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THE RELATIONSHIP BETWEEN KNOWLEDGE OF HEPATITIS B-0 IMMUNIZATION AND HEPATITIS B-0 IMMUNIZATION TIMING IN JETIS PRIMARY HEALTH CENTRE, YOGYAKARTA, INDONESIA

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ABSTRACT

Background: *Hepatitis B, one of dangerous communicable diseases, causes outbreak and death. Jetis Public Health Center, moreover, had lowest immunization scope compared to other public health centers in Yogyakarta, that only at 89.46%.*
Aims: *This is to determine the relationship between the level of mother's knowledge on Hepatitis B0 immunization and time of Hepatitis B0 immunization in Jetis Public Health Center Yogyakarta.*
Methods: *A semi-qualitative research was employed with an analytical survey and cross-sectional time design. A total of 69 mothers who immunized their infants in Jetis Public Health Center, Yogyakarta, was selected by accidental sampling technique. The data was then analysed by Chi-Square statistical test.*
Results: *The research result showed a relation between the level of mother's knowledge on hepatitis B0 immunization and time of hepatitis B0 immunization in Jetis Public Health Center, Yogyakarta.*
Conclusion: *The findings highlight the importance of knowledge improvement among the mothers to Hepatitis B0 immunization. The local health providers may need to conduct socialization to encourage mothers to visit health center for infant Hepatitis B0 immunization*

Keywords: *Hepatitis B0 Immunization, mothers, knowledge, immunization.*

INTRODUCTION

Hepatitis B is caused by hepatitis B virus resulting in hardening of the liver (Cirrhosis Hepatis), liver cancer (Hepato Cellular Carcinoma), and causing death [1]. There are 350 million people in the world suffering positive HBsAg (Hepatitis B Surface Antigen) as carriers, and 220 million (78%) are in Asia, including Indonesia. 25-45% patients with hepatitis B are estimated as infants and children transmitted by the mothers, of which it has risk by 3.9% during pregnancy [2].

In the first and second trimester of pregnancy, the fetus has a risk of infection with hepatitis B by 8-10%, and increased to 67% in the third trimester [3]. Transmission of hepatitis B from mother to child is a spread of the infection with a high prevalence [4]. The children infected by hepatitis B from the mothers with positive HBsAg have risk by 90% of becoming chronic, the children aged 1-5 years have risk by 30-60%, and adults have risk by 2-6%. In infants born to mothers with positive HBsAg and Hepatitis B0 immunization is not given, they have risk by 90% of suffering chronic hepatitis B. Hepatitis B0 immunization given when the infants aged 0-7 days has risk of suffering chronic hepatitis B by 23%, and if Hepatitis B0 immunization is given after

aged 7 days, then the risk to become chronic hepatitis B increased to 40%. Hepatitis B vaccine has 85-95% effectiveness to prevent hepatitis B disease [5]. Treatment of hepatitis B disease is still difficult. In Indonesia, 460 babies die every day because of diseases that can largely be prevented by vaccination [6]. To prevent transmission of hepatitis B from mother to child, Hepatitis B transmission chain needs to be terminated by HBsAg screening on every pregnant woman. HBsAg screening method could use a rapid test. This screening should be followed by all pregnant women in the first trimester of pregnancy. This is to prepare the actions required by the positive HBsAg mothers [7].

Hepatitis B0 Immunization is one basic immunization must be given to newborns [7]. Implementation of Hepatitis B Immunization contained in the Regulations of Minister of Health of the Republic of Indonesia Number 42 of 2013 [8]. The role of midwife in immunization is giving immunization to newborns to toddlers up to pre-school ages. Hepatitis B0 immunization is given to newborns aged 0-7 days in the right thigh [9].

Hepatitis B immunization can be done well due to several factors, i.e.: birth attendants, health workers service, and perception of the severity of the disease [3]. The problems affecting Hepatitis B0 immunization are the family members do not want the baby to be immunized due to the side effects and an understanding of the family that "in the past, baby remains healthy even though not immunized," and there are people who still doubt the halal status of immunization [10]. This is in accordance with the *fiqhiyah* principle, i.e.:

الحَاجَةُ تَنْزِلُ مَنْزِلَةَ الضَّرِ
Which means: *"The needs occupy the place of emergency"*

Based on the *fiqhiyah* principle above, hepatitis B disease is one disease considered emergency [11]. The treatment of hepatitis B infectious diseases that is still difficult, especially the chronic one, makes the prevention of hepatitis B disease important [12].

In Yogyakarta City Health Profile (2014), the percentages of complete basic immunization of children in Kulonprogro: 89.7%, Bantul: 80.4%, Gunung Kidul: 74.6%, Sleman: 92.2%, and Yogyakarta City: 75.5%. Hepatitis B0 immunization percentages in Kulon Progo: 100%, Bantul: 94.5%, Gunung Kidul: 98.3%, Sleman: 100%, and Yogyakarta: 100% [13]. Complete basic immunization score in Yogyakarta in 2014 wasn't 100%. From 3.881 babies born alve, only 3.762 babies (96,93%) received complete basic immunization. From 3.881 babies born alive in 2014, 3.831 babies received Hepatitis B0 immunization <7 days (98,76%). The incomplete scope of immunization in Yogyakarta was caused by parents who refused immunization and high mobilization of the people of Yogyakarta [21]. Yogyakarta has 18 community health centers including Community Health Center of Jetis of which had the lowest percentage of complete basic immunization coverage compared to other health centers, i.e. 89.46% [13]. The previous study in Community Health Center of Jetis, Yogyakarta on April 6, 2015, showed that two children are not immunized because they refused to be immunized. In January-December 2014, the total children immunized was 218 children. Theaims of this study was to determine the relation between mother's level of knowledge on hepatitis B0 immunization and time of Hepatitis B0 immunization in Jetis Public Health Center Yogyakarta.

METHODS

This study used analytic survey method with cross sectional approach. Sixty-nine (69) mothers who brought their children to Community Health Center of Jetis, Yogyakarta were selected by using accidental sampling design from May to June 2015 in Community Health Center of Jetis, Yogyakarta. Inclusion criteria for this study is All the mothers who were willing to be

respondents and filled the approval can read, write, and brought a maternal and child health book. The exclusion criterion was child taken to Jetis Public Health Center Yogyakrta by their biological mother.

The respondents got true-false questionnaires consisting of 28 questions related to hepatitis B0 immunization knowledge. The percentage of correct answers obtained by each respondent was calculated and clarified to determine the mother's knowledge level about Hepatitis B0 immunization with good category when the score is 75-100%, 56-75%: sufficient, and < 56%: less [14]. The schedule of Hepatitis B0 immunization can be seen in Growth Chart (*Kartu Menuju Sehat*) on maternal and child health book. Thus, whether it is right or not can be known by the date specified on the Growth Chart by matching it with the child's date of birth.

Chi-Square test was conducted to determine mother's knowledge about hepatitis B0 immunization and the relationship between mother's knowledge about hepatitis B0 immunization and schedule of B0 hepatitis immunization. To see the relationship between mother's knowledge about Hepatitis B0 immunization and schedule of Hepatitis B0 immunization, contingency coefficient formula was used [15].

RESULTS

Respondents in this study were mothers getting immunization for their children required by the children, consistent with the respondent criteria in the working area of Jetis Public Health Center, Yogyakarta in 2015.

Table 1. Characteristics of Respondents Research

No	Characteristics	Frequency	Percentage (%)
1.	The age of mother:		
	a. < 20 age	2	2,9
	b. 20-35 age	62	89,9
	c. > 35 age	5	7,2
	Total	69	100,0
2.	The Education:		
	a. College	16	23,2
	b. Senior High School	38	55,1
	c. Junior High School	13	18,8
	d. Primary School	2	2,9
	Total	69	100,0
3.	The occupation :		
	a. trader	2	2,9
	b. entrepreneur	1	1,4
	c. government employees	3	4,3
	d. private employees	2	2,9
	e. does not work	61	88,4
	Total	69	100,0
4.	The gender of the child :		
	a. male	27	39,1
	b. female	42	60,9
	Total	69	100,0

5.	The birth location :		
	a. group was private midwife	2	2,9
	b. Public Health Center	59	58,5
	c. hospital	8	11,6
	Total	69	100,0
6.	The birth attendant :		
	a. midwife	65	94,2
	b. Doctor	4	5,8
	Total	69	100,0

The age of mother column shows that most mothers who take their children to Jetis Public Health Center were 20-35 years old (62 mothers or 89,9%), while the smallest age group of mothers taking their children was <20 (2 mothers or 2,9%). The education column shows that most mothers who take their children to Jetis Public Health Center, Yogyakarta had high schol education (38 people or 55,1%), while the smallest education level group was elementary school (2 people or 2,9%).

The occupation column shows that most mothers who take their children to Jetis Public Health Center for immunization didn't work (61 people or 88,4%), while the smallest occupation group was entrepreneur (1 person or 1,4%) orang. The gender column shows that most children taken by their mothers to Jetis Public Health Center for immunization were female (42 children or 60,9%), while the smallest gender group was male (27 children or 39,1%).

The birth location column shows that most mothers who take their children to Jetis Public Health Center gave birth in public health center (59 mothers or 85,5%), while the smallest birth location group was private midwife (BPS) (2 mothers or 2,9%). The birth attendant column shows that most mothers who take their children to Jetis Public Health Center were helped by midwives (65 mothers or 94,2%), while the smallest birth attendant group was doctor (4 mothers or 5,8%).

Knowledge about hepatitis B0 immunization

The knowledge level can be determined by using questionnaires containing 28 items of questions answered by 69 respondents. Every question had chance of zero score (wrong answer) and 1 score (correct answer), so each respondent could have maximum score of 28 and minimum score of 0. The percentage of correct answer of each respondent was calculated and clarified to determine mother's level of knowledge on hepatitis B0 immunization, with good, adequate, and poor categories. The measurement results of knowledge about Hepatitis B0 immunization in mothers who brought their children for immunization in accordance with the needs of the children in Community Health Center of Jetis, Yogyakarta in 2015 are presented in the following table:

Table 3. Frequency of Knowledge Level about Hepatitis B0 Immunization in Community Health Center of Jetis, Yogyakarta

Mother knowledge about Hepatitis B0 Immunization	Frequency	Percentage (%)
Good	27	39,1
Adequate	37	53,6
Less	5	7,2
Total	69	100,0

Table 3 shows that mother's knowledge about Hepatitis B0 immunization in Community Health Center of Jetis are mostly sufficient by 37 (53.6%) mothers, while the least is less knowledge by 5 (7.2%) mothers. Hepatitis B immunization is intended to provide immunity against hepatitis B disease, i.e. a disease that attacks liver. Hepatitis B0 immunization is an immunization that can prevent hepatitis B disease, and the first immunization is given to infants aged 0-7 days [15].

Schedule of hepatitis B0 immunization

Schedule of Hepatitis B0 immunization can be seen in the Growth Chart on maternal and child health book. Thus, whether it is right or not can be known by the date specified on the Growth Chart by matching it with the child's date of birth. The measurement results of schedule of Hepatitis B0 immunization on the mothers who brought their children for immunization in accordance with the needs of the children in Community Health Center of Jetis, Yogyakarta in 2015 are presented in the following table:

Table 4. Frequency of Schedule of Hepatitis B0 Immunization in Community Health Center of Jetis, Yogyakarta

Schedule	Frequency	Percentage (%)
Right	67	97,1
Not exactly	2	2,9
Total	69	100,0

Table 4 shows that schedules of Hepatitis B0 immunization are mostly proper by 67 (97.1%) mothers, while the least, those who had improper schedule of immunization are 2 (2.9%) children. Children who are not immunized against Hepatitis B0 have risk by 90% of suffering chronic hepatitis B. If Hepatitis B0 immunization is given when the babies aged 0-7 days, they have risk by 23% of suffering chronic hepatitis B, and when Hepatitis B0 immunization is given after aged 7 days, there is a risk of becoming hepatitis B disease [5].

The findings taken at the schedule of immunization service in maternal and child health room every Monday starting on 1-8 June 2015 showed that the schedule of Hepatitis B0 immunization were mostly proper by 67 (97.1%) children, while those who had improper schedule of Hepatitis B0 immunization were 2 (2.9%) children. Immunization is an information of when a particular type of vaccination or immunization should be given to children [15].

Mother's knowledge and schedule of hepatitis B0 immunization

A Relationship between knowledge level about Hepatitis B0 immunization and schedule of Hepatitis B0 immunization. Cross tabulation and statistical test of the relationship between mother's knowledge about Hepatitis B0 immunization and schedule of Hepatitis B0 immunization in Community Health Center of Jetis, Yogyakarta in 2015 are presented in the following table:

Table 5. Relationship Between Knowledge about Hepatitis B0 Immunization and Schedule of Hepatitis B0 Immunization in Community Health Center of Jetis, Yogyakarta

The level of knowledge		Schedule		Total	x^2 Count	*p-value*	*Count Coeff*
		Right	Not exactly				
Good	**F**	27	0	27	6,007	0,050	0,283
	%	40,3	0	39,1			
Adequate	**F**	36	1	37			
	%	53,7	50,0	53,6			
Less	**F**	4	1	5			
	%	6,0	50,0	7,2			
Total	**F**	67	2	69			
	%	100	100	100			

Table 5 shows that in most children who had proper schedule of Hepatitis B0 immunization, there were 36 (53.7%) mothers with sufficient knowledge, while the least, there were four (6.0%) mothers. In improper schedule of Hepatitis B0 immunization, there was a mother (50.0%) with sufficient knowledge, and a mother (50.0%) with less knowledge.

From the results of statistical calculation using Chi-Square as presented in the table, p-value of 0.050 was obtained. So, it can be concluded that there was a significant relationship between mother's knowledge level about Hepatitis B0 immunization and schedule of Hepatitis B0 immunization in Community Health Center of Jetis, Yogyakarta. Contingency coefficient value of 0.283 indicated the low relationship between mother's knowledge about Hepatitis B0 immunization and schedule of Hepatitis B0 immunization.

DISCUSSION

The findings showed that there were 27 (39.1%) respondents who had good knowledge about Hepatitis B0 immunization, while there were 37 (53.6%) respondents who had sufficient knowledge about Hepatitis B0 immunization, and there were 5 (7.2%) respondents who had less knowledge about Hepatitis B0 immunization. These results indicated that most respondents had sufficient knowledge about Hepatitis B0 immunization.

The factors affecting knowledge were education, experience, information, cultural environment, and socio-economic factors. The respondents who had good knowledge about Hepatitis B0 immunization indicated that most mothers had been informed about hepatitis B0 immunization. This good knowledge may be due to the process of providing information or health education to the mothers previously, related with Hepatitis B0 immunization [16]. Knowledge is the result of knowing and happens after one sense using human senses, i.e. seeing, hearing, smelling, tasting, touching. Most human knowledge is obtained from eyes and ears and is important in forming one's action.A total of 27 (39.1%) mothers had a good knowledge level about Hepatitis B0 immunization. This means that the respondents had been used the senses owned by the respondents to improve knowledge, especially regarding to Hepatitis B0 immunization [24].

Vertical (perinatal) transmission or maternal-neonatal transmission is a transmission of hepatitis B virus infection that occurs in uterus, in childbirth, and post childbirth. Newborns get the infection at birth from infected mothers [17]. Horizontal transmission occurs in materials containing HBsAg virus, entering the body through the skin and mucous membranes. Injection with unsterile needles causes transmission through the skin. Hepatitis B virus is spread through contact with body fluids (blood, saliva, semen) of the patients, or from mother to child in childbirth [18].

Immunization in infants is a vaccination necessary to prevent transmission of the disease from mother to baby. Immunization is useful to provide immunity against certain diseases by stimulating the formation of antibodies in the body [19]. A child who is not immunized against Hepatitis B0 has risk of suffering chronic hepatitis B by 90%. If Hepatitis B0 immunization is given when a baby aged 0-7 days, he/she has risk of suffering chronic hepatitis B by 23%, and when Hepatitis B0 immunization is given after aged 7 days, there is a risk of becoming hepatitis B disease [5].

The findings taken at the schedule of immunization service in maternal and child health room every Monday starting on 1-8 June 2015 showed that the schedule of Hepatitis B0 immunization were mostly proper by 67 (97.1%) children, while those who had improper schedule of Hepatitis B0 immunization were 2 (2.9%) children. According to [15], immunization is an information of when a particular type of vaccination or immunization should be given to children.

Knowledge about immunization will form positive attitudes towards immunization activity. It is also a dominant factor in the success of immunization with a good knowledge and awareness to immunize their babies. Such knowledge will lead to mothers' trust on health, and will affect their infants' immunization status [20]. Birth attendant is one factor in the accuracy of Hepatitis B0 immunization due to the availability of HB prefilled injection device that is practical (easy to store and carry). All infants assisted by health workers get Hepatitis B0 immunization at the age of 0 days [3].

Based on Table 4, most of the mothers have sufficient knowledge by 36 mothers (53.7%), and there is one child (50.0%) who has improper schedule of hepatitis B0 immunization. A person who has sufficient knowledge is not necessarily proper in giving hepatitis B0 immunization to her baby. Knowledge is the result of knowing, and this occurred after a person performs sensing on a specific object. Knowledge or cognitive is an important domain in shaping one's action [16].

There were only four (6.0%) mothers with less knowledge, and there was one child (50.0%) with improper schedule of hepatitis B0 immunization. One's knowledge level to others' is different, thus, it affects the schedule of hepatitis B0 immunization. One's knowledge level consists of six levels, i.e. remember, understand, apply, analyze, synthesize, evaluate. In addition to the knowledge level that can affect action, there are the factors affecting a one's knowledge level, i.e.: education, experience, information, cultural environment, socio-economic [16].

Most respondents with proper schedule of Hepatitis B0 immunization had sufficient knowledge level by 37 (53.6%) respondents, and most of them had last education of Senior High School by 38 (55.1%) respondents. One's education level would affect one's knowledge level. The higher one's knowledge level will affect the behavior [22].

The research of Wati (2013) shows that there is a significant relationship between knowledge and the completeness of immunization in children aged 1-5 years. The results of analysis showed that there was a relationship between knowledge level about Hepatitis B0 immunization and schedule of Hepatitis B0 immunization in Community Health Center of Jetis,

Yogyakarta. It was obtained from the calculation by Fisher's Exact test, and p-value obtained was 0.050 ≤ 0.050, then H0 was rejected. So, it can be concluded that there was a significant relationship between knowledge about Hepatitis B0 immunization and schedule of Hepatitis B0 immunization in Community Health Center of Jetis, Yogyakarta. Contingency coefficient value of 0.283 indicated the low level of relationship between knowledge level about Hepatitis B0 immunization and schedule of Hepatitis B0 immunization [23].

CONCLUSIONS AND RECOMMENDATIONS

There was a relationship between mother's knowledge level about Hepatitis B0 immunization and schedule of Hepatitis B0 immunization. The relationship was considered weak. The health workers in community health centers were expected to keep maintaining and improving the provision of information through counseling in integrated service post of infants and toddlers conducted by midwives at the working area of community health centers. The mothers were expected to improve knowledge about Hepatitis B0 immunization by following counseling in integrated service post of infants and toddlers conducted by midwives at community health centers in the working area of Community Health Center of Jetis, Yogyakarta, and the next researchers can further enhance this study by looking for recent references, thus, the study of hepatitis B0 immunization be more up to date.

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