

# Immunization During the Covid-19 Pandemic

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## ABSTRACT

**Objectives:** This Study Aims to Analyze the Determinant Factors Associated with Basic Immunization Services for Infants Aged 1-12 Months in Banjarbaru City During the Covid 19 Pandemic. **Methods:** The Research Design Is an Analytic Research with A Cross Sectional Approach. The Independent Variables Are Mother's Knowledge, Mother's Anxiety, And Accessibility to Health Facilities, And the Dependent Variable Is Basic Immunization Services. The Research Sample Consisted Of 100 Respondents Who Had Babies Aged 1-12 Months in The Cempaka Health Center, Sungai Ulin Health Center, Sungai Besar Health Center and South Banjarbaru Health Center. The Sampling Technique Was Non-Probability Sampling, Namely Purposive Sampling. The Instruments Used Were A Knowledge Questionnaire, An Anxiety Questionnaire (Dass) And an Accessibility Questionnaire in The Form of a Google Form. Analysis Using the Chi Square Statistical Test. **Results:** The Results Showed That 58 People (58.0%) Had Basic Immunization Services According to Age, 44 People (44.0%) Had Good Knowledge And 55 People (55.0%) Had Accessibility to Health Facilities. Variables Related to Basic Immunization Services in Banjarbaru City Were Knowledge (P=0.03) And Anxiety (P=0.01). Another Variable in This Study, That Is Accessibility to Health Services, Was Not Related to Basic Immunization Services in Banjarbaru City (P=0.80). **Conclusions:** It Is Recommended That Basic Immunization Information and Services Be More Proactive. Health Promotion Uses an Interpersonal Approach in The Community to Increase Knowledge, Attitudes and Change People's Behavior

**Key words:** Immunization, Knowledge, Anxiety, Accessibility, Health Center.

## INTRODUCTION

Since the development of vaccines, millions of children worldwide have been spared the death brought on by immunization-preventable diseases, and some diseases have even been successfully eradicated from the planet.<sup>1</sup> Immunization is the most effective method to provide specific immunity against immunization-preventable diseases. Following the creation of the Expanded Program on Immunization by the World Health Organization (WHO) in 1974, childhood immunization programs have swiftly spread around the world. By expanding equitable access and bolstering vaccination programs within primary health care systems around the world, the WHO's vaccination Agenda 2030 seeks to reduce death and morbidity from vaccine-preventable diseases during the life cycle. Over the past three decades, vaccination coverage, especially in Indonesia, has steadily increased. The WHO proclaimed the coronavirus disease 2019 (COVID-19) a worldwide pandemic on March 11, 2020, although numerous nations have reported a drop in vaccine coverage since then. MMR vaccination rates in the UK decreased by 19.8% from the same time period in 2019 to 2019. In addition, the WHO cautioned that during the first four months of 2020, vaccination rates for the three-ose DTP3 vaccine will significantly decline. A decrease in vaccination visits was also noted in Saudi Arabia from March to May 2020 compared to the corresponding period in 2017–2019.<sup>2</sup>

As immunization is one of the most successful and cost-effective health interventions to prevent infectious diseases, vaccines against COVID-19 are considered to be of great importance to prevent

and control COVID-19. Countries worldwide are trying to accelerate the research and development of COVID-19 vaccines, and it has been reported that there have been more than 160 candidate vaccines to date, with around 20 candidates in clinical evaluation.<sup>3-6</sup>

Immunization activities are the most cost-effective efforts in reducing morbidity and death rates due to immunization-preventable diseases which is expected to have an impact on reducing infant and toddler mortality. Universal Child Immunization (UCI) Village nationally every year always does not reach the target.<sup>7</sup> The Ministry of Health, 2020, stated that immunization is the most effective and efficient public health effort in preventing several dangerous diseases. History has recorded the great role of immunization in saving the world community from pain, disability and even death.<sup>8,9</sup>

Complete basic immunization coverage in 2019 in districts / cities in Indonesia was found as many as 96 cities (18.7%) complete basic immunization coverage is still below 80% and there are 40 (7.8%) cities / districts with complete basic immunization coverage which is still below 60%. This is still far from the national coverage target of 93.<sup>10</sup> According to Basic Health Research (2018), the proportion of complete basic immunization in South Kalimantan is 68.78% and Banjarbaru city is 70.17%. Health Profile of South Kalimantan province in 2018, basic immunization coverage of Banjarbaru City is 93.59%. This coverage is the highest in South Kalimantan, but there are still cases of Immunization-Preventable Diseases. In the city of Banjarbaru in 2018 there were 48 cases of Diptheria, 1 case of pertussis and 216 cases of Measles.<sup>4,11</sup>

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The government has designated Corona Virus Disease 2019 (COVID-19) as a non-natural disaster in the form of an outbreak / pandemic, this determination is followed by efforts to prevent the spread of the corona virus through social restrictions, including restrictions on crowds, travel restrictions, the implementation of isolation, postponement and cancellation of events, as well as the closure of facilities and public service arrangements.<sup>3,4,10</sup>

This condition also affects the schedule and procedures for immunization services both at integrated service posts, community health centers and other health facilities.<sup>10</sup> Immunization during the COVID-19 pandemic has been challenging for many cities, including Banjarbaru. The pandemic has had a significant impact on health service delivery, including immunization programs, leading to a reduction in vaccination coverage and a decline in the total number of vaccines administered.<sup>4</sup>

Factors contributing to low vaccine coverage during the pandemic include: Fear of being exposed to the virus at healthcare facilities; Restrictions on city-wide movements; Shortage of workers; Diversion of resources from child health to address the pandemic.<sup>4</sup>

To address the gaps in immunization during the pandemic, high-quality supplementary immunization activities and catch-up programs need to be established.<sup>4</sup> It is also essential to ensure that the implementation of the basic immunization program is well-planned and organized, with adequate human resources, funds, facilities, and infrastructure. In terms of COVID-19 vaccine side effects, studies have shown that not all individuals experience side effects after vaccination. The most common side effects include drowsiness, aches, dizziness, and mild fever, which are generally self-limited and do not require intensive treatment.<sup>13</sup> Severe signs of adverse events following immunization (AEFI) are rare.<sup>14</sup>

To ensure the success of immunization programs during the pandemic, it is crucial to address the concerns and challenges faced by healthcare workers and the community. This can be done through effective communication, providing accurate information about the vaccines, and addressing any misconceptions or fears that people may have.

This study aims to analyze the determinants related to basic immunization services for infants aged 1 – 12 months in Banjarbaru City during the Covid 19 pandemic.

## METHOD

The design of this study is analytical research with a cross sectional approach. This study looked at independent variables, consist of Mother's knowledge, Mother's anxiety, and accessibility to health facilities, while the dependent variable in this study was basic immunization services. This research will be conducted in the Banjarbaru City Health Center Area. The sample of the study was some mothers who had babies aged 1-12 months in the areas of Cempaka Health Center, Sungai Ulin Health Center, Sungai Besar Health Center and South Banjarbaru Health Center totaling 100 respondents. The sampling technique is non-probability sampling, namely purposive sampling with inclusion criteria willing to be respondents, healthy mothers and babies, get basic immunization in 2020, and mothers have gadgets and can use the google form application to fill out questionnaires. The exclusion criteria in this study were sick mothers and babies, the instruments used in this study were knowledge questionnaires, anxiety questionnaires and accessibility questionnaires in the form of google forms. Analysis using statistical *chi square* test. Ethic Code : Number :141/UMB/KE/X/2020.

## RESULTS

### Characteristics of respondents

Respondents in this study were mothers who had babies aged 1 to 12 months totaling 100 respondents. Based on the research conducted, the characteristics of respondents were obtained as follows (Table 1).

Based on Table 1, it can be seen that the characteristics of respondents are mostly aged 20-35 years as many as 62 persons (62.0%), 64 persons (64.0%) have secondary education, 39 persons (39.0%) are entrepreneurs, 64 persons (64.0%) have 2-3 children and as many as 62 persons (62.0%) have 4-6 persons in the house.

Table 2. Showed the characteristics of most babies aged 1-3 months as many as 41 babies (41.0%), and as many as 88 babies (88.0%) with a birth weight of 2500-4000 grams.

### Results of univariate analysis

In the study of variables studied, there are 4 variables. The results obtained for univariate variables in this study can be seen in the following table:

In table 3. It can be seen that the basic immunization service is 58 persons (58.0%). According to age, as many as 44 persons (44.0%) have good knowledge and as many as 55 persons (55.0%) have accessibility to health facilities.

### Results of bivariate analysis

Table 4. The relationship between knowledge, anxiety and accessibility to health facilities with immunization services in Banjarbaru City in 2021.

Based on table 4. It can be seen that the variables related to basic immunization services in Banjarbaru City are knowledge and anxiety. Mothers who had good knowledge as many as 29 people (55.9%) carried out basic immunization according to the age of the baby ( $p=0.03$ ). Mothers who had normal anxiety as many as 15 people (59.3%) did basic immunization according to the age of the baby ( $p=0.01$ ).

**Table 1: Characteristics of respondent's research in Banjarbaru city.**

Characteristics of Respondents	Total	%
Mother's Age		
< 20 Years	15	15,0
20-35 Years	62	62,0
> 35 Years	23	23,0
Recent Education		
Elem - JHS	21	21,0
High School	64	64,0
University	15	15,0
Job		
Housewives	30	30,0
Private Companies	20	20,0
Entrepreneurs	39	39,0
Civil Servants	11	11,0
Total Children		
1	24	24,0
2 – 3	64	64,0
> 3	12	12,0
Number of Occupants in The House		
< 4 Persons	29	29,0
4 - 6 Persons	62	62,0
> 6 Persons	9	9,0

Source: Primary Data

**Table 2: Characteristics of babies in Banjarbaru city.**

Characteristic of Babies	Total	%
Age (Months)		
1 - 3	41	41,0
4 - 6	25	25,0
7 - 9	13	13,0
10 – 12	21	21,0
Birth Weight		
< 2500 gram	10	10,0
2500 - 4000 gram	88	88,0
> 4000 gram	2	2,0

**Table 3: The relationship of knowledge, anxiety and accessibility to health facilities with basic immunization services in Banjarbaru city.**

Variabels	Total	%
Basic Immunization Services		
Appropriate	58	58,0
Inappropriate	42	42,0
Knowledges		
Good	44	44,0
Enough	37	37,0
Less	19	19,0
Anxiety		
Normal	37	37,0
Mid Anxiety	22	22,0
Moderate Anxiety	28	28,0
Severe Anxiety	9	9,0
Extreme Anxiety	4	4,0
Accessibility to Health Center		
Exist	55	55,0
None	45	45,0

**Table 4: The relationship between knowledge, anxiety and accessibility to health facilities with immunization services in Banjarbaru city in 2021.**

Variabels	Immunization Service						P
	Appropriate		Inappropriate		Total		
	n	%	n	%	n	%	
Knowledge							0,03*
Good	29	55,9	15	34,1	44	100	
Enough	23	62,2	14	37,8	37	100	
Less	6	31,6	13	68,4	19	100	
Anxiety							0,01*
Normal	15	59,3	22	59,5	37	100	
Mild	15	68,2	7	31,8	22	100	
Moderate	18	64,3	10	35,7	28	100	
Severe	9	100,0	0	0,0	9	100	
Extrreme	1	25,0	3	75,0	4	100	
Accesibility to Health Facilities							0,80
Exist	33	60,0	22	40,0	55	100	
None	25	55,6	20	44,4	45	100	

Another variable in this study is that accessibility to health services is not related to basic immunization services in Banjarbaru City ( $p = 0.80$ ).

## DISCUSSION

Immunization services in the respondents studied, most respondents received immunization services according to their age, namely as many as 58 respondents (58%), Immunization is needed to provide protection, prevention, as well as build children's immunity against various infectious diseases and dangerous diseases that can cause body disability and even death.<sup>15</sup> Providing complete and scheduled immunization is not only useful for generating immunity against disease, but also preventing disease transmission or outbreaks.<sup>16</sup> Based on the results of the study, most babies are immunized according to their age. During the COVID-19 pandemic, community health center services as well as immunization services in Banjarbaru City are still carried out as scheduled, namely every Tuesday and Wednesday every week. During the COVID-19 pandemic, immunization must still be carried out completely on schedule to protect children from Immunization-Preventable Diseases. Immunization services during the COVID-19 pandemic are carried out according to local government policies.<sup>17</sup> Services provided by the community health center in Banjarbaru City by implementing health protocols that have been determined by the government, namely visitors come are required to use masks, maintain

distance from waiting room seats  $\pm 1$  meter apart and temperature measurements and hand washing for every visitor who comes to the community health center.

The government has designated Corona virus Disease 2019 (COVID-19) as a non-natural disaster in the form of an outbreak/pandemic, this determination is followed by efforts to prevent the spread of the corona virus through social distancing, including restrictions on crowds, travel restrictions, the implementation of isolation, postponement and cancellation of events, as well as the closure of facilities and public service arrangements.<sup>17</sup> During the COVID-19 pandemic, community health center services as well as immunization services in Banjarbaru City are still carried out as scheduled, but through restrictions, namely shorter service times and restrictions on the number of infants immunized every day. According, The provisions for the place and time of immunization services are: 1) Determine the schedule of days or hours of special immunization services; 2) Service hours need not be long and limit the number of goals served in one service session. 3) Set up a service desk between officers to maintain a safe distance of 1 – 2 meters. And 4) Immunization service rooms / places are only to serve healthy infants and children.<sup>10</sup>

The implementation of immunization services at the research site is carried out on certain days, namely every Tuesday and Wednesday. A special service place is a room for immunization. The immunization room has met health protocol standards, where the waiting room is placed outside the room with a seat distance of  $\pm 1$  meter, inside the room there are only immunization officers and mothers who bring their babies for immunization. Even in some community health centers make upcoming immunization appointments with parents so that the arrival of immunization targets can be arranged and run well (via telephone and Whatsapp groups). Although the implementation of immunization services at the research site has met health protocol standards, immunization coverage during this pandemic is still not in accordance with the specified schedule and the average visit per week has decreased between 30 to 50% compared to before the pandemic. The low coverage of infant immunization occurs due to the lack of mother/family activity and the anxiety felt by mothers and families about the Covid-19 outbreak.<sup>18-20</sup>

The level of anxiety felt by mothers varies, most mothers experience mild and moderate anxiety. Mothers are worried about their babies being taken to community health centers because many people come to community health centers with unknown health status, whether they carry the corona virus or not.

The study found a link between mother's anxiety levels and basic immunization services in infants aged 1 to 12 months. Anxiety arises due to various changes due to Covid-19, people are expected to be able to adapt immediately during the pandemic. Often this affects people's health conditions physiologically for vulnerability to contracting symptoms of covid-19.<sup>21</sup> Generally, health problems felt by mothers are tension, anxiety and fear when they want to get immunization services at health facilities. The emergence of the pandemic has caused stress in various walks of life.<sup>22</sup>

Mother's anxiety can result in low visits for mothers and babies during immunization activities. From the results of this study proved that mothers who experienced anxiety, delayed bringing their babies to community health centers for immunization. The majority of maternal anxiety at the study site was mild and moderate anxiety, only a small percentage expressed severe anxiety. Various anxieties felt by mothers can be caused by the characteristics of the mother's age and education. According.<sup>23</sup> The difference in anxiety levels of each person is influenced by several factors including demographic factors. In addition, the perception of exposure risk may also affect anxiety levels.

Banjarbaru City is an area with a red zone category for Covid-19 cases. Based on interviews with mothers, there are several reasons mothers do not bring their children to community health centers, that is fear of contracting the covid 19 virus, because babies are vulnerable to disease, mothers feel afraid to sit or be in waiting rooms where they do not know whether one another can transmit the covid 19 virus. Although standard health protocols such as outdoor waiting rooms, spaced seats, hand washing stations/hand sanitizers and body temperature checks have been implemented by the community health center.

The ongoing outbreak or pandemic of COVID-19 in our country can cause anxiety in parents to come to health facilities to complete their children's immunization status. Aman said The COVID-19 pandemic has increased anxiety in the community.<sup>24</sup> Anxiety is a common feeling of fear and anxiety. Anxiety is a natural feeling of the body that hints at impending danger and the need to take action.<sup>25</sup> However, if the anxiety is excessive, symptoms such as generalized anxiety disorder, depression, stress, anger, and difficulty sleeping will arise.<sup>26</sup>

Another variable related to basic immunization services in infants aged 1 to 12 in this study was mother's knowledge. Mother's knowledge plays an important role in the behavior of mothers to bring their babies to health care facilities. Knowledge is the result of knowing and occurs after people make senses (sight, hearing, touch, taste and smell) of a particular object. Knowledge or cognitive is a very important domain in shaping a person's behavior.<sup>27</sup> High knowledge will affect the acceptance of new things and can adjust to new things. Knowledge is also influenced by individual age-related experiential factors.<sup>28</sup> The community has not adapted to health service activities, so it is necessary to innovate related to the creation of safe immunization services in the midst of a pandemic in accordance with technical guidelines, besides that it is necessary to carry out health promotion using interpersonal approaches in the community to increase knowledge, attitudes and change people's behavior. As the results of research conducted that through health education conducted to mothers of infants under five are able to increase the coverage of advanced Pentabio Immunization. Together with family welfare officers and health workers to create an integrated service post system that is safer during the Covid-19 pandemic.<sup>29</sup>

Based on this study, most respondents have good knowledge. According, Knowledge or cognitive is a very important component in determining one's actions, where one's behavior based on knowledge is more firm and durable than behavior that is not based on knowledge.<sup>27</sup> Good parental knowledge about immunization should motivate their children to provide complete immunization, because these parents understand the benefits and immunization schedule will have a good impact on their babies.

Some parents are worried about bringing their babies to get immunizations, and not a few health workers are hesitant to organize immunization services in the midst of the COVID-19 pandemic, this could be due to the lack of public knowledge about the technical implementation of immunization services during the COVID-19 pandemic. Menurut.<sup>30</sup> Integrated service posts, community health centers and other health facilities that usually provide immunization services, immunization services can still be carried out according to schedule and principles of infection prevention and control and maintain a safe distance of 1-2 meters.

Immunization information affects mother's behavior in fulfilling child immunization. This is in line with research, which states that immunization information relates to the provision of complete basic immunization to infants. Information plays an important role in aspects of human life, one of which is motherhood. With the information, it will make it easier for mothers to carry out their roles as mothers. Information is a source of knowledge. The mother's knowledge about

immunization is influenced by the amount of information received.<sup>31</sup> Mothers who get information related to immunization will increase their knowledge, where this knowledge will later form a positive behavioral attitude towards immunization. Sources of immunization information obtained by mothers can be obtained from various sources, such as information from health workers, health promotion media, and other sources of information. Midwives are figures who are close to the community, especially mothers. Midwives have a role to provide information to the community to behave healthily. The role of midwives in terms of immunization is to invite mothers to come to the integrated service post to carry out immunization.

The results of this study show that the knowledge possessed by individuals is one of the internal factors that participate in health services. Knowledge is a very important domain for the formation of one's actions. Knowledge is needed as support in cultivating self-confidence as well as one's attitude and behavior.<sup>27</sup>

The results of research on mother's accessibility to immunization services found no meaningful relationship. The results of this study are in line with research, which states that there is no relationship between access to immunization services and the completeness of basic immunization in infants. In this study, it was found that the community's residence is relatively close to health services, so it is easy for mothers to access health services.<sup>32</sup> This is also seen from the length of time taken and the costs incurred to reach the immunization service place.

Accessibility to immunization services is influenced by the condition of existing infrastructure, both service and transportation affordability.<sup>33</sup> The ease and affordability of health services, in this case related to immunization, greatly determines a person in determining the choice to access a service or not.<sup>34</sup> If access to immunization is considered quite easy and affordable both in terms of transportation and services, then it becomes a supporting factor for someone to fulfill child immunization. Most mothers bring their children to get immunizations by two-wheeled private vehicle transportation. And the distance to health services is mostly 1 to 3 km.<sup>35-40</sup>

One of the causes of not achieving complete basic immunization coverage is access to health facilities. For people living in urban areas, health facilities and access to health services are relatively easy to reach, because in urban areas there are many health facilities available. In addition, geographical access is also easier to reach. However, in rural areas both health facilities and access to health facilities are relatively difficult because rural areas tend to have difficult road access and transportation.

## CONCLUSION

Basic immunization services for infants aged 1 – 12 months in Banjarbaru City during the Covid 19 pandemic, most of them are in accordance with the schedule that has been set. Factors related to immunization services are mother's knowledge and anxiety, while accessibility factors to health facilities are not related. It is recommended that basic immunization information and services be more proactive. Health promotion uses interpersonal approaches in the community to increase knowledge, attitudes and change community behavior so that immunization coverage for infants aged 1 to 12 months is timely and can be achieved on target.

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