

Determinants of Parents' Behavior to Get Basic Immunization in Jombang District

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Abstract

Morbidity and mortality rates in infants and toddlers are remain high with one of them caused by vaccine-preventable diseases (PD3I). This condition occurred as a result of not achieving the target of Complete Basic Immunization and Village UCI (Universal Child Immunization). Parents' behavior was crucial to whether or not complete basic immunization is given to the infants and to better understand its determinants and influence, a study with theoretical framework is necessary. Observational analytic was used in this study with a case-control design. The sample of 66 parents were taken with multistage sampling, 33 with incomplete basic immunization on their children (case) and 33 parents with the complete ones (control) completed the measure. The data collections were through interview via questionnaire and checklist as well as observation of the MCH book. The results of this study indicated that there was a significant influence between parents' education ($p = 0.026$, $Exp(B) = 0.279$; $CI95\% = 0.094-0.856$) and parents' habits ($p = 0.03$; $Exp(B) = 0.191$; $CI95\% 0.063-0.575$) on the parents' behavior in getting the basic immunization. Educations and habits were the most important factor influencing parents' behavior to get basic immunization. A comprehensive health education for parents, especially on basic immunization is needed while simultaneously involving the community to create a conducive situation and ultimately succeed the program to achieve the basic immunization target and village UCI.

Keywords: Basic immunization, behavior, knowledge and skills, intentions, habits.

I. INTRODUCTION

Achievement of complete basic immunization and UCI villages in Indonesia, East Java and especially in Jombang District for the last 5 years have not met the target and even tend to decrease¹. This condition resulted in the emergence of extraordinary events (KLB) diphtheria in East Java including in Jombang District in 2012. A number of 955 diphtheria cases were found in East Java in 2012 with 37 deaths. In Jombang District alone were found 95 cases with 11 deaths ($CFR = 11\%$). Jombang ranked second in a number of diphtheria cases in East Java, after Situbondo (129 cases). However Jombang district ranked first in term of death rate².

Until now the PD3I disease is still found in Jombang District, such as measles and diphtheria although the numbers have decreased. Various PD3I prevention efforts have been conducted by Jombang District Health Office, such as ORI diphtheria (Outbreak Response Immunization), Diphtheria sub-PIN for all residents in Jombang District and strengthening the routine immunization program. It seems that the efforts made have not shown the maximum results.

Current prevention and mitigation efforts only focus on immunization providers, improving the performance of immunization officers, provision of vaccine logistics, and maintenance of cold chain vaccines. Countermeasures from the user side of immunization services have never been done. Parents have a big role in the decision over health matters in a family³. Parents' behavior in basic immunization is essential for infant health, for the health of family members and the health of the community in their neighborhood. Therefore parent is very important factor to be taken care⁴.

Basic immunization is determined by various factors. Studies stated that the completeness of immunization on infants or toddlers is determined by tradition ($p = 0.015$) and family support ($p = 0.001$)⁵. There is a relationship between knowledge ($p = 0.039$, $OR = 3.00$ $95\% CI (1.034-8.702)$) and mother's attitude ($p = 0.001$, $OR = 5.53$ $95\% CI (1.976-15.516)$) with the completeness of basic immunization⁶. According to Triana, knowledge ($p = 0.0014$), attitude ($p = 0.014$), motivation ($p = 0.001$), and information ($p = 0.04$) are related to the provision of complete basic immunization in infants⁷. An Integrated Behavioral Model is the development of Theory of Reason Action and Theory of Planned Behavior⁸. IBM aims to predict more specific individual behavior. According to IBM's theory that one's behavior is determined by four main factors, strong intention, knowledge and skills; something interesting and unique from the

recommended behavior (salient); the presence or absence of environmental constraints; and the behavior has become a habit in the community.

Based on this background, a research on "Determinants of parents' behavior to get basic immunization in Jombang District" is necessary. The purpose of this study was to analyze the factors influencing the parents' behavior to get basic immunization in infants. With factors influencing parents' behavior known, an appropriate program planning can be prepared to change the parents' behavior to be actively participate in basic immunization program. The expected outcome is to increase the coverage of complete basic immunization and UCI villages in Jombang District.

II. METHODS

The type of this research was observational analytic with a case-control design. Started by determining outcome first then identifying the cause or risk factor⁹. The subject of the control group was parents with their children having complete basic immunization and the subject of case group was parents with their children having incomplete basic immunization.

This research was conducted in Jombang District, in 4 selected community health center (Puskesmas) of Bawangan, Dukuh Klopo, Cukir and Brambang between January and June 2017. The study population was all parents of children aged 12-24 months in Jombang District. The number of targeted parents was calculated based on the number of IDL target in 2016 as many as 20,167 people¹. The case-population was 975 people while the control-population was 19,192 people. The sample of this study was calculated using case-control formula⁹. The proportion value for the sample calculation refers to Umaroh's research in 2014⁶. The formula used is as follows.

$$n = \frac{\left(Z_{1-\frac{\alpha}{2}} \sqrt{2P_2(1-P_2)} + Z_{1-\beta} \sqrt{P_1(1-P_1) + P_2(1-P_2)} \right)^2}{(P_1 - P_2)^2}$$

A sample of 66 people was obtained, consisting of 33 case samples and 33 control samples. Multistage Sampling technique was used which in this case were the cluster, stratification, and taking of research subject at random. Population and sample of the research were determined using inclusion criteria as follows:

- 1) Able to read and write.
- 2) Have a 12-24-month-old toddler, with incomplete (case) /complete (control) of immunization status
- 3) Have KMS / MCH book
- 4) Willing to volunteer to be a research sample

Independent variables of this study include age, education, income, knowledge and skills, intentions, and habits. While the research dependent variable was the behavior to get basic immunization.

All variables data were collected using questionnaires, interviews, and observation of KMS/MCH books, recapitulation of district-level immunization reports. Data was analyzed using logistic regression test.

III. RESULTS AND DISCUSSION

A. Characteristics of Respondent

Characteristics of respondent in this study included age, education, and income.

Table 1. Distribution of Parents' Characteristics

Independent variables	Frequency	%
Age		
- 19-32 years	35	53
- > 32 years	31	47

Education		
- ≤9 years	22	33,3
- > 9 years	44	66.7
Income		
- ≤ UMK	56	84.8
- > UMK	10	15.2

The majority of respondents (53%) were aged 19-32 years or in their productive period. Parents' education were mostly Senior High School, Diploma, and Bachelor Degree (66.7%) which is classified as upper middle class. Parents' income per month was mostly (84.8%) the same or below the UMK (District Minimum Wage), which is Rp. 2,082,730.00¹¹

B. Knowledge and Skills, Intentions and Habits

Behavioral determinants in this study include knowledge and skills, intentions and habits of parents in basic immunization. Table 2 shows the distribution of those determinants. The most of parents' knowledge and skills about basic immunization were in the low category (57.6%). Parents with weak intentions were 54.5% higher than those with strong intentions. The percentage of parents' habits factors in the poor or good category is equal.

Table 2. Distribution of Parents' Knowledge and Skill, Intention and Habit

Independent variables	Frequency	%
Knowledge and skills		
- Low	38	57.6
- High	28	42.4
Intention		
- Weak	36	54,5
- Strong	30	45,5
Habit		
- Less	33	50,0
- Good	33	50,0

C. Relationship of Parents' Characteristic and Behavior to Get Basic Immunization

Parents with complete basic immunization on their infants were 26 people (59.1%) with education >9 years. Parents with ≤9 years of education with complete basic immunization on their infants were only 7 people (31.8%).

Table3. Relationship of Parents' Characteristic and Basic Immunization Behavior

Variable	Behavior		P value	OR
	Incomplete	Complete		
Age				
- 19-32 years	17 (48.6%)	18 (51.4%)	0.805	-
- >32 years	16 (51.6%)	15(48.4%)		
Education				
- ≤9 years	15 (68.2%)	7 (31.8%)	0.037	3.095
- >9 years	18 (40.9%)	26 (59.1%)		
Income				
- ≤ UMK	27 (48.2%)	29 (51.8%)	0.492	-
- > UMK	6 (60.0%)	4 (40.0%)		

The statistical analysis result shows that p-value =0,037 (p <0.05) which means there was a relationship between education level and behavior to get basic immunization. OR = 3.095 means that parents with education ≤9 years were having a risk of 3.095 times to behave of not getting a complete basic immunization. There was no relationship between other parents' characteristic variables such as age, and income with parents' behavior to get basic immunization.

D. Effect of Parents' Intention, Knowledge and Skills and Habit on Behavior to Get Basic Immunization

Based on the relationship analysis in table 4, it was found that the value of $p = 0.001$ ($p < 0.05$), meaning that parents' habit had a relationship with behavior to get basic immunization.

Table 4. Effect of Parents' Intention, Knowledge and skills and Habits on Behavior to Get Basic Immunization

Variable	Behavior		P value	OR
	Incomplete	Complete		
Intention				
- Weak	18 (27.3%)	18 (27.3%)	1.000	-
- Strong	15 (22.7%)	15 (22.7%)		
Knowledge and skills				
- Low	22 (33.3%)	16 (24.2%)	0.135	-
- High	11 (16.7%)	17 (25.8%)		
Habits				
- Poor	23 (34.8%)	10 (15.2%)	0.001	5.290
- Good	10 (15.2%)	23 (34.8%)		

Intentions and knowledge and skills were not related to behavior. This was indicated by significance value of intention $p = 1.000$ and knowledge and skill $p = 0.08$ ($p > 0.05$).

F. Effect of Parents' Characteristics on Behavior to Get Basic Immunization

Based on the statistical analysis in table 5, among the 4 characteristics, education had influence on basic immunization behavior. This was indicated by the significance value $p = 0.025$ ($p < 0.05$). Exp (B) Value= 0.276 means that parents with ≤ 9 years of education (primary-junior high school) were at risk of 0.276 times not giving complete basic immunization compared with parents who were educated > 9 years (senior high school).

Table 5. Effect of Parenting Characteristics on Behavior to Get Basic Immunization

Variable	B	Sig	Exp(B)	95% CI	
				Lower	Upper
Age	-0.001	0.999	0.999	0.359	2.781
Education	-1.277	0.026	0.279	0.091	0.856
Income	0.848	0.252	2.334	0.548	9.947
Constant	-0.300	0.684	0.741		

Both parents' age ($p=0.946$) and occupation ($p=0.610$) had no influence on the behavior.

E. Age

Most of the respondents in this study were between 19 and 32 years old which is in their early of adulthood¹². Statistical analysis suggested that there was no influence of respondent's age on basic immunization behavior which has been documented in recent research^{13,14}. The rapid advancement in information and communication technology enabled people of all ages to communicate and access information. Parents with younger and older adults had equal access to information on basic immunization.

G. Education

Education is an important indicator of human resource quality. One indicator of Human Development Index (HDI) in Indonesia is education. The results of this research analysis indicate that there were a relationship and influence between parents' education and behavior to get basic immunization. The results of this study were in line with recent research which stated that there is a relationship between maternal education levels and the completeness of basic immunization of infants but does not have influence^{5,15}. In contrast to the research held in Kuranji sub-district Padang City⁶ which stated that there is no relationship between maternal education and the behavior to get basic immunization.

Education is an effort of persuasion or learning to the community to take actions (practices) to maintain (overcome the problem) and improve his health¹⁶. Educated people have a more open mindset in accepting the various information available. The influence of parents' education on basic immunization behavior in this study indicated

that parents' education was able to open their minds about the importance of basic immunization so as to influence the behavior to get basic immunization.

I. Income

The results of this study suggested that there was no influence of parents' income on the behavior to get basic immunization. The majority of parent's income was less than or equal to the minimum wage (UMK) of Jombang District. More parents with incomes \leq UMK were getting basic immunization rather than not. On the other hand, parents with income $>$ UMK who did not get basic immunization on their infants was larger compared to parents who got it.

The findings in this study were the majority of parents who either get complete or incomplete basic immunization on their infants were earning \leq UMK. Most parents immunized their infants at Posyandu which is free of charge¹⁸. So parents who earned \leq UMK could still get complete basic immunization in Posyandu.

This study was in line with other research which stated that there is no influence of income levels with the completeness of basic immunization in infants or toddlers⁵. However, the results of this study contradict the WHO statement that high immunization costs are a major obstacle for people to get complete basic immunization for infants¹⁸.

J. Effect of Intention, Knowledge and Skills and Habits on Parents' Behavior to Get Basic Immunization.

Based on table 6, the significance value of intention variables of 0.431 ($p > 0.05$) means intention did not influence the parents' behavior in getting basic immunization. The knowledge and skill had significance value $p = 0.596$ ($p > 0.05$) means that there was no influence on the parents' behavior in getting basic immunization.

The habits variable, having a significance value of $p = 0.002$ ($p < 0.05$) means that there was an influence between the parents' habits and the parents' behavior in getting basic immunization. Exp(B) value = 0.191 means that parents with poor habits were having 0.189 times chances of not getting complete basic immunization compared to parents with good-habits.

Table 6. Effect of Intentions, Knowledge and Skills and Habits on Parents' Behavior to Get Basic Immunization

Variable	B	Sig	Exp (B)	95% CI	
				Lower	Upper
Intention	0.450	0.431	1.568	0.511	4.809
Knowledge and skills	-0.517	0.360	0.596	0.197	1.804
Habits	-1.658	0.003	0.191	0.063	0.575
Constant	0.880	0.083	2.411		

K. Intention

Based on the statistical analysis, there was no influence of intentions on parents' behavior to get basic immunization. The intention is a probability or subjective probability, i.e. one's estimation of how likely it is to perform a particular action¹⁹. According to Ajzen, the intention of performing the behavior is the tendency of a person to do or not to do certain behavior²⁰. According to the theory of Integrated Behavioral Model, the most important determinant of behavior is intentions⁷.

Referring to IBM's theory, other than strong intentions there are four important components that directly affect behavior. A strong intention only if it is not supported by these 4 important components, it is unlikely that behavior can be realized. The four essential components are 1) Knowledge and skills about behavior; 2) Salient of behavior; 3) Environmental constraints; 4) Habit.

The results of this study indicated that most respondents only had moderate intentions to get basic immunization. A small part of the respondents had a strong intention. Respondents who had strong intentions did not all behave to get complete basic immunization. Strong intentions if not supported by 4 other determinant factors had little possibility to become behavior. Strong intentions alone could not guarantee parents to get the complete basic immunization regardless of the interaction of the other four important determinants of behavior, especially if only at the moderate or low level of intentions.

L. Knowledge and Skills

Based on the statistical analysis, knowledge and skill had no influence on parents' behavior in getting basic immunization. The results of this study were not in accordance with the theory of IBM which states knowledge and skills is one of the determinants of behavior. The results of this study were in line with a research conducted by Rahmawati, which stated that good knowledge level does not influence the completeness of basic immunization⁵. Knowledge is the result of human sensing or the result of knowing a person towards the object through his or her senses¹⁶. Skill is the capacity needed to perform the task which is the development of the training result and the experience gained²¹.

Parents' knowledge on basic immunization is parents' knowledge about everything related to basic immunization. While basic immunization skills are parents' ability to apply or practice some things related to knowledge on basic immunization. For example, parents are able to calculate when the basic immunization schedule is given to the infant. So essentially, skills are more than just knowing but also capable of practicing what is known.

The lack of influence between parents' knowledge and skills was likely caused by most parents in this study had a low level of knowledge and skills. Most parents at low knowledge level did not get complete basic immunization. On the other hand, parents with high knowledge level and skills mostly get complete basic immunization.

M. Habit

The statistical analysis shows that there was influence between habits to parents' behavior in getting basic immunization. The results of this study were in accordance with the theory of IBM. According to IBM, one of the important determinants of one's behavior is habit⁷. The results of this study were in line with Rahmawati's research which stated that there is an influence of tradition (habit) on the completeness of immunization in infants⁵.

The existence of influence between habits and behavior in getting basic immunization occurred because of parents' composition with complete and incomplete basic immunization on their infants was equal. Parents with poor habits and good habits had the same proportion in getting complete and incomplete basic immunizations. It could be said that poor or good habits and parents' behaviors to get complete or incomplete basic immunizations in infants were evenly distributed. People who were accustomed to doing poor or good habits will automatically continue to do those habits so that it becomes a tradition.

IV. CONCLUSION

Most of the parents were productive, middle-upper educated with average monthly family income was less or equal to UMK. Educations and habits were the most important factor influencing parents' behavior to get basic immunization. There is a need for a comprehensive health education program on complete basic immunization by utilizing the current information technology while at the same time involving community to create a conducive situation. The expected impact is the achievement of complete basic immunization targets and UCI villages in Jombang District.

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