

Factors Associated with Basic Immunization Status of Infants

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ABSTRACT

Immunization is an attempt to actively boost a person's immunity against a disease, so that if one day exposed to the disease will not get sick or just experience mild illness. Immunization is routinely divided into primary immunization and continued immunization. Basic immunization is given to infants aged 0 to 1 year, where as advanced immunization is a repeat immunization intended to maintain immunity level or to prolong the period of protection. Further immunization is given when primary immunization is given first, and is given at the age of toddlers and at school age.

This research is cross-sectional study. The dependent variable in this study is the basic immunization status of infants, while the independent variables include age, education level, occupation, knowledge and attitude. The sample of this research is mothers with children aged 12-24 months totaling 250 respondents. Instrument of data collection using questionnaire and health record of baby. The data transformation uses the data normality test and Rasch model. Data analysis technique using Chi Square test and logistic regression test.

The result of data analysis showed that there was a significant correlation between occupation ($p < 0,05$, $PR = 1,864$; $95\% CI = 1,121-3,097$), education level ($p < 0,05$; $PR = 3,438$; $95\% CI = 1,671- 7,074$), knowledge ($p < 0,05$, $PR = 2,653$; $95\% CI 1,580-4,455$) and attitude ($p < 0,05$, $PR = 3,202$; $95\% CI = 1,897-5,405$) with infant immunization status. Age has no significant relationship with the basic immunization status of infants. Conclusions coverage of basic infant immunization completeness in this area is still low that is equal to 42,4%. Attitude is the most dominant factor associated with the basic immunization status of infants.

BACKGROUND

Progress of a country is built through strategies to improve human resources through improved health and welfare. Associated with development in the health sector then the strategy is formulated through government policy with one of the agenda of work is "Sustainable Development Goals (SDGs)". There are seventeen success indicators of SDGs that target zero goals for all indicators, specifically for the health sector focusing on reducing maternal mortality, infant mortality and underfive mortality with each target of 70 per 100,000 KH, 12 per 1,000 KH and 25 per 1,000 KH by 2030.

The high rate of infant mortality in Indonesia is caused by diseases that can be prevented by immunization, including Tuberculosis, Diphtheria, Pertussis, Tetanus, Hepatitis B, Polio and Measles. An estimated 1.7 million (5%) of deaths in infants can be prevented by immunization.

Immunization is an attempt to actively boost a person's immunity against a disease, so that if one day exposed to the disease will not get sick or just experience mild illness. Immunization is routinely divided into primary immunization and continued immunization. Basic immunization is given to infants aged 0 to 1 year, whereas advanced immunization is a repeat immunization intended to maintain immunity level or to prolong the period of protection. Further immunization is given when primary immunization is given first, and is given at the age of toddlers and at school age.

Immunization should be known by every family and community, about 3 out of 100 births of children will die of measles, 2 out of 100 births of children will die of whooping cough, 1 in 100 births of children die of tetanus disease. And of every 200,000 children, 1 will suffer from polio disease. Immunization done by giving a particular vaccine will protect the child against certain diseases. Although vaccination facilities are now available in the community, but not all infants are brought in for complete immunization.

The government policy of 0-11 months of age is mandatory for complete basic immunization consisting of 1 dose of Hepatitis B, 1 dose of BCG, 3 doses of DPT-Hepatitis B, 4 polio doses, and 1 dose of measles. Percentage of immunization by its highest to present lows in Indonesia is BCG (77.9%), Measles (74.4%), Polio 4 (66.7%), and lowest DPT-HB 3 (61.19%). For national and global targets to achieve eradication, elimination and reduction of PD3I, immunization coverage should be maintained high and evenly until it reaches a high level of population immunity. Efforts are made to help the achievement of growth and infant health to adult high quality. According to WHO data about 194 developed and developing countries continue to perform routine immunization in infants and children. Developed countries with good levels of nutrition and the environment continue to routinely immunize all of their babies, as they are proven beneficial to immunized infants and prevent the spread of surrounding children. Every years about 85-95% of babies in those countries are routinely immunized, while the remainder have not been immunized because of certain diseases, access to immunization services, distance barriers, geographic, security, socio-economic and so on. Immunization is not only a health program in Indonesia but also a world program (WHO). There is no vaccine or drug that is 100% safe from risk factors, but in general, safe immunization is given, even the benefits provided are very large compared to existing risk factors.

The purpose of this study was to analyze factors related to the basic immunization status of infants including age, occupation, education level, knowledge and attitude. The final result is also expected to know the dominant factors most related to the basic immunization status of infants.

METHOD

This research uses observational, analytic, cross-sectional design. The dependent variable in this study is the basic immunization status of infants, while the independent variables include age, education level, occupation,

knowledge and attitude. The research was conducted in Alamendah Village, Rancabali, Bandung Regency, West Java in October-November 2017. The sample of this research is mothers with children aged 12-24 months totaling 250 respondents. The sample was chosen by consecutive sampling method. The data used are primary data to measure the independent variable and secondary data to measure the dependent variable. Instrument of data collection using questionnaire and health record of baby. The questionnaire contains questions about the level of knowledge of 20 items and the question of attitude totaling 10 items, both measured by likert scale. The instrument has passed the test stages of validity and reliability with Product Moment test for validity test and Cronbach's Alpha test. The reliability test analysis earns a value of 0.873.

Data analysis using computerized system. Age variable, education and occupation are

categorical data, while knowledge and attitude is variable with numerical data which will be transformed into categorical data. The knowledge variable is transformed by using cut-off point average value because the data form of normal distributed knowledge variable. Attitude variables were analyzed with Rasch model which then used cut off point average logit value for transformation into categorical data. Bivariate analysis using chi square test and multivariate analysis using logistic regression test

RESULTS

The research has been conducted on 250 selected respondents with the research procedure through the agreement to fill informed consent and answer the questionnaire available

Table 1. Results Transformation of Knowledge and Attitude Variables

Variable	Cut off Point
Knowledge	Mean = 14,7*
Attitude	Mean (Logit) = 79,89** SD = 20,26

* Distribution of normal data by Shapiro Wilk analysis

** Analysis with Rasch model

Based on Table 1 it is known that the result of the transformation of the original knowledge variable is numerical data into categorical data using the average value with the consideration that the data distribution is quite normal. The result of the transformation of knowledge variables obtained the measurement of less

knowledge and good knowledge. Transformation of attitude variable using Rasch model analysis, got the average value of logit 79,89 so categorizing attitude variable got result of 2 scale measure that is not support attitude and support attitude

Table 2. Frequency Distribution of Immunization Status of Infant, Age, Occupation, Level of Education, Knowledge and Attitude

Variable	Amount (n)	Percentage (%)
basic immunization status of infants		
complete	106	42,4
incomplete	144	57,6
Age		
<20 years and or >35 years	76	30,4
20 – 35 years	174	69,6
Occupation		
No working	124	49,6
Working	126	50,4
Level of education		
Basic education	198	79,2
High education	52	20,8
Knowledge		
Less	126	50,4
Good	124	49,6
Attitude		
Does not support	122	48,8
Support	128	51,2

Based on table 2 it is known that the description of immunization status in Alamendah Village, Rancabali, Bandung Regency West Java in the year 2017 is mostly have incomplete status (57.65). Most 69.6% of respondents are in the productive age range with a minimum health risk of 20-35 years. Most of the 50.4% of respondents work, with the results of further study that the work of respondents, among others, are farmers and farm laborers. 79.2% of respondents are

primary education level. Based on the Indonesian government regulations that the category of basic education is education up to the first 9 years is up to the range of junior high school education. Respondents' knowledge is mostly 50.4% in less categories, and 51.2% of respondents support to provide their children with basic immunization set by the government.

Table 3. Relationship of Age, Occupation, Education Level, Knowledge and Attitude With Basic Immunization Status of Infant

Variable	Immunization Status		P value	PR (95% CI)
	Incomplete (n = 144)	Complete (n = 106)		
Age				
<20 years and or >35 years	34 (44,7%)	42 (55,3%)	0,621	1,147 (0,666-1,975)
20 – 35 years	72 (41,4%)	102 (58,6%)		
Occupation				
No working	62 (50%)	62 (50%)	0,016	1,864 (1,121-3,097)
Working	44 (34,9%)	82 (65,1%)		
Level of education				
Basic education	95 (48%)	103 (52%)	0,000	3,438 (1,671-7,074)
High education	11 (21,2%)	41 (78,8%)		
Knowledge				
Less	68 (54%)	58 (46%)	0,000	2,653 (1,580-4,455)
Good	38 (30,6%)	86 (69,4%)		
Attitude				
Does not support	69 (56,6%)	53 (43,3%)	0,000	3,202 (1,897-5,405)
Support	37 (28,9%)	91 (71,1%)		

Based on the analysis presented in Table 3 it is known that from the 5 factors studied, it was found that there was only one factor that did not have a significant relationship to the basic immunization status of the infant is the age factor. Although the picture of most respondents are in the productive age is in the range of 20-35 years, but the results of the analysis in the table with the distribution of categories of completeness immunization status found that 41.4% of mothers who are in the age range 20-35 years do not provide complete immunization to the baby.

The data contained in Table 3 shows that the working mother group has a larger amount to provide complete basic immunization to the baby (65.1%). In line with the description, the result of bivariate analysis with 95% confidence level shows the result that unemployed mother has opportunity to not give complete basic immunization to the baby equal to 1,8 times compared with working mother.

The strength of exposure to educational level factors on the basic immunization status of infants is 3.4 times, which means that mothers with education up to the primary education limit have a chance of 3.4 times not to provide complete immunization to their babies. It also affects simultaneously to the knowledge factor. Mothers with less knowledge about immunization will have a 2.6 times greater chance of not fully immunizing their babies. A final analysis of attitude factors showed that mothers who showed no supportive attitude toward immunization had an opportunity of 3.2 times not to provide complete immunization to their infants.

Table 4. Logistic Regression Analysis of Work, Level of Education, Knowledge and Attitudes With Basic Baby Immunization Status

Variable	Koef (β)	SE (β)	Wald	P value	Exp.B (95% CI)
High education	1,341	0,397	11,388	0,001	3,821 (1,754-8,324)
Working	0,831	0,296	7,876	0,005	2,295 (1,285-4,100)
Good knowledge	1,157	0,295	15,379	0,000	3,181 (1,784-5,671)
Support attitude	1,361	0,299	20,780	0,000	3,902 (2,173-7,006)
Constanta	-3,125	0,508	37,807	0,000	

* Analysis with logistic regression

DISCUSSION

Immunization is one of the prevention efforts that can be done to prevent the spread of disease and is an indicator of the health status of children in a country. Despite the significant benefits to immunization as a pre-emptive effort, however, especially in the country of Indonesia there have been various issues affecting parents' decision to immunize their children.

Based on the results of research conducted found that only 42.4% of children who have complete basic immunization status in accordance with the provisions of the government. This data is very apprehensive when compared with the government target that determines 90% basic immunization coverage.

The condition is influenced by several factors such as the result of this research is the work, the level of education, knowledge and attitude. Work is closely linked to the economic conditions in which this will affect the mental preparedness of the family in accessing healthcare facilities. In addition, work can provide an individual opportunity to frequently contact with other individuals, exchange information and share experiences with working moms who will have a wide range of relationships and can exchange information with colleagues, so that more exposure to health programs, especially immunization .

The results suggest that there is a significant relationship between the level of education and knowledge of the basic immunization status of infants. This is in line with research that has been done in Angola, Bangladesh, Ethiopia and several other big cities in Indonesia. The level of education affects knowledge. According to Reinberg (2008) it is said that a person's behavior is influenced by the level of education completed successfully related to the increase of information sources that increase knowledge. Green (1980) states that a person's behavior related to health status is influenced by knowledge, attitude, belief as a predisposing factor to it. All of these factors are related to each other and support a person to make decisions to determine what will be given to self or his family.

Compliance with prevention behaviors related to the medical world is a function of beliefs about health, perceived threats, perceptions of immunity, consideration of obstacles or losses (eg cost and time), as well as the benefits of the effectiveness of the medical advice. Good knowledge can influence behavior change. Behavior can be changed by changing knowledge and attitude. Good knowledge can influence attitudes and behavior change. Knowledge is something that is necessary but generally not enough one factor in changing the behavior of individuals or groups. In support of the statement, Notoatmodjo (2010) states that one's actions on health problems will essentially be influenced by one's knowledge of the problem.

Social and cultural conditions shape attitudes and behaviors that affect health status. In this study almost all respondents embraced Islam and influenced by Sundanese culture. Based on the observation is known that most mothers have a thought to the issue that lately revealed that the issue of vaccination forbidden given because it contains substances that can not be given by a particular religion. Despite having sufficient knowledge but the influence of religious figures and spirituality beliefs have an impact on decisions taken by the family. An emotional life and a person's inclination to act are also key components that shape a person's attitude.

In addition to the factors studied in this study, there are still other factors affecting the completeness of basic immunization of infants: pregnancy visits, postpartum visits, attitudes of health workers, access to health care, family support, counseling, parity, economic status..

CONCLUSION

The basic immunization status of infants is influenced by several factors related to health behavior. The coverage of basic infant immunization in Desa Alamendah, Rancabali District, Bandung Regency West Java is still low compared to the national indicator of 42.4%. The level of education affects a person's knowledge. Along with this, behavior is also influenced by attitudes that are motivated by tradition and local cultural conditions. Increased knowledge can also be obtained through information from the media and opportunities to chat and exchange information in the social environment and work environment. Based on the result of the research, it is concluded that attitude is the most dominant factor if connected with the completeness of infant immunization status, in addition to work factor, education and knowledge level..

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