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ORIGINAL RESEARCH

ANALYSIS OF FACTORS RELATED TO THE COMPLETENESS OF TETANUS TOXOID IMMUNIZATION IN TRIMESTER III PREGNANT WOMEN

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ABSTRACT

Tetanus toxoid immunization in third trimester pregnant women is very important to prevent the risk of tetanus infection in newborns. Most cases of neonatal death in developing countries are due to tetanus, and neonatal tetanus is the second leading cause of death worldwide in diseases that can be prevented through vaccination. The purpose of this study was to determine the factors associated with the completeness of Tetanus Toxoid immunization in third trimester pregnant women. This study employed an analytical cross-sectional observational design on pregnant women in the third trimester (n=47) at Puskesmas Karangan in 2023. A total sampling method was used, resulting in a sample of 47 infants. Data collection instruments included questionnaires (primary data) and the PWS KIA book (secondary data). The variables examined were immunization completeness (dependent variable) and knowledge, attitude, and spousal support (independent variables). Data were analyzed using the Chi Square test. The results of univariate analysis showed that the majority of respondents with incomplete TT immunization were 24 (51.1%). The results of the bivariate analysis found a relationship between knowledge and P Value (0.004), mother's attitude P Value (0.025) and husband's support P Value (0.029) with the completeness of Tetanus Toxoid immunization in third trimester pregnant women with a value of $\alpha = 0.05$. The study highlights the strong influence of maternal knowledge on the completeness of Tetanus Toxoid immunization in pregnant women in the third trimester (P-value=0.004), which is more significant compared to maternal attitude and spousal support. Enhancing maternal knowledge regarding TT immunization is crucial in improving immunization coverage and reducing the risk of tetanus infection in newborns.

Keywords

Knowledge, Attitude, Husband's support, Immunization

INTRODUCTION

One of the important immunization programs recommended by the government is Tetanus Toxoid (TT) immunization as an effort to prevent tetanus infection. TT immunization can be given to pregnant women from the first trimester to the third trimester of pregnancy. This immunization

provides immunity to the fetus against tetanus infection (Neonatal Tetanus) during childbirth and after delivery. (Ministry of Health of the Republic of Indonesia, 2017). Tetanus disease can occur worldwide and remains a significant cause of death, with estimated annual deaths ranging from 800,000 to 1,000,000 people. In developing countries, a substantial number of neonatal deaths are attributed to tetanus, making neonatal tetanus the second leading cause of preventable death worldwide through vaccination. The estimated number of tetanus deaths among neonates is around 248,000 deaths per year. In developing countries like Indonesia, the incidence and mortality rates of tetanus are still relatively high, indicating that tetanus remains a health concern (Subagiarta, 2016).

According to the World Health Organization (WHO) in 2017, approximately 810 Maternal Deaths (MDGs) were recorded by the end of the year, reaching 295,000 out of 94% in developing countries. In 2018, the Infant Mortality Rate (IMR) was around 18 deaths per 100,000 Live Births (LB), and the high maternal and infant mortality rates were attributed to pregnancy and childbirth complications (UNICEF, 2019). Based on the Indonesian Health Profile for 2021, while the MDG indicator decreased overall, dropping from 390 per 100,000 live births in 1991 to 230 in 2020 (a decrease of 1.80% per year), the target set for MDGs in 2015 and SDGs in 2030 of 102 MDGs per 100,000 live births has not yet been achieved. As for the IMR indicator, it decreased from 68 in 1991 to 24 in 2017 (a decrease of 3.93% per year) (Ministry of Health of the Republic of Indonesia, 2021). Data from the Ministry of Health of the Republic of Indonesia in 2019 indicates that the coverage of TT immunization for pregnant women in Indonesia in 2018 was 20.36% for TT1 and 18.52% for TT2, out of a total of 5,291,143 pregnant women. With this coverage, Indonesia has not yet reached the national target of at least 90% coverage (Tantut, 2012). According to the Indonesian Health Profile for 2019, the coverage of Td2+ immunization for pregnant women in 2019 was 64.88%, showing an increase from the previous year's 51.76%. However, this figure is still lower by about 23.66% when compared to the coverage of the K4 maternal health service, which is 88.54%. Td2+ immunization is part of the K4 maternal health service (Ministry of Health of the Republic of Indonesia, 2019).

Based on a preliminary study in January 2023, the Tetanus Toxoid Immunization coverage among pregnant women at the Karangan Community Health Center in East Kutai Regency in 2023 indicated fluctuating coverage rates, with an average coverage of only 3%. This data demonstrates that there are still many pregnant women who have not received TT immunization and have not reached the government's target of 90% coverage (Karangan CHC Data, 2023). Several factors influence the coverage of TT immunization among pregnant women, including maternal education. Education enables individuals to acquire knowledge, develop skills, attitudes, and behaviors. Research conducted by Evayanti (2017) suggests that primigravida pregnant women with good knowledge about tetanus toxoid immunization are more likely to receive immunization. This statement is also supported by Syamson's research (2018), which indicates that higher maternal knowledge leads to greater immunization rates. Maternal attitudes also play a role in whether pregnant women receive TT immunization. Even with good knowledge, pregnant women may not necessarily have the appropriate attitude toward receiving the immunization. This misalignment could result in suboptimal immunization rates among pregnant women.

Rangkuti's study (2020) supports this notion, stating that negative attitudes among pregnant women toward immunization might lead them to choose not to receive it.

Beyond factors stemming from the pregnant women themselves, there are external factors that influence the utilization of tetanus toxoid immunization by pregnant women. One such factor is spousal support. Support from a spouse can make pregnant women feel more at ease and less stressed during pregnancy. Additionally, such support can increase motivation among pregnant women due to the assistance provided, such as transportation to healthcare facilities for immunization. This aligns with Syamson's research (2018), which indicates that family plays a role in encouraging an individual's behavior, in this case, pregnant women. The micro-level impact of inadequate TT immunization coverage will result in an increased incidence of neonatal tetanus, while the macro-level impact will elevate infant mortality rates. The Ministry of Health has initiated efforts to improve maternal health through the Maternal and Neonatal Tetanus Elimination program. Maternal and Neonatal Tetanus Elimination (MNTE) is a program aimed at eliminating neonatal tetanus and maternal tetanus among women of childbearing age. The strategies employed to eliminate neonatal and maternal tetanus include 1) safe and clean delivery assistance, 2) high and equitable coverage of routine TT immunization, and 3) neonatal tetanus surveillance (Ministry of Health of the Republic of Indonesia, 2016).

METHOD

This research design is analytical descriptive in nature and aims to obtain an overview of factors related to the implementation of Tetanus Toxoid (TT) immunization in pregnant women using a Cross-Sectional approach. The independent variables include knowledge, attitude, and spousal support, while the dependent variable is the Completeness of TT Immunization. The study was conducted in the Karangan Community Health Center area in East Kutai Regency from January to March 2023, focusing on pregnant women with a gestational age of > 28 weeks. The population in this study comprises all pregnant women within the Karangan Community Health Center's working area in East Kutai Regency. The total number of pregnant women in the third trimester who had not reached the estimated delivery date, as recorded in the registry and health center reports up until December 2022, was 47. The research used a total sampling method, where the entire population meeting the inclusion criteria became the study sample. The chosen population consisted of 47 pregnant women. Inclusion criteria included: 1) pregnant women within the Karangan Community Health Center area in East Kutai Regency, 2) pregnant women in the third trimester (LMP: May, June, July 2022), 3) pregnant women aged between 21 and 35, 4) pregnant women with both complete and incomplete TT immunization status, and 5) pregnant women willing to participate as respondents in this research. Exclusion criteria consisted of: 1) pregnant women outside the Karangan Community Health Center area in East Kutai Regency, 2) pregnant women unwilling to participate in the research, and 3) pregnant women with restrictive ages, i.e., below 21 or above 35 years.

Data collection was obtained from both primary and secondary sources. Primary data were obtained directly from respondents through questionnaires to explore the aspects under investigation. Secondary data were sourced from Maternal and Child Health books, antenatal care (ANC) registers, and Maternal and Child Health reports obtained from the Karangan

Community Health Center in East Kutai Regency. The collected data were analyzed univariately to describe the characteristics of each research variable. Additionally, bivariate analysis was performed to understand the relationship between the two variables. The univariate data analysis in this study employed frequency and percentage distributions, while the bivariate data analysis utilized the Chi-Square statistical test with computerized processing and a significance level of $\alpha = 0.05$.

RESULTS

Table 1. Characteristics of Respondents at Karangan Community Health Center in 2023.

Variable	Cathegory	Frequency	Percent (%)
Age	<20 years	23	48,9
	and >35	24	51,1
Occupation	years	15	31,9
	20-35 years	32	68,1
Education	Employed	36	76,6
	Unemployed	11	23,4
Gravidity	Elementary	21	44,7
	education	26	55,3
Pregnancy	Higher	18	38,3
Interval	education	29	61,7
	Primigravida		
	Multigravida		
	<2 years		
	>2 years		
Total		**47**	**100**

Souce: Primary Data

Based on Table 1, it is found that more than half of the respondents were in the age range of 20-35 years, totaling 24 (51.1%). The majority of respondents were unemployed, accounting for 32 (68.1%). Most of the respondents had elementary education, totaling 36 (76.6%). More than half of the respondents were multigravida, totaling 26 (55.3%). The majority of respondents had a pregnancy interval of more than 2 years, amounting to 29 (61.7%).

Table 2. Frequency Distribution of Knowledge, Attitude, Spousal Support, and Completeness of Tetanus Toxoid Immunization at Karangan Community Health Center in 2023.

Variable	Cathegory	Frequency	Percent (%)
Knowledge	Good	17	36,2
	Insufficient	30	63,8
Attitude	Positive	17	36,2
	Negative	30	63,8
Spousal	Positive	23	48,9
Support	Negative	24	51,1
	Complete	23	48,9
Completeness of Immunization	Incomplete	24	51,1
Total		**47**	**100**

Souce: Primary Data

Based on Table 2, it is evident that the majority of respondents had good knowledge, totaling 30 (63.8%). More than half of the respondents had a negative attitude, accounting for 30 (63.8%). Additionally, more than half of the respondents had positive spousal support, totaling 24 (51.1%), and the majority of respondents had incomplete TT immunization, amounting to 24 (51.1%).

Table 3. The Relationship between Knowledge, Spousal Support, and Attitude with the Completeness of Toxoid Immunization in Third Trimester Pregnant Women at Karangan Community Health Center in 2023.

	Completeness of TT Immunization		P Value	OR
	Complete	Not Complete		
Knowledge	13	4		
Good	10	20	0,004	0,011
Lack				
Attitude	12	5		
Positive	11	19	0,025	0,222
Negative				
Spousal	15	8		
Support	8	16		
Positive			0,029	0,044
Negative				

Total	**23**	**24**

Souce: Primary Data

Based on Table 3, it can be observed that mothers with good knowledge have a complete TT immunization status of 13 respondents (27.7%), while mothers with insufficient knowledge have an incomplete TT immunization status of 20 respondents (42.6%). The bivariate analysis using the chi-square test yielded a P Value of 0.004, indicating a significant relationship between maternal knowledge and the completeness of tetanus toxoid immunization. Furthermore, the Odds Ratio (OR) value of 0.011 indicates that mothers with insufficient knowledge are 0.011 times more likely to have an incomplete tetanus toxoid immunization compared to mothers with good knowledge.

Moreover, the results from Table 3 for attitude categories also indicate that mothers with a positive attitude have a complete TT immunization status of 12 respondents (25.5%), while mothers with a negative attitude have an incomplete TT immunization status of 19 respondents (40.4%). Bivariate analysis using the chi-square test resulted in a P Value of 0.025, indicating a significant relationship between maternal attitude and the completeness of tetanus toxoid immunization. Furthermore, the OR value of 0.222 shows that mothers with a negative attitude are 0.222 times more likely to have an incomplete tetanus toxoid immunization compared to mothers with a positive attitude.

Moving on to the data from the spouse support category in Table 3, it can be seen that positive spousal support leads to a complete TT immunization status for 15 respondents (31.9%), while negative spousal support results in an incomplete TT immunization status for 16 respondents (34%). The bivariate analysis using the chi-square test shows a P Value of 0.029, indicating a significant relationship between spousal support and the completeness of tetanus toxoid immunization. With an OR value of 0.044, these findings indicate that mothers with negative spousal support are 0.044 times more likely to have an incomplete tetanus toxoid immunization compared to mothers with positive spousal support.

DISCUSSION

Based on the data from Table 1, more than half of the respondents in this study fall within the age range of 20-35 years, comprising a total of 24 respondents (51.1%). This aligns with the theory of psychological development, which suggests that as individuals age, their maturity and cognitive abilities tend to increase in terms of thinking and logic (Soetjiningsih, 2015). The aging process and accumulated life experiences can aid individuals in developing more rational and comprehensive thinking. Increased knowledge, deeper understanding of the world, and the ability to analyze and solve problems effectively can also influence an individual's maturity and thinking skills (Soetjiningsih, 2015). According to the researcher's assumption, during the middle-age period (20-35 years), pregnant women are more active in societal and social life, taking steps to ensure a successful adjustment towards old age.

Based on the data from Table 1, the majority of respondents in this study were unemployed, totaling 32 respondents (68.1%). Being employed and busy can lead to a lack of time for self-care, including health concerns. This finding is consistent with research by Kusmiati and Fitriyani (2022), which states that there is a correlation between maternal employment and their practice of receiving TT immunization. Unemployed mothers have more leisure time, enabling them to focus on

and prioritize child health, including maintaining a routine of TT immunization. Additionally, based on the data from Table 1, the majority of respondents in this study had elementary education, totaling 36 respondents (76.6%). Notoatmodjo (2021) states that education empowers individuals to make better decisions and actions, and the higher the level of education, the greater the motivation to utilize healthcare facilities due to broader knowledge.

Based on the data from Table 1, more than half of the respondents in this study were multigravida, totaling 26 respondents (55.3%). First-time pregnant women tend to be more prepared for pregnancy care due to the pressures and anxieties regarding their own and their baby's condition, leading to a heightened sense of ownership and responsibility to undergo TT immunization. However, this can vary depending on the individual pregnant mother. Administering tetanus toxoid injections as recommended by healthcare providers can offer protection against tetanus for both the mother and the baby (Ministry of Health RI, 2015). Furthermore, based on the data from Table 1, more than half of the respondents in this study had a pregnancy interval of over 2 years, totaling 29 respondents (61.7%). Pregnant women with a pregnancy interval of less than 2 years tend to view TT immunization during pregnancy as a precaution against tetanus. This finding is consistent with a study by Sari (2019) that shows a relationship between pregnancy interval and TT immunization during pregnancy. Pregnant women with a pregnancy interval of less than 1 year have 4.49 times higher risk of not completing TT immunization.

The results of this research confirm that maternal knowledge plays a crucial role in the completeness of TT immunization implementation. The majority of pregnant women who did not complete TT immunization lacked knowledge about its benefits and significance. Adequate knowledge of the benefits and schedule of TT immunization can motivate pregnant women to actively undergo immunization (Notoatmodjo, 2021). Moreover, the level of maternal education also influences their knowledge of TT immunization. Pregnant women with higher education levels tend to have better knowledge of TT immunization. Education also makes it easier for pregnant women to accept new information and make informed decisions regarding immunization (Notoatmodjo, 2017). Furthermore, maternal attitude also contributes to the completeness of TT immunization. The majority of pregnant women who did not complete TT immunization had a negative attitude toward immunization. A positive attitude that recognizes the importance of TT immunization can motivate pregnant women to undergo it willingly (Widyastuti and Rahmawati, 2018). Spousal support also affects the completeness of TT immunization in pregnant women. Spousal support provides moral encouragement, information, and facilitates the attendance of pregnant women at healthcare facilities for immunization. Social support from spouses and close individuals can strengthen the ability of pregnant women to undergo TT immunization correctly (Indriyani et al., 2020).

Based on the data analysis, the most dominant factor related to the completeness of TT immunization in third trimester pregnant women is knowledge. Statistical analysis indicates a significant relationship between knowledge and the completeness of TT immunization, with a P-value of 0.004 (Notoatmodjo, 2021). This finding is consistent with other research that shows a relationship between maternal knowledge and the completeness of TT immunization (Rangkuti et al., 2019; Solama, 2018).

CONCLUSIONS

This research involved respondents with diverse characteristics. More than half of the respondents fell into the age group of <20 and >35 years, the majority were not employed, a significant portion had elementary education, over half of them were multigravida, and a substantial number had a pregnancy interval of >2 years. Data analysis revealed a significant relationship between maternal knowledge and the completeness of tetanus toxoid immunization, where the majority of pregnant women who didn't complete TT immunization lacked knowledge about the benefits and significance of immunization. Furthermore, a significant relationship was found between maternal attitude and the completeness of tetanus toxoid immunization, as the majority of pregnant women who didn't complete TT immunization exhibited a negative attitude towards immunization. Moreover, there was a significant relationship between support and the completeness of tetanus toxoid immunization, as the majority of spousal support was negative towards TT immunization in third-trimester pregnant women. The findings of this research emphasize the importance of enhancing knowledge, attitude, and spousal support to improve the completeness of TT immunization in pregnant women, thereby minimizing the risk of tetanus infection in newborns.

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