunizations are met within the first year (according to schedule) and it is incomplete if the basic immunizations within the first year were not yet fulfilled. Univariate analysis was carried out to determine the characteristics of the participants and each participant's level of knowledge, attitude, and action as well as the child's basic immunization status. Bivariate analysis is used to determine the relationship between the independent variable and the dependent variable using the Pearson Chi-square Test or using Mann-Whitney Test with a confidence level of 95% ($\alpha=5\%$).

Research Results

The total study population was 52 participants who met the inclusion criteria out of a total of 63 participants present on the day of the study. The research results are presented using univariate analysis to describe the characteristics (Table 1) and distribution of participants based on the three independent variables from the study (Table 2), then bivariate analysis to present data on the relationship between each independent variable and the dependent variable studied (Table 4,5,6).

Table 1 Participant Characteristics

Characteristics	Frequency (n = 52)	Percentage %
Age		
17-25 years old	10	19,2%
26-35 years old	29	55,7%
36-45 years old	13	25%
46-65 years old	0	0%
Level of Education		
Very High Level of Education	20	38,46%
Higher Level of Education	28	53,8%
Medium Level of Education	1	1,9%
Lower Level of Education	0	0%
Others	3	5,7%

Table 1 shows that the age distribution of the largest participants was in the early adulthood category (55.7%) and the educational level of the highest participants was in the higher education group category (53.8%).

Table 2. Univariate Analysis of Participants Based on Level of Knowledge, Attitude, and Action

Behavior level	Frequency (n=52)	Percentage %
Knowledge level		
Good Knowledge	32	61,5%
Adequate Knowledge	8	15,4%
Poor Knowledge	12	23,1%
Attitude Level		
Good Attitude	41	78,8%
Adequate Attitude	3	5,8%
Poor Attitude	8	15,4%
Action Level		
Good Action	18	34,6%
Adequate Action	11	21,2%
Poor Action	23	44,2%

In Table 2, most of the participant's maternal knowledge of basic immunization was in the good knowledge category (61.5%), the highest attitude level was in the good attitude category (78.8%), and most of the participant's action level was in the poor action category (44.2%). The participant's poor action levels are also reflected in the data from Table 3, which found that although most of the participant's children have complete basic immunization status (59.6%) it has not yet achieved the UCI.

Table 3. Univariate Analysis of Participants Based on Children's Basic Immunization Status

Child's Basic Immunization Status	Frequency (n=52)	Percentage %
Complete Basic Immunization	31	59,6%
Incomplete Basic Immunization	21	40,3%

Table 4. Bivariate Analysis Between Maternal Knowledge, Attitude, and Action with Child's Basic Immunization Status

Child's Basic Immunization Status	Level of Variables						Total		p-Value
	Good		Adequate		Poor		N	%	
	N	%	N	%	N	%			
Relationship Between Maternal Knowledge with Child's Basic Immunization Status									
Incomplete	9	42,9	3	14,3	9	42,9	21	40,3	0,010
Complete	23	74,2	5	16,1	3	9,7	31	59,6	
Relationship Between Maternal Attitude with Child's Basic Immunization Status									
Incomplete	9	42,9	3	14,3	9	42,9	21	40,3	0,006
Complete	23	74,2	5	16,1	3	9,7	31	59,6	
Relationship Between Maternal Action with Child's Basic Immunization Status									
Incomplete	2	9,5	3	14,3	16	76,2	21	40,3	0,0001
Complete	16	51,6	8	25,8	7	22,6	31	59,6	

In both of these studies, we used the Mann-Whitney Test, because the data does not meet the requirements for the Pearson Chi-Square Test and it is determined that there is a significant relationship between maternal knowledge and the child's basic immunization status ($p=0,010$). We also found a significant relationship between the variable level of maternal attitude and the child's basic immunization status at Permata Depok Hospital in 2023 ($p=0,006$)

The third category in Table 6 shows the results of the Pearson Chi-Square test on the variable level of maternal action and the child's basic immunization status. We found a significant relationship between the level of maternal action and the child's basic immunization status at Permata Depok Hospital in 2023 ($p\text{-value} = 0.0001$).

Table 5. Multivariate Analysis Between Maternal Knowledge, Attitude, and Action with Child's Basic Immunization Status

Independent Variables	Sig.	OR	95% CI for OR	
			Lower	Upper
Basic Model of Multivariate Analysis				
Maternal Knowledge	0,875	1.082	0,403	2.905
Maternal Attitude	0,098	0,367	0,112	1.202
Maternal Action	0,025	0,338	0,131	0,871
Final Model of Multivariate Analysis				
Maternal Attitude	0,091	0,379	0,123	1.167
Maternal Action	0,014	0,350	0,151	0,811

From Table 5, the variable with the most influence on the completeness of children's basic immunization status is maternal action (OR=0,350), followed by maternal attitude (OR=0,379) as the confounding variable. Maternal knowledge was eliminated from multivariate analysis because the p-value obtained was <0.05 and after the confounding test was carried out, there was no change in the OR of more than 20%, so it can be defined that the maternal knowledge was not a confounding variable.

Table 6. Hosmer and Lemshow Test, Nagelkerke R Square, and Overall Percentage

Sig	Nagelkerke R Square	Overall Percentage
0,166	0,387	59,6

A regression equation quality assessment was carried out to determine whether the regression test is feasible or well-calibrated ($p > 0,05$). Nagelkerke R Square of 0.387 which means that the dependent variable can be influenced by the independent variable by 38.7% while the remaining 61.3% is influenced by other factors not studied. The overall Percentage shows that the logistic regression model used can estimate 59.6% of the completeness of the basic immunization status of children at Permata Depok Hospital in 2023.

Discussion

This research showed that there is a significant relationship between the three independent variables studied, namely maternal knowledge, attitude, and action with their child's basic immunization status as the dependent variable studied with the most influence from the maternal

action variable. It was determined from this research that most participants have completed their child's basic immunization so the immunization coverage rate in Permata Depok Hospital's patients from the year 2021-2022 was 59,6%. However, this figure has not yet reached the minimum Universal Child Immunization (UCI) standard by the World Health Organization (WHO) of 80% (5).

Maternal characteristics considered to be associated with child immunization status include age, education, occupation, and economic status (11). The majority of the participants were in the early adulthood category with high levels of education, therefore, this research showed that participants also have good knowledge and a good attitude towards basic immunization. Knowledge generally comes from experience and is obtained from information conveyed by parents, teachers, local health workers, newspapers, and other media (12). Knowledge level and economic status is proven to affect the completeness of a child's immunization (13). Mothers with excellent knowledge show better immunization coverage than mothers with poor level of knowledge (14). These results are in line with research conducted in Ciriung Village year 2019 which stated there is a significant relationship between maternal knowledge and the completeness of children's basic immunizations, with majority of 92,6% participants have good knowledge and the immunization coverage determined was 94,7%. The successful immunization coverage happens because most children were given immunization at Posyandu Ciriung which was free of charge and was not far from their home, also mothers were mostly housewives so they had a lot of time and attention for their children including providing complete immunizations (15). In our study, most of the children also got vaccinated in Posyandu, with mostly good maternal knowledge, however, we did not get the high immunization coverage compared to the previous study, therefore it was determined that maternal knowledge as the variable with the smallest influence towards the dependent variable. This result is comparable to the study in Lahat District where maternal knowledge was also the least influential (16).

Attitudes occur due to stimuli such as knowledge, that stimulate people to respond in the form of positive or negative attitudes which will be applied in life, and so most people behave based on the knowledge they have (17). The majority of participants had good knowledge in this study, hence it was also shown that they have a good level of attitude. The study in Wonokusumo Village year 2018 showed that most participant had adequate to good attitude with good action towards basic immunization, and mothers who have good attitude are 3.33 times more likely to provide immunization than mothers who have poor attitude towards immunization (11).

Alternatively, this research found that most participants have poor actions towards basic immunization which might be a reflection of the low immunization coverage figure in Permata

Depok Hospital year 2023, therefore it was also determined that maternal action has the greatest influence on the completeness of a child's basic immunization status. This research yields a different conclusion from the study in Sampang District year 2014 with the maternal attitude as the most influential variable (OR=0,050) (18). Also the study in Sukolilo Village with knowledge and spouse's support following the maternal attitude variable (22).

An attitude is not automatically manifested in action, for an attitude to be realized in actions, supporting factors or enabling conditions are needed, such as local facilities, personal beliefs, and support from other parties in the neighborhood or family (19). One of the most dominant factors in maternal compliance is family support (22). Most participants in this research who had poor actions and did not complete their child's immunization stated that they were scared of the side effects of immunization and some of them missed their children's immunization schedule because of a lack of costs, time, and low of perception susceptibility so that mothers think their children are healthy even without immunizations. These results are comparable to the study in Cipicung Village year 2021 where it was determined that the participants who did not complete their children's basic immunization status mostly had a wrong perception of the vulnerability and severity of unimmunized children and a wrong perceived benefits of basic immunization for their children (20). Most participants in that study stated that they were lazy and refused to vaccinate their children because of time constraints from working hours, transportation cost for the distance they have to travel through, and their children was coincidentally sick on the scheduled immunization date. A study in Umban Sari Villlage year 2017 stated that issues about fake vaccines are another factor that has a significant relationship with the low immunization coverage in the area (21).

To conclude, our study showed good results for knowledge, good attitude, and favorable subject characteristics, but it still showed poor action and a low immunization coverage rate. It is comparable with the study in Sukolilo Village where participants who did not attend the scheduled immunization day mostly had a high level of education and were in the early adulthood age. This discrepancy is because even in formal education, someone does not necessarily receive or not everyone is exposed to information about immunization, likewise, age doesn't always affect someone's behavior dominantly. However, unlike the subjects in our study, their subjects have mostly poor knowledge and attitude. They also have poor reinforcing factors such as supports from the neighborhood, husbands, and exposure to information (22). Further research might be needed to provide more data explaining the discrepancy between action and immunization status such as data on participant's occupation, economic status, source of information, Posyandu distance from their home, availability of transportation, the quality of immunization and health services provided in the area at that time, and other family member's support.

Conclusions and Suggestions

Based on the research results above, it can be concluded that there is a significant relationship between the level of knowledge, attitude, and actions of participants regarding basic immunization and the basic immunization status of children born at Permata Depok Hospital. However, this research also proves that basic immunization coverage for children born at Permata Depok Hospital is still at 59.6% and has not yet reached the Universal Child Immunization (UCI) standard. Therefore, it is recommended that Permata Depok Hospital implement a series of mandatory education as well as schedule mandatory periodic control within the first year after birth, as well as optimize print media promotion. It is also necessary to optimize partnership cooperation in the form of routine and appropriate community service to Posyandu and Community Health Centers around the working area of Sawangan District. This collaboration involves the Depok City Health Service to provide direction and emphasis on optimizing immunization services, especially promotive and preventive efforts to the people of Sawangan District so they can increase the immunization coverage rate to reach the Universal Child Immunization (UCI) standard. For further research it is also needed to investigate enabling and reinforcing factors other than predisposing maternal factors discussed in this study.

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