

RELATIONSHIP BETWEEN EDUCATION LEVEL AND MATERNAL TIME AVAILABILITY WITH COMPLETENESS OF BASIC IMMUNIZATION DURING THE COVID-19 PANDEMIC IN SUKOHARJO

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Abstract

Background: Immunization is an attempt to generate immunity against a particular disease so that when exposed to disease, the body will not get sick or if sick only in mild conditions. This study aimed to determine the relationship between education level and time availability with the completeness of basic immunization during the COVID-19 pandemic in Sukoharjo Regency, Indonesia. **Methods:** This type of research is analytic observational with a sample of 100 mothers with children aged 0-20 months in Sukoharjo Regency. The research sample was collected through a non-probability sampling technique with quota sampling. Data were collected using questionnaires and MCH handbook in April–October 2021. Data analysis was carried out using the Chi-square test. **Results:** The research findings showed that the proportion of children who received complete basic immunization was 66%. The results of the bivariate analysis of basic immunization completeness with education level obtained p-value = 0.001 ($p < 0.05$) and time availability obtained p-value = 0.004 ($p < 0.05$). **Conclusion:** Based on the analysis results, it can be concluded that there is a relationship between the level of education and the availability of time with the completeness of basic immunization during the COVID-19 pandemic in Sukoharjo Regency.

Keywords: basic immunization; education; time availability

1. Introduction

Immunization is an attempt to generate immunity against a particular disease so that when exposed to an infection, the body will not get sick or if sick only in mild conditions [1]. Currently, immunization has helped prevent 2-3 million deaths annually caused by diphtheria, pertussis, tetanus, measles and influenza [2]. The government requires the implementation of complete basic immunization for every child as stipulated in the Regulation of the Minister of Health no. 12 Year 2017 [3]. Diseases that can be prevented through immunization include tuberculosis, diphtheria, tetanus, hepatitis B, pertussis, measles, rubella, polio, inflammation of the brain's lining, and pneumonia [1].

The emergence of the COVID-19 pandemic in Indonesia since March 2020 has changed all challenges and aspects of life. In the health sector, services are focused on preventing and handling COVID-19 so that other health services such as maternal and child health, including immunization for children, are disrupted [4][5]. The survey in 2020 stated that as many as 23 million children lost immunization opportunities, 60% of them came from 10 countries, one of which was Indonesia [6]. Likewise, data on the analysis of immunization coverage in Indonesia showed a decrease of 0.5% - 87% in the period January–April 2020 compared to 2019 [7]. Of course, this will risk extraordinary events (KLB) caused by diseases that can be prevented by immunization (PD3I) [8].

The importance of immunization can be seen from the number of reductions in lifting and even the absence of cases of PD3I such as smallpox, polio and tetanus [9]. However, if you look at the data presented in the health profile of the province of Central Java in 2019, it is found that the number of suspected PD3I suspects is still quite high above the minimum standard. The profile also shows that the highest prevalence of suspected measles cases is in Sukoharjo Regency, with 385 cases [1].

Looking at the immunization coverage figures according to pocketbook for the first quarter of 2021, there is a significant difference between the target for complete basic immunization coverage in Central Java and Sukoharjo Regency during the COVID-19 pandemic. At 0-7 days, HB immunization coverage in Central Java was 18.7% with a target of 23.7%, in Sukoharjo 16.4%. BCG immunization coverage in Central Java was 18.7% with a target of 23.7%, in Sukoharjo 15.7%,

DPT-HB-HIB 3 immunization coverage in Central Java was 18.2% with a target of 23.7%, in Sukoharjo 16.9%, Polio immunization coverage in Central Java was 17.8% with Sukoharjo 16.9%, and the Measles-Rubella immunization coverage in Central Java was 11.9% with a target of 23.75%, in Sukoharjo it was 19.5% so that a red graph of the Sukoharjo area immunization coverage was obtained.

Education, in general, is all efforts that are planned to influence other people, whether individuals, groups or communities, so that they do what is expected to be long lasting and permanent, because it is based on awareness. . Education level is known to have a significant effect on complete basic immunization coverage [10]. Higher education mothers will have increased knowledge and understanding about their children's health services, including basic immunization.

Time availability is closely related to people's opportunities to visit health facilities [11]. In the case of immunization, the availability of time for mothers to deliver their children's immunizations is an essential factor in influencing the completeness of their children's basic immunizations. Mothers who are busy with their work think more about work, so they don't have time to immunise their children [12]. Therefore, this study aims to determine the relationship between the level of education and the availability of mother's time with the completeness of basic immunization during the COVID-19 pandemic in Sukoharjo Regency, Indonesia.

2. Methods

This type of research is an observational analytic study with a cross-sectional design that uses primary data obtained through questionnaires and secondary data through the MCH handbook. This research was conducted in April – October 2021 in the Sukoharjo Regency, Indonesia. This research was approved by the research ethics committee of Faculty of Medicine, Universitas Airlangga (No.189/EC/KEPK/FKUA/2021).

The sampling technique used non-probability sampling with quota sampling. The sample used in this study amounted to 100 respondents. Inclusion criteria are mothers who have children aged 0-20 months, have an MCH handbook, are domiciled in Sukoharjo Regency, mothers who are not illiterate and are willing to be research respondents. The data were analysed statistically using Chi-square. Analysis was used to determine the relationship between education level and availability of time with the completeness of basic immunization. The value used as a benchmark for the relationship between the two variables is p-value < 0.05.

3. Results

The research was conducted in the district of Sukoharjo, Indonesia. In this study, 100 respondents had children aged 0-20 months. Data were obtained through research questionnaires and the MCH handbook for April – October 2021.

Univariate Analysis

Characteristics Associated with Basic immunization

Table 1. Characteristics Related to Completeness of Basic Immunization During a Pandemic in Sukoharjo.

No	Variable	Frequency (f)	Percentage (%)
1	Education		
	a. Low	45	45
	b. High	55	55
2	Knowledge		
	a. Less	32	32
	b. Enough	68	68
3	Attitude		
	a. Negative	37	37
	b. Positive	63	63
4	Place Availability		
	a. Far	18	18
	b. Near	82	82
5	Cost Availability		
	a. Expensive	76	76
	b. Cheap	24	24
6	Time Availability		
	a. Not Available	2	2
	b. Available	98	98
7	Husband Support		
	a. Doesn't Support	12	12
	b. Support	88	88

8	Family Support		
	a. Doesn't Support	13	13
	b. Support	87	87
9	Health Workers Support		
	a. Doesn't Support	51	51
	b. Support	49	49
10	Health Cadres		
	a. Doesn't Support	34	34
	b. Support	66	66
11	Use of MCH handbook		
	a. Not use	18	18
	b. Use	82	82
Total		100	100

Based on table 1, the results show that the majority of mothers with a higher education level are 55 people (55%), maternal knowledge of basic immunization is enough 68 people (68%), positive mother attitudes towards basic immunization during the COVID-19 pandemic 63 people (63%) 82 people (82%), mothers think that immunization costs are expensive 76 people (76%), mothers have the time available to take their children to immunization service places 98 people (98%), mothers who have husbands support immunization as many as 88 people (88%), mothers who have families who support basic immunization as many as 87 people (87%), mothers who feel there is no support from health workers for essential immunization services 51 people (51%), mothers who feel supported from health cadres 66 people (66%). The majority of mothers used the MCH handbook as many as 82 people (82%).

Frequency Distribution of Respondents Based on Immunization Status

Table 2. Distribution of Respondents Based On Completeness of Basic Immunization during the Pandemic Period in Sukoharjo.

Basic immunization Status	Frequency (f)	Percentage (%)
Incomplete	34	34
Complete	66	66
Total	100	100

Based on table 2, the results obtained are that from 100 respondents, most children with complete basic immunization status were 66 people (66%). The minority had incomplete basic immunization status as 34 people (34%).

Bivariate Analysis

Table 3. Relationship Between Education Level and Maternal Time Availability with Completeness of Basic Immunization.

Independent Variables and Categories		Basic immunization				P-value
		Incomplete		Complete		
		F	%	F	%	
Education						
a.	Less	23	51,1	22	48,9	0,001
b.	High	11	20	44	80	
Time Availability						
a.	Not Available	4	100	0	0	0,004
b.	Available	30	31,25	66	68,75	

Based on table 3, it can be seen that the majority of mothers with low education have incomplete immunization status, namely 23 people (51.1%), mothers with high levels of education have complete immunization status, namely 44 people (80%). Meanwhile, all mothers who did not have the time to bring their children to immunize had incomplete child immunization status, namely 4 people (100%), and mothers who had the majority of time available for complete child immunization status as many as 66 people (68.75%). The Chi-square test results showed that the independent variables, namely the level of education and the availability of mother's time, had p values = 0.001 and 0.04 or p-value <0.05.

4. Discussion

- **Relationship between Education Level and Completeness of Basic Immunization**

Based on the study results, it showed that from 100 respondents, the majority of mothers with low levels of education had incomplete basic immunization status as many as 23 people (51.1%). In contrast, mothers with higher education had complete basic immunization status as many as 44 people (80%). The results of the Chi-square test obtained $p\text{-value} = 0.001$ ($p\text{-value} < 0.05$). This means a relationship between the mother's education level and the completeness of the child's basic immunization.

The results of this study are in line with research by Rambe & Zai (2019), with the title "Relationship Between Mother's Level of Formal Education and Infant's Basic immunization Status in the Lolofitu Moi Health Center area", which states that there is a relationship between the mother's formal education level and the completeness of the infant's basic immunization status [13]. Likewise, in his research, Simatupang (2020) said a significant relationship between a mother's education and the completeness status of basic immunization in children with a $p\text{-value} = 0.004$ [14].

The level of education that a person gets from formal school can affect a person's knowledge. Education is essential in influencing a person's ability to think, digest and understand a problem. In the context of health, education can help a mother or a group of people in addition to increasing knowledge as well as increasing awareness of mothers to immunize their children, of course, this awareness will have a significant impact on the completeness of basic immunizations for children [15].

Based on the study results and the theoretical description above, according to the researcher's assumptions, the completeness of immunization is influenced by several factors: the mother's level of education. Mothers with a high level of education will affect their knowledge and attitudes to encourage mothers' awareness to provide complete basic immunization.

- **Relationship between Availability of Mother's Time and Completeness of Basic Immunizations**

The study results showed that out of 100 respondents, all mothers who did not have the time to take their children to the immunization service centre had incomplete basic immunization status as many as four people (100%). In contrast, the mothers who had the time available to take their children to the immunization service center were the majority. With complete basic immunization status, as many as 66 people (68.75). The results of the Chi-square test obtained $p\text{-value} = 0.004$ ($p\text{-value} < 0.05$). This means that there is a relationship between the mother's availability to take her child to the immunization service center and the completeness of basic immunization for children.

The results of this study are in line with the research of Edayani & Suryawati (2019), with the title "Barriers to Immunization Coverage in Children in North Aceh Regency", which shows that many factors inhibiting the provision of basic immunization to children are incomplete, one of which is time constraints. [16]. This was also conveyed in Hastuty's research (2020) which showed that mothers who work for a living would reduce the availability of time to pay attention to children, one of which is taking their children to immunization services so that it has a direct impact on the incompleteness of children's basic immunizations [17].

Based on the study results and the description above, the authors assume that time availability is related to the completeness of children's basic immunizations. Time constraints can occur in mothers who have a high workload, one of which is a mother who is also the breadwinner of the family.

5. Conclusion

Based on research conducted on 100 respondents on "The Relationship between Education Level and Maternal Time Availability with Completeness of Basic immunization During the COVID-19 Pandemic in Sukoharjo", it was concluded that the level of education and availability of mother's time had a relationship with the completeness of children's basic immunizations. The story of education has a significant relationship, namely, the higher the education level of a mother, the higher the level of understanding of immunization. It affects mothers' awareness to provide complete basic immunizations for their children. Likewise, with the availability of time for mothers to take their children to immunization services, mothers who have free time will prioritise their children's health to fulfil basic immunization coverage.

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