

# Description of Mother's Knowledge Level about BCG Immunization in Infants Age 0-2 Months at Posyandu, Kebun Pala Village, Makassar, East Jakarta

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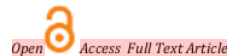
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## Description of Mother's Knowledge Level about BCG Immunization in Infants Age 0-2 Months at Posyandu, Kebun Pala Village, Makassar, East Jakarta

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### Abstract

TB is considered the fourth leading cause of death. Pediatric TB is an essential factor in developing countries because the population of children aged younger than 15 years old is 40%-50% of the total population. At least 500,000 children are infected by TB annually. Globally, TB kills 200 children every single day and contributes to the death of 70,000 children annually. Immunization is one of the measures in the prevention of TB transmission. BCG vaccination has been playing the role of one of the WHO strategies since 1921 to eradicate TB problems, especially in developing countries, including Indonesia, and more than 3 billion doses of BCG vaccine have been distributed worldwide. This research aims to describe the level of mothers' knowledge regarding the BCG immunization among 0-2 months old infants in Posyandu (pre- and postnatal health care and information for women and children under five years) Kelurahan Kebun Pala Makassar, East Jakarta. The researcher used univariate analysis with the cross-sectional approach in this descriptive epidemiological research. The questionnaire that consisted of 21 questions was the primary data source for this research. The questionnaire was distributed on February 23, 2018. The researcher involved 50 respondents as the sample of the research population. Based on the analysis, the researcher concludes that 24.0% of respondents have a good level of knowledge, while the remaining respondents (76.0%) have an adequate level of expertise.

**Keywords:** TB, BCG Immunization, Knowledge

## INTRODUCTION

Immunization is an act of providing immunity or body immunity against the threat of disease in infants/children by inserting vaccines into the body so that the body makes anti-disease substances<sup>1</sup>. In health law Number 36 of 2009, it is stated that every child has the right to get primary immunization, one of which is the BCG vaccine, following the provisions to prevent diseases that can be avoided through immunization, and the government is obliged to provide complete immunization to every baby and child. The implementation of immunization is stated in the Regulation of the Minister of Health Number 42 of 2013<sup>2</sup>. The leading cause of the low achievement of Universal Child Immunization (UCI) in Indonesia is insufficient access to services and high dropout rates. This happens because of access to service places that are difficult to reach, irregular service schedules and not following community activities, lack of implementing staff, unavailability of Maternal and Child Health books or immunization cards, low public awareness and knowledge about benefits, the timing of immunizations, and symptoms of immunization follow-up. Cultural and educational factors and socioeconomic conditions also influence the low achievement of village UCI<sup>2</sup>.

The immunization system for infants and children is not perfect; which is still in the process of development and maturation until they reach adulthood. This condition causes

them to be relatively easy to contract various diseases and infections, including tuberculosis. Therefore, parents must pay special attention to children and infants from TB transmission<sup>3</sup>. The world population in 2013 amounted to approximately 9 million have been infected with tuberculosis germs, which increased to 9.6 million in 2014<sup>4</sup>. The African region had the highest incidence of pulmonary TB in 2014, 37%, the Southeast Asia region is 28%, and the East Mediterranean region is 17%. The number of new smear-positive cases in 2014 in Indonesia was 176,677 cases. The number of cases decreased compared to new smear-positive patients found the previous year, namely 196,310 cases<sup>4</sup>.

The highest number of reported cases in Indonesia was the province with the largest population in three regions: West Java, East Java, and Central Java. New smear-positive TB cases in the three areas, if added up, 74.40% of the total number of new cases in Indonesia<sup>5</sup>. TB is the 7th leading cause of death. Child TB is an essential factor in developing countries because the total population of children aged less than 15 years is 40%-50%. At least 500,000 children are sick with TB every year<sup>6</sup>.

About 200 children die every day from TB, or 70,000 children die every year from TB. TB cases in children in Indonesia are relatively rare<sup>7</sup>. Children's TB is often marginalized and is not considered a significant health problem," said Dr. Wahyuni

Indawati, a pediatrician from RSCM, in a Tuberculosis in Children seminar at the IDAI office. To 2011 data, there are currently around 316,584 TB cases. In children with 88,113 deaths and 1562 people with disabilities per year. This is undoubtedly dangerous because cases of TB in children can increase the infant mortality rate<sup>8</sup>. Tuberculosis in children under five is caused by a disease or infection that attacks the lungs. This infection is caused by a tuberculosis bacterium named *Mycobacterium Tuberculosis*. This bacterium is in the form of a red rod with unique properties, namely resistance to acid during staining, so it is called Acid Resistant Basil (BTA). It is bacillus cannot survive long and quickly dies when exposed to direct sunlight but can survive several hours in a dark and humid place<sup>9</sup>.

One of the measures to prevent TB transmission is immunization. Prevention by vaccination or vaccination is an action to provide a better immune system resistance to defend itself against disease or the entry of germs from outside. WHO's strategy in tackling the problem of TB, especially in developing countries, including Indonesia, is by administering the BCG vaccine, which has been carried out since 1921, and more than 3 billion doses of BCG vaccine have been distributed worldwide. Until now, the provision of BCG immunization is still part of the Immunization Development Program (PPI), which must be given to infants in Indonesia<sup>10</sup>. The BCG immunization coverage target was 87.6%, with the TB prevalence according to Riskesdas in 2007 and 2010 remaining at 0.4%<sup>11</sup>.

Based on the Decree of the Ministry of Health No.1611/MENKES/SK/XI/2005 concerning Guidelines for Immunization Implementation, the provision of BCG is one of the efforts to prevent the transmission of disease that can be prevented by immunization (PD31) among TB<sup>2</sup>. Based on the data above, the author is interested in researching the Description of Mother's Knowledge Level of BCG Immunization in Infants aged 0-2 Months at Posyandu, Kebun Pala Village Makassar East Jakarta.

Based on the background of the problem above, the research problem can be formulated as follows: How is the description of the mother's level of knowledge about BCG immunization at the Posyandu, Kebun Pala Village Makassar, East Jakarta? The study aimed to describe the level of understanding of mothers about BCG immunization in infants aged 0-2 months at the Posyandu, Kebun Pala Village, Makassar, East Jakarta.

## LITERATURE REVIEW

Knowledge is the result of human sensing, or someone knowing about objects through the senses they have (eyes, nose, ears, and so on). The time to produce that knowledge is greatly influenced by the object's intensity of attention and perception<sup>12</sup>. Knowledge is a term used to say when someone knows about something. One thing that becomes his knowledge is that it always consists of elements that understand and are known and awareness of what he wants to know. Therefore, knowledge always requires a subject aware of an issue and object, which is something he faces as something he wants to know<sup>11</sup>. A person's knowledge of things has different levels, including knowledge, comprehension, application, analysis, synthesis, and evaluation.

Immunization is a way to increase a person's immunity to a disease. So that when later exposed to the disease, he does not become sick. The exemption obtained from immunization can be in the form of passive or active immunity<sup>13</sup>. Immunization is also a very effective primary prevention effort to avoid contracting infectious diseases. Thus, the incidence of

infectious diseases will decrease, and the resulting disability and death will also be reduced. The main benefit of immunization is to reduce the incidence of illness, disability, and death from infectious diseases that can be prevented by immunization (vaccine-preventable disease). Immunization does not only provide protection to individuals but to communities, especially for conditions that are transmitted through humans (person-to-person).

The purpose of immunization is to prevent certain diseases in a person and eliminate certain diseases in a group of people (population) or even eliminate a particular disease<sup>14</sup>. The immunization program aims to reduce morbidity and mortality from diseases that immunization can prevent. Currently, these diseases are diphtheria, tetanus, whooping cough (pertussis), measles (measles), polio, and tuberculosis<sup>15</sup>. The immunization program aims to provide immunity to infants to prevent illness and death of infants and children caused by frequent infectious diseases. In general, the objectives of immunization include a) Through immunization, the body is not susceptible to infectious diseases; b) Immunization is very effective in preventing infectious diseases, and c) Immunization reduces morbidity (disease rate) and mortality (death rate) in children under five. Immunization is divided into two types, namely active immunization and passive immunization<sup>7</sup>. The basic immunizations are BCG (Bacille Calmette Guerin), Polio, DFT (Diphtheria Pertussis Tetanus), and Hepatitis B, Measles<sup>9</sup>.

In infants aged 0-2 months. BCG can be given from birth. If the baby is > 3 months old, a tuberculin test should be done first, and the BCG immunization given a negative tuberculin test [16]. How to Test Tuberculin with Mantoux Test: The Mantoux test is an examination by injecting a Tuberculin (TB germ protein) solution under the skin (Intracutaneous). The test results can be read between 48-72 hours after injection. If a lump appears on the injection site with a size > 10 mm, it is said to be a positive test result. This means that the patient's body must have been previously infected with TB germs<sup>8</sup>.

The vaccine for tuberculosis is known as BCG (Bacille Calmette Guerin). BCG vaccine contains a weak form of the bacteria (germ) that causes TB. Because these bacteria are attenuated, they do not cause TB in healthy people but instead, serve to form protection (immunity) against TB. The BCG vaccine contains a live, attenuated suspension of *M. Bovis*. BCG vaccination does not prevent tuberculosis infection but reduces the risk of developing severe tuberculosis such as TB meningitis and miliary tuberculosis. Experts state that (1) the effectiveness of the vaccine for disease protection is only 40%, (2) about 70% of cases of severe TB (meningitis) have BCG scars, and (3) adult cases with positive acid-fast bacteria (BTA) in Indonesia are pretty high. High (25%-36%) even though they had received BCG in childhood<sup>9</sup>. The BCG vaccine is a live vaccine, so it is not given to immunocompromised patients (leukemia, children receiving long-term steroid treatment, or infants with known or suspected HIV infection).

BCG vaccine is given at < 3 months or in children with a negative Mantoux (tuberculin) test. The protective effect occurs 8-12 weeks after injection. The protective effect varies between 0-80%, related to several factors: the quality of the vaccine used, the environment with atypical mycobacterium, or host factors (age, nutritional status, etc.)<sup>10</sup>. BCG vaccine was administered intradermally at 0.05 ml. BCG vaccine should not be exposed to sunlight, should be stored at 2-8°C, and should not be frozen. The diluted vaccine must be used within 8 hours. BCG vaccine dose of 0.05 ml was administered intracutaneously in the right upper arm area at the insertion of m. deltoid as recommended by WHO, not elsewhere (e.g.,

buttocks, thighs). This is because intradermal injection in the deltoid area is easier to do (thin subcutaneous fat tissue). The ulcer that forms does not interfere with local muscle structure (compared to administration in the lateral gluteal area or anterior thigh) and is a common sign for diagnostic purposes. Re-immunization is not recommended <sup>11</sup>.

BCG immunization does not cause general reactions such as fever. After 1-2 weeks, there will be induration and redness at the injection site, which turns into pustules, then breaks into sores. Wounds do not need treatment, will heal spontaneously, and leave scars. Sometimes there is the enlargement of the regional glands in the armpit or in the neck, feels solid, does not hurt, and does not cause fever. This reaction is normal and does not require treatment, and will go away on its own <sup>12</sup>.

Giving a vaccine is the same as providing an antigen to the body. If exposed to an antigen, either naturally or through vaccination, the body will react <sup>13</sup> to eliminate the antigen through the immune system. The immune system is divided into 2, namely the non-specific immune system and the specific immune system. The non-specific immune system is a natural defense mechanism that is innate and can be directed to various infectious agents or antigens. The non-specific immune system through the skin, mucous membranes, phagocytic cells, lysozyme complement, and interferon. This immune system is the first line of defense that must be faced by infectious agents that enter the body. If the non-specific immune system cannot eliminate the antigen, then the specific immune system plays a role <sup>17</sup>.

The specific immune system is an adaptive defense mechanism acquired during life and is specifically targeted at one type of antigen. The specific immune system is played by T cells and B cells. Defense by T cells is known as cellular immunity, while the defense of B cells is known as humoral immunity. Cellular immunity plays a role against antigens inside the cell (intracellular), while humoral immunity plays a role against antigens outside the cell (extracellular). In giving vaccines, this specific immune system provides exemption to one type of infectious agent through a memory mechanism. Effector cells will migrate to sites of infection and eliminate antigens, while memory cells will be in lymphoid organs to then play a role in exposure to the same antigen <sup>18</sup>.

When exposed to antigens, B cells will undergo transformation, proliferation, and differentiation into plasma cells that will produce antibodies. Antibodies will neutralize the antigen to lose the ability to infect it. Proliferation and differentiation of B cells will not only become plasma cells, but some will become memory B cells. Memory B cells will be in circulation when memory B cells are exposed to similar antigens. There will be a proliferation and differentiation process to produce more antibodies <sup>19</sup>.

The presence of Memory cells will facilitate the recognition of antigens on the second exposure. This means that if someone vaccinated (meaning that they have been exposed to the antigen) is infected or exposed to the same antigen, it will be easier for the immune system to recognize the antigen. The immune response to the second exposure (secondary immune response) is better than the first antigen exposure. (primary immune response). T cells and B cells are involved more, antibody formation is faster and lasts longer, and more antibody titers (mainly IgG) and higher affinity. Thus, it is hoped that someone vaccinated will not experience disease due to exposure to the same antigen because his immune system has a more muscular immune system than those not vaccinated <sup>12</sup>.

The trend of BCG immunization coverage from routine data shows a stable condition because the range for the last 9 years has been high, between 90%-100%. While the trend in the number of new cases of AFB+ in children aged 0-14 years tends to decrease. One of the diseases that can be prevented by immunization is tuberculosis, although its protection has an extensive range, between 20% -80%. According to WHO data in 2014, Southeast Asia was the most significant contributor to tuberculosis cases (39%). In India alone, it was 26%. Currently, Indonesia is ranked as the fifth country with the highest TB globally.<sup>5</sup> The immune response produced after BCG immunization is not fully understood. However, WHO still recommends giving 1 dose of BCG vaccine to all babies immediately after <sup>5</sup> birth in areas with a high burden of tuberculosis, such as in Indonesia. BCG plays a role in preventing the spread of tuberculosis germs through the blood. Thus the BCG vaccine does not prevent tuberculosis but inhibits the growth of primary foci in the lung and lymph nodes and prevents lymphohematogenous transmission <sup>13</sup>. The BCG vaccine cannot protect the baby if the mother has active pulmonary TB shortly before and after birth and receives treatment less than 2 months before delivery.

Tuberculosis is an infectious disease in humans and animals caused by Mycobacterium species and is characterized by the formation of tubercles and caseous necrosis in tissues. The most common species are M. tuberculosis and M. Bovis. Tuberculosis bacilli can live and remain virulent for several weeks in a dry state but die in liquid at 60°C in 15-20 minutes. Tuberculosis protein fraction causes tissue necrosis, while the fat causes acid-fast properties and is a factor causing fibrosis and the formation of epithelioid cells in tubercles. The tubercle bacilli do not produce toxins (both endotoxins and exotoxins).

Risk factors for TB infection include children exposed to adults with active TB (positive TB contacts), endemic areas, poverty, unhealthy environments (poor hygiene and sanitation), and public shelters (prison orphanages or nursing homes), of which many patients with active TB. The following are factors that can cause the development of TB infection to become TB disease. The first risk factor is age. Children are aged <5 years have a greater risk of progression because their cellular immunity is not fully developed (immature). The highest chance of passage from infection to TB during the first year after infection. Especially during the first 6 months. In infants, the period between infection and the onset of TB disease is short (less than 1 year), and acute symptoms usually occur. Other risk factors are new infection which is characterized by the conversion of a <sup>15</sup>erculin test (from negative to positive) in the last 1 year, malnutrition, immunocompromised state (e.g., in HIV infection, malignancy, organ transplantation, and immunosuppressive treatment), diabetes mellitus and chronic kidney failure. Factors that are no less important in the epidemiology of TB are low socioeconomic status, low income, overcrowding, unemployment, low education, and lack of funds for public services <sup>12</sup>.

Tuberculosis is a directly <sup>8</sup> infectious disease caused by Mycobacterium tuberculosis, which mostly (80%) attacks the lungs <sup>20</sup>. Mycobacterium tuberculosis is a gram-positive bacillus, rod-shaped. Its cell wall contains lipid-glycolipid complexes <sup>8</sup> and waxes that are difficult for chemicals to penetrate. Generally, Mycobacterium tuberculosis attacks the lungs and a small number of other body organs. This germ has unique properties, namely resistance to acid in staining. It is used for the microscopic identification of sputum. So it is known as Acid <sup>6</sup>Resistant Basil (BTA). Mycobacterium tuberculosis kills quickly in direct sunlight but can survive in dark and humid places. In body tissues, germs can be dormant (sleeping up to several years). TB arises under its ability to

multiply within phagocytic cells. The transmission source is a positive smear TB patient when coughing or sneezing. The patient spreads germs into the air in droplets (splashes of phlegm). Droplets containing germs can survive in the air at room temperature for several hours. People can become infected if the droplets are inhaled into the respiratory tract. So TB transmission does not occur through eating utensils, clothes, and sleeping equipment.

After TB germs enter the human body through breathing, the TB germs can spread from the lungs to other body parts, through the circulatory system, lymphatic system, respiratory tract, or direct spread to other body parts. The transmission power of a patient is determined by the number of germs that are removed from his lungs. The higher the positive degree of sputum examination results, the more infectious the patient is. If the results of the sputum examination are negative (no viable germs), then the patient is considered non-infectious. The person's possibility of being infected with TB is determined by the concentration of the droplets in the

Clinically, TB can occur through primary and post-primary infection. Primary infection occurs when a person is exposed to TB germs for the first time. After infection through the respiratory tract, in the alveoli (lung bubbles), inflammation occurs. This is caused by TB germs that reproduce by dividing themselves in the lungs. The infection to primary complex formation time is about 4-6 weeks. The continuation of the primary infection depends on the number of germs that enter, and the immune response can stop the growth of TB germs by covering the germs with connective tissue. Some germs stay "persistent" or "dormant" so that the body's immune system cannot stop the proliferation of germs; as a result, the person concerned will become a TB patient in a few months. This usually becomes an abscess (covert) in primary infection and progresses without symptoms, only coughing and wheezing. But people with weak immune systems can develop severe pneumonia, the characteristics of which are chronic cough and are highly contagious. The incubation period is about 6 months. Post-primary infection occurs several months or years after the primary infection. The hallmark of post-primary TB is extensive lung damage with cavitation or pleural effusion.

Mantoux test is an intracutaneous tuberculin test in which 0.1 ml of PPD (purified protein derivative) containing 5 tuberculin units is injected intradermally, usually into the forearm; the size of the area of induration after 48-72 hours; combined with risk factors, are used to determine whether there has been exposure to or infection with *Mycobacterium tuberculosis* or similar organisms.

Tuberculin reactions performed intradermally will result in type IV hypersensitivity or delayed-type hypersensitivity (DTH). The ingestion of TB protein during injection will cause T cells to be sensitized and move lymphocytes into the infusion. Lymphocytes will stimulate the formation of local induration and vasodilation, edema, deposits, fibrin, and the withdrawal of inflammatory cells into the injection. The tuberculin protein is injected into the skin, then processed and presented in dendritic/Langerhans cells to T cells via MHC-II molecules. Cytokines produced by T cells will form endothelial adhesion molecules. Monocytes enter the blood vessels and exit the injection site, which develops into macrophages. The products of T cells and macrophages cause edema and swelling. Then on, a positive skin test will show local edema or infiltrates a maximum of 48-72 hours after injection.

Intradermal injection of BCG will cause a localized superficial ulcer 3 weeks after injection. The ulcer is covered with crusts,

heals in 2-3 bullae, and leaves a 4-8 mm diameter round scar. If the dose is too high, the ulcer will appear more prominent, but the spot will be pulled inwards if the injection is too deep (retracted).

The results of Riskesdas 2013 describe TB morbidity according to sociodemographic characteristics. Based on these characteristics, the magnitude of TB in each group shows differences, where particular groups have a greater prevalence than other groups. The description of pain according to age characteristics shows that the age group > 45 years has a higher prevalence among other groups. On the elements of education, the majority is getting lower in line with the high level of education. The bulk is based on the type of work with the highest prevalence in the unemployed population. According to the ownership index quintile, TB disease did not show a significant difference between the lowest to the upper middle group. Interestingly, the economic level shows a significant difference only in the top group, with the lowest prevalence of 0.2.

## RESEARCH METHOD

This descriptive study with a cross-sectional approach to obtain an overview of maternal knowledge and adherence to BCG immunization at the Posyandu, Kebun Pala Village, Makassar, East Jakarta. The research was conducted at the Posyandu, Kebun Palla Makassar, East Jakarta, in January 2018. The population in this study were mothers at Posyandu Kebun Palla Makassar, East Jakarta. The sample is a mother who has children at the Posyandu Kebun Pala Makassar, East Jakarta. Samples were taken using accidental sampling. According to the research context, this random sampling is done by taking cases or respondents who need to exist or are available in a place. According to Arikunto (2006), if the population and the number are large, 10-15% or 20-25% are taken depending on the researchers' research. If the population is small (<100), then all population members are included in the sample. Because in this study, the total population (<100) then all members of the people into the model of several 50 respondents. At the beginning of the research, primary data is needed in general data on the population of mothers at Posyandu, Pala Gardens, Makassar, East Jakarta. Before the questionnaire was distributed, a validity test was conducted to show that the measuring instrument measured what was being measured. Validity using SPSS Program (Statistical Product and Service Solution). After being declared reliable (Cronbach's alpha = 0.659), the questionnaire was then distributed to the actual respondents and analyzed using the SPSS computer application. The instrument of this research is a questionnaire made by the researcher in the form of a statement that aims to determine the level of knowledge of mothers about BCG Immunization in Posyandu, Kebun Pala Village, Makassar, East Jakarta. The questionnaire in this study is closed in the form of a statement in which the information provides a choice of "true" or "wrong" answers about BCG Immunization, and respondents are asked to have one of the answers. To describe the level of knowledge of mothers in Posyandu Kebun Palla, Makassar, East Jakarta, a univariate analysis was carried out on the research variables. The study results are then displayed in the form of a frequency distribution table.

## RESULT AND DISCUSSION

This research was conducted on women in the Kelurahan Kebun Palla Makassar, East Jakarta, in February 2018 with a measuring instrument using questionnaire. The total sample collected was 50 people who met the research inclusion criteria.

**Table 1: Frequency Distribution of Respondents' Age**

	Age (year)	Frequency (n)	%
Valid	<25	7	14.0
	26-35	15	30.0
	36-45	15	30.0
	46-55	8	16.0
	56-65	3	6.0
	>66	2	4.0
	<b>Total</b>		<b>50</b>

Based on table 1 above, it can be seen that from 50 respondents, 7 respondents (14.0%) aged <25 years, 15 respondents (30%) aged 26-35 years, 15 respondents (30.0%) aged 36-45 years, 8 respondents (16.0%) were 46-55 years old, 3 respondents (6.0%) were 56-65 years old and 2 respondents (4.0%) were >66 years old.

**Table 2: Frequency Distribution of Respondents' Last Education Level**

	Education	Frequency (n)	%
Valid	Primary	4	8.0
	Junior High School	8	16.0
	Senior High School	29	58.0
	Bachelor	9	18.0
	<b>Total</b>	<b>50</b>	<b>100.0</b>

Based on table 2 above, the frequency of the respondent's latest education is that 4 people have graduated from elementary school, which is 8.0%, 8 people graduated from junior high school, which is 16.0%, 29 people graduated from high school, which is 58.0%, and 9 students graduated from SI, which is 18.0%. These results indicate that most respondents have the highest frequency of recent education at the high school level and the lowest frequency of current education at the elementary level.

**Table 3: Distribution of the Work Frequency of the Head of the Family**

	Work of the Head of the Family	Frequency (n)	%
Valid	Employee	9	18.0
	Self-employed	38	76.0
Valid	Teacher	1	2.0
	Government employees	2	4.0
	<b>Total</b>	<b>50</b>	<b>100.0</b>

Based on table 3 above, the family head working frequency with a total of 9 people is 18.0% employees, the frequency of work of the head of the family with a total of 38 people is 76.0% self-employed, and the frequency of work of the head of the family with 1 person is 1.0% Teachers and the frequency of work of the head of the family with a total of 2 civil servants. These results show that most position of the family head of the respondents has the highest frequency of work, with 38 people at 76.0%.

**Table 4: Distribution of Housewife Work Frequency**

	Housewife Work	Frequency (n)	%
Valid	Housewife	45	90.0
	Laborer	1	2.0
	Self-employed	1	2.0
	Teacher	3	6.0
	<b>Total</b>	<b>50</b>	<b>100.0</b>

Based on table 4, it can be seen that most of the respondents do not work or are housewives, namely 45 people or 90.0% of the 50 respondents, and the least, namely the respondents who work as laborers, amounting to 1 person or 2.0%, self-employed totaling 1 person or 2.0% and 3 people working as teachers or 6.0%.

**Table 5: List of Respondents' Knowledge Level Frequency**

	Knowledge Level	Frequency (n)	%
Valid	Good	38	76.0
	Poor	12	24.0
	<b>Total</b>	<b>50</b>	<b>100.0</b>

Among the 50 total respondents, the highest level of knowledge category is 38 people with a sufficient knowledge level of 76.0%, followed by the second order, namely a good knowledge level of 24.0% with a total of 12 people. These results can be explained in more detail by looking at table 5, which contains details of the statement sub-variables to test respondents' knowledge.

**Table 6: Frequency distribution of respondents' knowledge statements per item**

Statements	Correct n (%)	Wrong n (%)	Total n (%)
Immunization is a way to lower the baby's immunity	30.0	70.0	100
Immunization aims to prevent certain diseases.	96.0	4.0	100
One type of primary immunization given at birth is BCG	90.0	10.0	100
BCG is derived from the strain of Mycobacterium Tuberculosis bovine by Calmette and Guerin	94.0	6.0	100
BCG immunization is given at the age of 1 year and over	12.0	88.0	100
Posyandu is one of the places where immunizations are given to children	84.0	16.0	100
If your child is more than 3 months old and has not been given the BCG vaccine, the Mantoux test will be carried out first	84.0	16.0	100
To find out if someone has pulmonary TB is a sputum examination, X-ray, and laboratory	92.0	8.0	100
If the baby is more than 3 months old, the tuberculin test should be done first	84.0	16.0	100
BCG vaccination is given if the tuberculin test result is positive	42.0	58.0	100
The recommended injection site is the upper right arm	78.0	22.0	100
BCG injections can cause ulcers 3-6 weeks after injection.	72.0	28.0	100
Boils will heal on their own in 6 months and leave scars (scar tissue)	78.0	22.0	100
TB is a disease that is not caused by germs/bacteria	30.0	70.0	100
A person can get pulmonary TB disease	90.0	10.0	100
Habits that worsen the health of people with pulmonary TB are not smoking. The environment must be clean and have a balanced diet.	38.0	62.0	100
Sputum examination, X-ray, and laboratory are ways to know someone has pulmonary TB	90.0	10.0	100
A person with pulmonary TB must take medication for life.	30.0	70.0	100
TB is a contagious disease that can heal itself.	24.0	76.0	100
Pulmonary TB patients will recover if they take medication according to the rules	70.0	30.0	100
Signs of people with pulmonary TB are coughing up phlegm mixed with blood and sweating at night without physical activity.	94.0	6.0	100

Table 6 above shows the percentage of each answer from No. 1 to 21. Question No. 2 shows the highest rate of correct answers among 21 other members, 96.0% regarding immunization to prevent certain diseases. This follows the theory, which states that vaccination aims to prevent certain infections in a person and eliminate certain conditions in a group of people (population) or even eliminate a particular disease from the world<sup>21</sup>.

In general, the objectives of immunization include a) Through immunization, the body is not susceptible to infectious diseases; b) Immunization is very effective in preventing infectious diseases, and c) Immunization reduces morbidity (disease rate) and mortality (death rate) in children under five<sup>22</sup>.

For the lowest percentage of correct answers, it can be seen in question number 5 of 12.0% regarding BCG immunization given at the age of 1 year and over. This statement, according to the author, is not quite right. Because it is following the BCG immunization schedule, which should be given to infants aged 0-2 months. BCG can be delivered from birth. If the baby is > 3 months old, a tuberculin test should be done first, and the BCG

immunization given a negative tuberculin test<sup>23</sup>. These results show that respondents still do not know that the BCG immunization schedule must be presented from birth.

From the results of this study, mothers who were in Posyandu Kebun Palla Makassar, East Jakarta, had sufficient knowledge (76.0%) of BCG immunization. This follows the statement saying that the factors that influence understanding are the level of knowledge, information, culture, experience, and socioeconomic<sup>24</sup>. This means that mothers who have good knowledge have a tendency to give BCG immunization to their babies. With good understanding, a mother will think that if her baby is not given BCG immunization, it is feared that her baby will be susceptible to disease. The results of this study are also strengthened by research that states that there is a significant relationship between mothers' knowledge of BCG immunization<sup>25</sup>. Meanwhile, mothers with low knowledge have a tendency not to give BCG immunization to their babies compared to mothers with high proficiency. And supported by today's increasingly advanced technology, information about BCG immunization is easier to access.

Based on the results of research on the Description of Mother's Knowledge About BCG Immunization in Kelurahan Kebun Palla Makassar, East Jakarta, it can be seen that the knowledge of mothers in the excellent category amounted to 12 people (24.0%) and the sufficient type amounted to 38 people (76.0%). Knowledge is the result of knowing, and this occurs after people sense a particular object<sup>26</sup>. Sensing occurs through the human senses, namely sight, hearing, smell, taste, and touch. Most human knowledge is obtained through the eyes and ears. Knowledge of cognition is an essential domain in shaping one's actions.

Knowledge can be influenced by several things such as age, education, job parity, and sources of information. The older a person is, the more mature a person is to think and make decisions, and the higher the knowledge and experience he has. Age is very influential on the provision of BCG immunization because the older a person gets, the more they know about BCG immunization<sup>27</sup>. This is not following the study results because the majority of mothers lack knowledge. This can be caused because mothers do not want to know about BCG immunization. Education can also affect understanding. Education is a learning process to develop or improve one's abilities, where the higher a person's education, the better his or her knowledge, and vice versa, the lower a person's level of education, the lower the level of expertise.

From the study results, respondents with low elementary education were 4 people (8.0%), and junior high school was 8 people (16.0%). This is following the study results because the majority of respondents lack knowledge with low education (Primary, Senior High School). Work is an activity or activity that is carried out daily for each group or individual to achieve the desired goals. Someone who does not have activities or activities in this case work is encouraged to do positive activities in terms of knowing BCG immunization. The majority of mothers' knowledge is lacking. This can be caused because mothers do not understand BCG immunization even though the information is obtained through health workers. According to the researcher's assumption, education affects the mother's level of knowledge about BCG Immunization, while age, occupation, and sources of information do not affect the respondent's ability about BCG Immunization.

## CONCLUSION

From the results of this research, it can be concluded that: a) Mother's level of knowledge about BCG immunization in the excellent category is 12 respondents (24.0%), and b) Mother's

level of knowledge about BCG immunization in the excellent category as many as 38 respondents (76.0%). It is hoped that with this research, mothers who have babies at the age of 0-2 months are more active in seeking information through print, television, and radio media and participate in health education provided by health workers so that mothers know about the importance of immunization, especially BCG.

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