



Determinant Factors of Immunization Coverage in Toddlers Under 5 Years Old in Banda Aceh, Indonesia: Cross Sectional Study

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Abstract: The aim of this research is to determine the factors related to providing complete basic immunization to toddlers in the working area of the Meuraxa Health Center, Banda Aceh. This research is analytical by design *cross sectional*. The population in this study were all mothers who had toddlers in the working area of the Meuraxa Health Center in 2023, totaling 1860 people and a sample of 95 people. The research was conducted from 7 to 15 June 2023. Data was processed univariate and bivariate. The research results showed that there was a relationship between knowledge (P value = 0.006), there was a relationship between attitudes (P value = 0.000), there was a relationship between health education (P value = 0.003) and there was a relationship between the role of religious leaders (P value = 0.003) with the provision of complete basic immunization in toddlers at Meuraxa Community Health Center, Banda Aceh City in 2023. The Community Health Center can provide routine outreach to the community, especially mothers who have babies, either individually or in groups. Increase the support of religious figures for immunization by involving them in every immunization activity and making religious figures partners in disseminating immunization information

Keywords: Attitudes; Health Education; Knowledge; Religious Leaders

Introduction

Basic Health Research data in 2018 shows that Complete Basic Immunization coverage reached 57.9%, incomplete immunization was 32.9% and 9.2% were not immunized (Risksdas, 2018). Measles is the 10th biggest cause of death in children aged 29 days-4 years based on Risksdas 2007. Measles immunization coverage experienced a decreasing trend during the period 2013 (97.8%), 2015 (92.3%), but the incidence of Extraordinary Events measles showed the opposite, namely a decrease in 2013 (862 cases) and 2015 (831 cases). This phenomenon shows that there is a negative relationship

between measles immunization coverage and the number of measles cases (W. Sari et al., 2019).

Immunization has been proven to prevent and reduce the incidence of illness, disability and death due to diseases that can be prevented by immunization, which is estimated at 2 to 3 million deaths each year. Measles immunization coverage in Indonesia is 84% and is a country in the medium category (W. Sari et al., 2019).

Based on the routine immunization data report for October 2021, complete basic immunization coverage has only reached 58.4% of the target of 79.1%. Over the last 2 years from 2020 – 2021, coverage of complete basic immunization for babies has dropped drastically. In

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2020 the immunization target was 92% while the coverage achieved was 84%, in 2021 the immunization target was 93% but the coverage achieved was 84%. The decrease in immunization coverage was caused by the COVID-19 pandemic. There are more than 1.7 million babies who have not received basic immunization during the 2019-2021 period. Positive cases of measles have actually spread to 34 districts/cities in 17 provinces, then rubella in 44 districts/cities in 17 provinces (Ministry of Health, 2022).

Complete Basic Immunization Coverage in Aceh Province in the last five years has continued to decline, namely for 2017 Aceh's basic immunization coverage was 59.7%, 2018 was 58%, 2019 was 48.9%, 2020 was 42.7% and 2021 was 38.4%. Meanwhile, the national average for complete basic immunization coverage in Aceh is also the lowest, around 11.8% of the national target of 54.6%. For Aceh Province UCI coverage in 2020 was 21.3% and in 2021 it was 25% (Dinas Kesehatan Aceh, 2020).

The low coverage of basic immunization in infants is caused by several factors that influence it. In H.L Blum's theory, factors that can influence health status can be divided into four parts, namely in terms of environment (physical, biological and socio-economic), behavior, genetics and health services. A mother's behavior or attitude in the immunization program is very important because in general the responsibility for caring for children is given to the parents, especially the mother (Lilis, 2019).

Based on the Meuraxa Community Health Center report, it is known that the working area of the Meuraxa Community Health Center consists of 16 villages and there are 89 cadres in the community health center area and the number of toddlers will be around 1860 people in 2022. From the Puskesmas report it is known that in 2020 the number of toddlers will be 1847 people with a percentage of basic immunization as high as 73%, while in 2021 the number of toddlers will be 1856 with the percentage of toddlers who are immunized at 70%. The percentage of basic immunization is still below the national target, namely 83.8%.

Table 1. The Relationship between Knowledge and Providing Basic Immunizations to Toddlers in the Working Area of the Meuraxa Health Center, Banda Aceh City, Year

Knowledge	Providing immunizations				Total	%	P. Value	a
	Complete f	%	Incomplete f	%				
Good	29	64.4	16	35.6	45	100		
Not good	17	34	33	66	50	100	0.006	0.05
Amount	46		49		95	100		

Based on Table 1, it is known that of the 95 respondents studied, the majority of respondents had

Initial interviews with mothers who had toddlers revealed that the mothers did not carry out basic immunizations for their children, the reason was because they were afraid of their children getting sick such as fever, flu and coughs and considered immunizations not important because the children would develop their own immunity later. Meanwhile, mothers of toddlers who are fully immunized carry out basic immunizations for their children, they say that the immunization is to ensure that their children are not exposed to dangerous diseases. The lack of knowledge and willingness of mothers to take their children for immunizations could be due to the lack of role of health workers and cadres in providing education and counseling about basic immunizations to mothers of toddlers. According to these mothers, officers only provide information if there is a posyandu, no one comes to them home for further action.

Method

This research is an analytical survey by design *cross sectional* namely, the independent and dependent variables were studied at the same time to study the factors related to providing complete basic immunization to toddlers in the working area of the Meuraxa Community Health Center in 2023.

The population in this study were all mothers who had toddlers in the working area of the Meuraxa Health Center in 2023, totaling 1860 people. The sample in this study used the Slovin formula and the sample size was 95 people. Sampling is proportional sampling. In this research, sampling used the Random Sampling technique, namely random sampling using the lottery method.

Result and Discussion

Based on the research results, it is known that of the 95 respondents studied, the majority of respondents stated that providing complete basic immunization to their children was incomplete, namely 51.6% (49 people).

poor knowledge about immunization, namely 52.6% (50 people). It can be seen from Table 2 that of the 95

respondents studied, the majority of respondents had a negative attitude towards immunization, namely 54.7% (52 people).

Table 3 shows that of the 95 respondents studied, the majority of respondents stated that there was no

health education about immunization, namely 53.7% (51 people). Based on Table 4, it can be seen that of the 95 respondents studied, the majority of respondents stated that religious figures had no role in immunization, namely 55.8% (53 people).

Table 2. The Relationship between Attitudes and Providing Basic Immunizations to Toddlers in the Working Area of the Meuraxa Community Health Center, Banda Aceh City in 2023

Attitude	Providing immunizations				Total	%	P. Value	a
	Complete f	%	Incomplete f	%				
Positive	38	88.4	5	11.6	43	100		
Negative	8	15.4	44	84.6	52	100	0.000	0.05
Amount	46		49		95	100		

Table 3. Relationship between Health Education and Providing Basic Immunization to Toddlers in the Meuraxa Community Health Center Working Area, Banda Aceh City

Health Education	Providing immunizations				Total	%	P. Value	a
	Complete f	%	Incomplete f	%				
There is	29	65.9	15	34.1	44	100		
There isn't any	17	33.3	34	66.7	51	100	0.003	0.05
Amount	46		49		95	100		

Table 4. The Relationship between the Role of Religious Figures and Providing Basic Immunizations to Toddlers in the Working Area of the Meuraxa Community Health Center, Banda Aceh City

The Role of Religious Figures	Providing immunizations				Total	%	P. Value	a
	Complete f	%	Incomplete f	%				
Play a role	28	66.7	14	33.3	42	100		
Doesn't play a role	18	34	35	66	53	100	0.003	0.05
Amount	46		49		95	100		

Statistical test results *Chi-Square* Table 1. The P value obtained is 0.006, smaller than the α value of 0.05 and this can be interpreted that there is a relationship between knowledge and the provision of complete basic immunization to toddlers in the Meuraxa Health Center Working Area, Banda Aceh City in 2023. From the results of statistical tests *Chi-Square* Table 2. obtained values *P value* of 0.000, smaller than the α value of 0.05 and this can be interpreted as meaning that there is a relationship between attitude and the provision of complete basic immunization to toddlers in the Meuraxa Health Center Working Area, Banda Aceh City in 2023.

Table 3 shows the results of statistical tests *Chi-Square* the P value obtained was 0.003, smaller than the α value of 0.05 and this can be interpreted that there is a relationship between health education and the provision of complete basic immunization to toddlers in the Meuraxa Health Center Working Area, Banda Aceh City in 2023. And Table 4 shows the results of statistical tests *Chi-Square* the P value obtained was 0.003, smaller than the α value of 0.05 and this could mean that there was a relationship between the role of religious figures and the provision of complete basic immunization to toddlers in

the Meuraxa Health Center Working Area, Banda Aceh City in 2023.

Discussion

The Relationship between Knowledge and Providing Basic Immunizations to Toddlers in the Working Area of the Meuraxa Community Health Center, Banda Aceh City in 2023.

From the research that researchers have conducted, it is known that of the 45 respondents who have good knowledge, as many as 64.4% (29 people) provide complete immunization for toddlers and of the 50 respondents who have poor knowledge, only 34% (17 people) do so provide complete immunization to toddlers.

The results of this research are in line with research conducted by Sari (Lilis, 2019), which states that from the analysis results it was found that there was a relationship between knowledge and a p value of 0.009 ($p < 0.05$). Knowledge or cognitive domains are very important for the formation of a person's actions (over behavior) from experience and research. It turns out that behavior based on knowledge is more lasting than

behavior based on knowledge. Knowledge is the result of knowing, and this occurs after people sense a particular object. Sensing occurs through the five human senses, namely the senses of sight, hearing, smell, taste and touch. Most human knowledge is obtained through the eyes and ears (Rachmawati, 2019).

The results of research in the Meuraxa Community Health Center work area show that 52.6% of mothers of toddlers' knowledge is still poor regarding complete basic immunization. From the researchers' interviews with mothers of toddlers, it can be seen that these mothers still do not understand and understand what complete basic immunizations are, and do not know at what age children should be given these immunizations. This is influenced by the lack of information obtained by these mothers both from family, Health cadres and Health officers (Hidayat et al., 2014; Permatasari et al., 2014; Putri, 2019; A. M. Sari et al., 2021).

During the research, there were also mothers who stated that they were afraid to give their children immunizations because they saw experiences of their friends' children who were given immunizations who would get sick. And there were also some respondents who had received wrong information about immunization, they heard that immunization vaccines were haram, especially during the Covid-19 pandemic, the fear of immunizing their children became stronger. They think that if the vaccine for basic immunization in children is the same as the Covid-19 vaccine, then providing basic immunization to children will be incomplete and respondents think that basic immunization is not important for children (Hidayat et al., 2014; Komalasari et al., 2019; Maulana, 2018; Permatasari et al., 2014; Putri, 2019; A. M. Sari et al., 2021; Simanjuntak et al., 2019).

The Relationship between Attitudes and Providing Basic Immunizations to Toddlers in the Working Area of the Meuraxa Community Health Center, Banda Aceh City in 2023.

From the research that researchers have conducted, it is known that of the 43 respondents who had a positive attitude, 88.4% (38 people) provided complete immunization for toddlers and of the 52 respondents who had a negative attitude, only 15.4% (8 people) which provides complete immunization for toddlers. The results of this research are in line with research conducted by Rahmi (2018) which states that there is an influence of attitude on the completeness of basic immunization status in babies with a value of $p = 0.001$. Attitude is a person's reaction or response that is still closed to a stimulus or object. The manifestation of this attitude cannot be seen directly, but can only be interpreted first from closed behavior. Attitude clearly shows the connotation of appropriate reactions to

certain stimuli, which in everyday life is an emotional reaction to social stimuli (Lumbanbatu et al., 2019).

From the results of research conducted by researchers, it is known that the attitudes of respondents in this study include the mother's comfort when the child is immunized, the mother's comfort after the child is immunized, the mother's attitude regarding the effects of immunization, religious views (halal/haram) in providing immunizations. There were around 54.7% of respondents who had a negative attitude towards immunization for toddlers. The results of the interviews showed that respondents who had children with incomplete immunization status were mostly people who believed or thought that immunization was haram/should not be given to toddlers, thought that immunization could cause children to have fevers, and did not agree that immunization was very important for children (Awadh et al., 2014; Tiani et al., 2016).

The factor that influences the number of respondents who have negative attitudes about immunization is low knowledge about immunization. The lower the mother's knowledge about immunization, the greater the contribution to the formation of unfavorable/negative attitudes about immunization. If someone knows the truth about something then they will also have a positive attitude towards that matter, as well as immunization. Attitude is a reaction within a person which is influenced by various factors such as personal experience, culture, religion and emotional factors within the individual which have an important role in forming attitudes (Holipah et al., 2018; Jiao et al., 1999; Yanti et al., 2022).

The Relationship between Health Education and Providing Basic Immunizations to Toddlers in the Working Area of the Meuraxa Community Health Center, Banda Aceh City in 2023.

From the research conducted by researchers, it is known that of the 44 respondents who stated that they were given health education, 65.9% (29 people) provided complete immunization for toddlers and of the 51 respondents who stated that they were not given health education, only 33.3% (17 people) who provide complete immunization to toddlers. The results of this research are in line with research conducted by Harahap et al. (2022) which states that there is an influence of health education on the level of knowledge and attitudes of mothers regarding immunization for babies in the Krueng Luas Community Health Center Working Area, South Aceh Regency. From this research it is also known that things that need to be improved are increasing education to the public about the importance of immunization, the side effects of immunization and the contents of immunization vaccines. This is done in the

hope that there will no longer be an opinion that immunization is not important.

Health education is an activity carried out using learning principles so that people gain changes in knowledge and will, both to achieve the desired living conditions or to find ways to achieve these conditions, individually or collectively. Health education is an increase in knowledge and abilities aimed at changing healthy living behavior in individuals, groups and communities which is provided through learning or instruction (Nurmala et al., 2018). Based on the research results, it was found that 53.7% of respondents stated that no health education had been given to them regarding complete basic immunization. The lack of health education provided can be seen from the mother's lack of knowledge about toddler immunizations, when to give them, what side effects toddlers experience when immunized. This occurs due to the lack of health education provided, which makes mothers take a stance not to provide basic immunizations to toddlers.

From researchers' observations and interviews with respondents in the field, it is known that health education was carried out at the posyandu but the information they received was not much, some respondents even did not remember the material presented. This happened because the respondents only listened to the presentation from the presenter, no material such as brochures or leaflets were provided and during the presentation a video was not shown. According to respondents, if health education was given only through lectures, they would quickly get bored and sleepy so they would prefer not to take part in the education.

Relationship between the Role of Religious Figures and Providing Basic Immunizations to Toddlers in the Working Area of the Meuraxa Community Health Center, Banda Aceh City in 2023.

From the results of research that the author has conducted, it is known that of the 42 respondents who stated that religious figures played a role, 66.7% (28 people) provided complete immunization for toddlers and of the 53 respondents who stated that religious figures had no role, only 34% (18 people) which provides complete immunization for toddlers. The results of this research are in line with research conducted by Putri (2019) which stated that there was a significant relationship between the role of community leaders and providing complete basic immunization with a p value of 0.005.

The success of immunization services requires comprehensive and integrated services that must involve many parties. This requires cooperation and coordination with various parties, including: cross-program, cross-sectoral, social organizations,

professional organizations, community leaders, religious leaders and others. So that immunization services become acceptable services, meet needs and receive community support. So it is necessary to carry out activities such as holding meetings with the community to build support for immunization services, planning appropriate immunization services, mobilizing the community using the right methods and messages, and looking for effective tips to overcome rumors and misinformation about immunization (Putri, 2019). Based on research, it is known that 55.8% of respondents stated that the role of religious leaders in providing basic immunization to toddlers was not good. And from the research results it was also found that respondents who stated that the role of religious figures was not good were incomplete in providing basic immunizations to their children, while respondents who stated that religious figures had a good role, they were complete in providing basic immunizations to their children (Putri, 2019).

The community in the Meuraxa Community Health Center Working Area is a community that upholds its religious values. Religious activities are something that is routinely carried out every month, the majority of respondents are members who actively participate in religious activities such as recitation of the Koran (Samosir, 2021). However, according to respondents, in every religious activity there is never any promotion or outreach about basic immunization for children. Support from religious figures, such as urging mothers to immunize their babies, is only available if Community Health Center officers or officers from the Health Service go to the village and only to convey the halal status of immunization elements. This is why religious leaders do not fully support immunization, because there are still halal pros and cons regarding immunization vaccines being haram.

Conclusion

Respondents' knowledge and attitudes influence mothers' decisions to provide complete basic immunization to their toddlers. The higher the knowledge about immunization, the better the attitude and willingness to fulfill basic immunization for their toddlers. Educational activities about immunization also influence the mother's willingness to provide complete immunization. The role of religious figures in socializing the importance of immunization is also able to influence the achievement of complete basic immunization for toddlers in the Meuraxa Community Health Center Working Area, Banda Aceh.

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Author Contributions

Masyudi: Contributed to Conceptualization, M., S. U.; Methodology, M., S. U.; Investigation, M.; Formal analysis, M.; Writing-original draft M., S. N., I.; Validation I., S. N., A. B.; Funding acquisition, S. U., I.; Data curation, M., S. N.; All authors have read and agreed to the published version of the manuscript.

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Conflicts of Interest

The authors declare that there is no conflict of interest.

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