INTERNATIONAL JOURNAL OF INNOVATIVE RESEARCH & DEVELOPMENT

ISSN 2278 – 0211 (Online)

Mothers' Participation in Hepatitis B Immunization of Infant Based on Health Belief Model (HBM) at Puskesmas Maesan Bondowoso

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Abstract:
Hepatitis B is now become endemic in some countries, including Indonesia. The prevalence number of hepatitis B virus infection in Indonesia is around 3-20%. The risk of chronic hepatitis B is much greater in early life compared to adulthood. The risk of chronicity of hepatitis B virus infection in infancy is 90-95 %, and 25-30 % of them develop into liver cirrhosis or hepatocellular carcinoma. As occurred in PuskesmasMaesanBandowoso, by interviewing 50 mothers, it is found as many as 120 infants infected with hepatitis B virus. The most effective way to prevent hepatitis B virus is by immunization. Hepatitis B immunization is given to infant after HbsAg screening on pregnant mother. This study aims to look at the effect of susceptibility, severity, benefit, obstacle, and action indicator towards mothers' participation in hepatitis B immunization based on Health Belief ModelatPuskesmasMaesanBondowoso. The result shows that indicators which have significant effect towards mothers' participation are susceptibility, severity, and obstacle indicator. Besides, the obtained value ofR-Square Nagelkerkeis 0.494, this shows that the influence of indicator towards mothers' participation in hepatitis B immunization based on Health Belief Model at Puskesmas Maesan Bondowosois 49.4%.

Keywords*: Hepatitis B, Infant, Immunization*

1. Background

Hepatitis B is a virus infection which attacks liver and can cause acute and chronic liver disease (James, 2008).*World Health Organization* estimates that over 2 billion of world population have been infected with hepatitis B virus, where 378 million or 4.8% infected with chronic carrier with a death rate of 620,000 people each year. More than 4.5 million new infection cases of hepatitis B virus happens every year, and ¼ of that cases develop into*cirrhosis hepatis* and *primaryhepatocellular carcinoma* liver disease (Franco *et al*., 2012).

Primary prevention using vaccination to increase immune remains a major force in hepatitis B virus infection control to vulnerable people, cut off transmission and cure chronic infection. Vaccination has been available for more than two decades, because of the high risk of hepatitis B virus infection many Asian countries have adopted mass vaccination since 1980 (Marfin & Gubler, 2005).

The most effective preventive effort is immunization. Hepatitis B immunization is given to infant after the screening of HbsAg in pregnant mother. However, now, in some countries (including Indonesia with Immunization Development Program) newborn baby is given hepatitis B vaccination without screening on the mother. Hepatitis B basic immunization is given 3 times with 5 months interval between the second and third injection. Repeated immunization is given 5 years after basic immunization. (Conan, 2005). Hepatitis B immunization is very important to prevent infection of hepatitis B.

World Health Organization (WHO) in 1997 developed effective control strategy to decrease the number of chronic hepatitis B infection through *Expended Program Immunization* (EPI). The result was WHO recommended hepatitis B vaccine which is integrated into country's national immunization program. If WHO has ever applied EPI program which is explained before, on the contrary, researcher is interested in examining the control of hepatitis cases in infant by applying *Health Belief Model* (HBM) concept.This study aims to find out the participation of mothers in hepatitis B immunization based on *Health Belief Model* (HBM) at PuskesmasMaesanBondowoso.

2. Materials and Methods

This study uses descriptive analytical observational research design with *cross sectional study*approach. The study was conducted in January - December 2015 at PuskesmasMaesanBondowoso. The population in this research were all mothers with children under five (< 5 year), whether the children have been completely immunized with hepatitis B or not (not complete yet). The variable in this study is divided into two: the dependent variable and independent variable. The independent variable here is mothers' participation variable(Y), whether independent variables consist of susceptibility

variable (X1), severity variable (X2), benefit variable (X3), obstacle variable (X4), and action variable. The sampling is using SLOVIN formula with a sample size of 100 people. Primary data is obtained from direct interview with respondent using questionnaire which has been set. Data analysis was performed using multinomial logistic regression method. Data which has been processed is presented in narrative and table form.

3. Results and Discussion

Hepatitis virus is a systemic infection which mainly affects the liver. Hepatitis B disease is widespread with different endemicity level according to geography and ethnicity. Indonesia endemicity level is medium-high with HbsAg prevalence varies according to geographical (Prijanto*et al*, 2002). HbsAg prevalence data in Indonesia vary greatly; it is understandable since Indonesia has large area with behavior and culture diversity (Julitasari&Sulaiman, 1995).

Mothers are individuals who play an active role in taking care, guarding, and protecting children. The participation of mothers has a great influence in giving hepatitis B immunization in each child. This study aims to find out the effect of mothers' participation in hepatitis B immunization on infant based on *Health Belief Model* (HBM) conducted at PuskesmasMaesanBondowoso. This study is conducted by distributing 100 questionnaires to mothers as a respondent and each respondent get one questionnaire. The participation of mothers is affected by a number of predefined variables including susceptibility, severity, benefit, obstacle, and action variables.

Based on statistic with SPSS 22 program, it is obtained that variables which affect the participation of mothers in the involvement of carrying the infants to get hepatitis B immunization are the variables of susceptibility, severity, and obstacle, whether the variables of benefit and action don't have significant effect towards mothers' participation variables that will be presented as follows.

Effect	**Model Fitting Criteria**		**Likelihood Ratio Tests**		
	-2 Log Likelihood	Chi-Square hitung	Chi-Square table	df	Sig.
Intercept	105.595[a]	.000	9.488	0	.
X1	120.742	15.148	9.488	4	.004
X2	123.852	18.257	9.488	4	.001
X3	107.638	2.043	9.488	4	.728
X4	124.119	18.524	9.488	4	.001
X5	107.005	1.410	9.488	4	.842

Table 1: Testing Each Variable Partially

Model	**Model Fitting Criteria**		**Likelihood Ratio Tests**		
	-2 Log Likelihood	Chi-Square hitung	Chi-Square table	Df	Sig.
Intercept Only	159.007				
Final	105.595	53.412	31.410	20	.000

Table 2: Testing Variables Simultaneously

Cox and Snell	.414
Nagelkerke	.494
McFadden	.294

Table 3: Goodness Testing Model

3.1. Susceptibility Impact on Mothers' Participation in Hepatitis B Immunization

The susceptibility is mothers' knowledge that have infant about hepatitis B immunization. The result of the questionnaire from 100 respondents shows that mothers who have children less than 5 years old about hepatitis B immunization is 32% of them are categorized as good, 41% are enough, and 27% are less. Therefore, susceptibilityvariable shows that mothers' knowledge who have children less than 5 years old is enough.

The result of testing with logistic multinomial regression analysis shows that susceptibility variable has significant impact to mother behaviour in their participation in hepatitis B immunization at puskesmas maesan bondowoso. This can be known from value of sig. 0,004 < 0,05 or value count *Chi-square*is bigger than table *Chi-square* about 15,148 >9,488. It means that mothers' knowledge about hepatitis B immunization has a big impact to their participation in the immunization.

3.2. Severity Impact on Mothers' Participation in Hepatitis B Immunization

Severity is a need that mother who have infant age less than 5 years old feel about her infant condition to come and participate in hepatitis B immunization. The questionnaire from 100 respondents shows that the need of mothers who have infant less than 5 years old about their infant condition to come and participate in hepatitis B immunization with really need criteria is about 60%, with need criteria is 27%, and no need is 13%. This shows that the mothers feel that they really need hepatitis B immunization for their infant.

The result of testing with logistic multinomial regression analysis shows that severity variable have significant impact to mother behaviour in their participation in hepatitis B immunization at Puskesmas Maesan Bondowoso. This can be known from value of sig. 0,001 < 0,05or value count *Chi-square*is bigger than table *Chi-square* about 18,257 > 9,488. This means that the need the mothers feel about their infant condition to come to hepatitis B immunization has a big impact on their participation.

3.3. Benefit Impact on Mothers' Participation in Hepatitis B Immunization

The benefit is how far the mothers who have infant age less than 5 years old know about the impact of hepatitis B immunization for their infant. The questionnaire from 100 respondents shows that how far the benefit that the mother who have infant less than 5 years old feel from hepatitis B immunization with really valuable criteria is about 53%, with valuable criteria is 27%, and not valuable criteria is 13%. Therefore, this shows that mothers feel that hepatitis B immunization is really valuable for their infant.

The result of testing with logistic multinomial regression analysis shows that benefit variable has significant impact to mother behaviour in their participation in hepatitis B immunization at Puskesmas Maesan Bondowoso. This can be known from value of sig. 0,728 >0,05or value count *Chi-square*is bigger than table *Chi-square* about 2,043 < 9,488. This means that the mothers' participation in hepatitis B immunization for their infant is not based on how far the benefit of the immunization for their infant.

3.4. Obstacle Impact on Mother Participation in Hepatitis B Immunization

In this study, obstacle variable is something categorized as thing hamper the mothers to participate in hepatitis B immunization. The questionnaire from 100 respondents shows that obstacle that the mothers who have infant less than 5 years old have with high criteria is about 32%, with moderate criteria is 29%, and low criteria is 39%. Therefore, this showsthat the obstacle that the mother feel about hepatitis B immunization to be held is low.

The result of testing with logistic multinomial regression analysis shows that obstacle variable has significant impact to mothers behaviour in their participation in hepatitis B immunization at Puskesmas Maesan Bondowoso. This can be known from value of sig. 0,001 <0,05or value count *Chi-square*is bigger than table *Chi-square* about 18,524 > 9,488. This means that the mothers participation is depend on how big the obstacle the mothers have.

3.5. The Action Impact on Mothers Participation in Hepatitis B Immunization

The Action variable is the thing that influence the mother to have healty life behaviour. The questionnaire from 100 respondents shows that the influence of the mother who have infant less than 5 years old with really influence criteria is about 53%, with moderate influence criteria is 28%, and low influence criteria is 39%. Therefore, this show that the influence of the mothers to have healty life is so influence them.

The result of testing with logistic multinomial regression analysis shows that obstacle variable has significant impact to mothers behaviour in their participation in hepatitis B immunization at Puskesmas Maesan Bondowoso. This can be known from value of sig. 0,842 > 0,05or value count *Chi-square*is bigger than table *Chi-square* about 1,410 < 9,488. This means that the mothersparticipation is not depend on how big the impact from their motivation to have healty life.

4. Conclusions and Suggestions

This study conclude that the relation between susceptible, severity, and obstacle that is felt towards mothers behaviour in their participation in hepatitis b immunization is shown by the value of count *chi-square* that bigger than table *chi-square*. While the benefit and the action that influence the mothers has no relation or effect on mothers behaviour in their participation in hepatitis Bimmunization for their infant at Puskesmas Maesan Bondowoso.

The suggestion for health figure and the government of Maesan Bondowoso is to give health education esspecially the education about hepatitis B prevention and its dangerous so that the participation of the mothers who have infant age less than 5 years old is getting better and they can do the prevention with the immunization. While for the next researchers, they should do the next research with another variable which is not used yet in this study.

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