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**The Role of Information Media, Healthcare Provider Support, and Family in  
Predicting Tetanus Toxoid Immunization Knowledge: A Case Study on Pregnant  
Women in Manokwari**

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**ABSTRACT**

Good knowledge about tetanus diphtheria (TD) immunization has a great influence on pregnant women's decision to immunize. This study aims to predict the level of knowledge of pregnant women about TD immunization in Manokwari based on the role of information media, support of health workers, and family support. Tetanus is an acute infectious disease that can be prevented through TD immunization, which is very important for pregnant women to protect themselves and their babies. This study used a cross-sectional design with a sample of 51 pregnant women who were selected by accidental sampling in the work area of the Amban Health Center. Data was collected through interviews and questionnaires that included variables of knowledge, family support, health worker support, and exposure to information media. The results of the analysis showed that 76% of pregnant women received family support, 69% received support from health workers, and 55% were exposed to information media. The level of knowledge of pregnant women about TD immunization is in the moderate category (53%). Bivariate analysis showed that family support and exposure to information media had a significant relationship with the level of knowledge of pregnant women ( $p$ -value  $< 0.05$ ), while health worker support did not show a significant relationship ( $p$ -value  $> 0.05$ ). This study emphasizes the importance of synergy between families, health workers, and information media in increasing pregnant women's knowledge about TD immunization. Family support, especially from husbands, has proven significant in increasing awareness among pregnant women about the importance of TD immunization. Information media also play a vital role in disseminating accurate knowledge. Thus, an approach involving various sources of support is urgently needed to increase TD immunization coverage among pregnant women in Manokwari.

**Keywords:** Knowledge, Tetanus Diphtheria (TD), Information Media, Family, Health Workers.

**INTRODUCTION**

Tetanus is an acute infectious disease caused by bacterial spores *Clostridium tetani*. Spores are found in the environment, especially in soil, ash, intestinal tracts/animal and human waste, and on the surface of skin and rusty tools such as nails, needles, and barbed wire. In 2018, about 25,000 newborns died from neonatal tetanus. Tetanus during pregnancy or within 6 weeks after the end of pregnancy is called maternal tetanus,

whereas tetanus in the first 28 days of life is called neonatal tetanus [1]. Tetanus neonatorum is a disease with the main sign of muscle stiffness (spasm) without being accompanied by impaired consciousness. This symptom is not caused by germs directly but as an impact of oxytictin (tetanus spasmin) produced by germs on the ganglion synapses of the spinal cord junction, neoromuscular junction, and nerve autonomy. This infectious disease can actually be prevented with complete

Tetanus diphtheria (TD) immunization in women of childbearing age (WUS) and pregnant women [2].

Many cases of tetanus are associated with birth and can occur in mothers who do not adequately vaccinated and their newborns, after undergoing unhygienic labor and abortion, as well as poor postpartum hygiene and umbilical cord handling practices. Neonatorum tetanus (TN) can occur when a non-sterile instrument is used to cut the umbilical cord or when contaminated material is used to cover the remaining umbilical cord that is still attached to the baby's stomach (umbilical stump). Childbirth performed by people with unclean hands or on contaminated surfaces is also a risk factor for tetanus for mothers and newborns [3].

The infant mortality rate in Indonesia was recorded at 24 per 1000 live births, the neonatal mortality rate was 15 per live birth, and the maternal mortality rate was 305 per 100,000 births. One of the causes of death of this baby is tetanus, where in neonates it is better known as tetanus neonatorum. In 2017 in Indonesia, the highest number of neonatorum tetanus cases was spread evenly in three provinces, namely Riau, Banten, and West Kalimantan provinces. The incidence of neonatal tetanus infection in Indonesia in 2017: out of 25 cases based on risk factors, 16 cases occurred in pregnant women who did not undergo TT2. With TT2 immunization coverage of only 65.3% [4]. One of the main strategies in tetanus prevention is tetanus diphtheria (TD) and tetanus toxoid (TT) immunization in pregnant women. Good maternal knowledge about the importance of Tetanus immunization for mothers and prospective babies will provide high awareness to immunize [5].

The coverage of TD immunization for pregnant women in West Papua Province is based on data obtained from the West Papua Provincial Health Office in 2022, as many as 10,693 (40%) and pregnant women who have been

immunized with TD in 2023, as many as 17,288 (150%). The coverage of TD immunization for pregnant women in Manokwari Regency in 2022 is 16,639 (450%) and pregnant women who have been immunized with TD in 2023 is 10,114 (270%) [6]. Based on data at the Amban Health Center UPTD obtained from the KIA (Maternal and Child Health) room, TD immunization for pregnant women in 2022 was 210 out of a total of 588 mothers who carried out ANC examinations. Meanwhile, pregnant women who have been given TD immunization in 2023 are 129 mothers out of 498 pregnant women [7]. In interviews with KIA officers, researchers found that pregnant women who came for checkups often did not know about TD immunization. Some mothers refuse to immunize because they are afraid of post-immunization adverse events, including death.

The importance of knowledge in influencing the decision of primigravida pregnant women to get TD immunization. The results of Evayanti and Linda's research show that pregnant women with less knowledge about TD immunization have an odds ratio (OR) of 18.3 not to get the immunization, compared to those who have good knowledge [8]. Low knowledge of opposition to TD immunization can cause mothers not to immunize against TD. Factors that affect a person's knowledge are factors that come from within the individual himself, such as education. Other factors that come from outside that affect a person's knowledge can be influenced by the source of information, social, cultural, and environmental [5]. The role of the family is also important in increasing the coverage of TD immunization. For example, the role of a husband is very important for mothers in supporting their behavior or actions in utilizing health services [9].

Most pregnant women consider midwives who monitor their pregnancy as the main source of information to get immunization. To a lesser extent, some

women seek information from other reliable sources. The women emphasized the importance of distinguishing between reliable and unreliable sources. Some women who search the Internet for information warn about the dangers of trusting everything on social media. Both women and health workers believe that the media strongly influences the decision to immunize [10]. This study aims to predict the level of knowledge of pregnant women about tetanus diphtheria (TD) immunization in Manokwari based on information sources, support from health workers, and family support.

### RESEARCH METHOD

The research was carried out in the work area of the Amban Health Center in Manokwari Regency during April–May 2024. This study is an analytical study with a cross-sectional study design where research is done by collecting data at a time. Each subject is observed only once at the time of the research [11]. The population in this study is the entire number of pregnant women who checked their pregnancies from July to December 2023, as many as 207 pregnant women. The sample size was determined using the Slovin formula, which was 51 pregnant women. Sampling with the accidental sampling technique, namely taking pregnant women who happen to be present at the Community Health Center UPTD Amban to check their pregnancy in the Community Health Center work area.

### RESULT AND DISCUSSION

The results of this study found that pregnant women who had their pregnancy examined at the UPTD Amban Health Center and were willing to be respondents received family support as much as 76%. The support of health officials in providing

information about TD immunization is 69%. Pregnant women who get information about TD from information media are 55%. The level of knowledge of pregnant women about tetanus diphtheria immunization is the highest in the fair category of 53%.

Bivariate analysis was carried out using an Alternative test for the 2x3 Chi-Square table, namely the Smirnov colmogorof test. From table 2, it is known that pregnant women who receive support from health workers with a sufficient level of knowledge are 49% of pregnant women, and 34% of pregnant women are well knowledged. Meanwhile, pregnant women who do not receive the support of health workers but have sufficient knowledge amount to 63%. Statistically insignificant, a p-value of 0.354 (p-value > 0.05) was obtained.

**Table 1.** Distribution of Frequency with Families, Health Workers, Information Media and Knowledge Level of Pregnant Women

Variable	Catego ry	Frequen cy	Percent age
Family Support	Yes	39	76
	Not	12	24
Healthcare Worker Support	Yes	35	69
	Not	16	31
Exposed to Information	Yes	28	55
	No	23	45
Level of Knowledge	Good	13	25
	Enough	27	53
	Less	11	22

**Table 2.** Relationship between Health Worker Support and Pregnant Women's Knowledge Level About Tetanus Dysphentery Immunization

Healthcare Worker Support	Knowledge						<i>p-value</i>
	Less		Enough		Good		
	n	%	n	%	n	%	
No	5	31	10	63	1	6	0.354
Already	6	17	17	49	12	34	
Total	10	48	27	53	13	25	

Table 3 shows that family support for pregnant women makes pregnant women's knowledge at a sufficient level of 59% and good knowledge 31%. Meanwhile, pregnant women who do not get support from officers have enough knowledge of 63% and less than 31%. Statistically, the results of the Kolmogorov-Smirnov test are statistically significant, namely a p-value of 0.002 (p-value < 0.05).

Table 4 Pregnant women who do not get information from the media have less

knowledge as much as 48% and enough knowledge 43%. Meanwhile, pregnant women who get information from the media about tetanus diphtheria immunization during pregnancy have a good knowledge score of 39% and quite 61%. Statistically, the results of the Kolmogorov-smirnov test are statistically significant, namely a p-value of 0.000 (p-value < 0.05).

**Table 3.** Relationship between Family Support and Pregnant Women's Knowledge Level About Tetanus Dysphentery Immunization

Family Support	Knowledge						<i>p-value</i>
	Less		Enough		Good		
	n	%	n	%	n	%	
No	7	58	4	33	1	8	0.002
Already	4	10	23	59	12	31	
Total	11	22	27	53	13	25	

**Table 4.** Relationship between Family Support and Pregnant Women's Knowledge Level About Tetanus Dysphentery Immunization

Information Media	Level of Knowledge						<i>p-value</i>
	Less		Enough		Good		
	n	%	n	%	n	%	
No	11	48	10	43	2	9	0.000
Already	0	0	17	61	11	39	
Total	11	22	27	53	13	25	

Pregnant women who know about Tetanus immunization will not get tetanus because they have been immunized. This immunization protects the mother and baby from tetanus. On the other hand, pregnant women who do not know about this immunization are more at risk of

developing tetanus because of lack of information [12]. Mother's knowledge is influenced by various factors such as the support of health workers, family and exposure to information in the media.

#### Healthcare Worker Support

Good health worker support is to

provide information during pregnancy checkups such as nutrition to mothers during pregnancy, routine pregnancy checkups, preparing for pregnancy and including Tetanus Diphtheria immunization. Auziah's research (2019) showed that there was a significant relationship between the role of midwives as informants and the compliance of pregnant women in carrying out Tetanus Toxoid immunization, with a value of  $p$  ( $0.01 < 0.05$ ) [13]. Therefore, the better the role of midwives as health workers in providing services, the higher the awareness of pregnant women to immunize against Tetanus Toxoid or Tetanus Diphtheria. The results of this study found that there was no significant relationship between the support of health workers and the knowledge of pregnant women about tetanus immunization (value  $p$ -value 0.091). Around 17% of pregnant women who received support from health workers had a lack of knowledge, as well as 63% of mothers who did not receive support from health workers had sufficient knowledge.

The researcher's assumption, although not statistically significant, is that the role of health workers is very important in providing support, this has been done by the Amban Health Center UPTD to the maximum with a percentage of 69% of pregnant women getting support from health workers. However, the service also has many pregnant women's patients, causing not all patients to receive routine counseling and counseling about TD immunization. The limitations of the service are the inadequate number of health workers, especially in immunization services in the KIA room, time constraints, and facilities in the form of counseling rooms. By understanding these limitations, it is hoped that there will be efforts to increase resources and support for health workers, so that they can provide better and more comprehensive services to pregnant women.

### **Family Support**

Social support is verbal or non-verbal

information, advice, real help, or behavior provided by people who are close to individuals in their social environment. This support can be in the form of presence or actions that provide emotional benefits or influence the behavior of the recipient [9]. Family support is very important in providing peace and happiness for pregnant women. Families such as husbands who actively ask about pregnancy developments, ensure the completeness of tetanus toxoid or tetanus diphtheria immunization, and accompany mothers during pregnancy checkups and immunizations can provide more motivation to pregnant women. This encourages mothers to regularly visit antenatal care, including Tetanus toxoid or Tetanus diphtheria immunization. Research Odang, *et al* (2023) suggest that there is a significant relationship to family support, namely husbands to knowledge and completeness of immunization of pregnant women [14]. Research by Loisza and Hasana (2022) found that the reason why pregnant women in the third trimester did not do complete TT immunization was due to involvement with the family, which caused pregnant women to be late or not fully immunized. This involvement is in the form of providing misinformation about tetanus immunization in pregnant women [15].

This study predicts that the knowledge of pregnant women is influenced by positive family support in providing encouragement, advice, and information to get immunized in health services. Statistically significant family support for pregnant women's knowledge about tetanus diphtheria or tetanus toxoid immunization with a  $p$ -value of 0.002 ( $p$ -value  $< 0.05$ ). The assumption of family involvement, whether it is the husband, parents, and in-laws who have received the correct health information, will have an impact on the level of knowledge of pregnant women. It is important to provide information and education about tetanus toxoid or tetanus diphtheria immunization

not only to mothers but also to all family members. Good knowledge will help mothers to be determined to get complete TD immunization.

### **Information Media**

Exposure to Information Media greatly affects a person's level of knowledge; information can be obtained from television, radio, newspapers, books, magazines, and the internet. To obtain information can help accelerate a person's acquisition of new knowledge. Information media plays a crucial role in increasing public knowledge, including pregnant women. Through various media, pregnant women can obtain accurate information about the benefits of tetanus diphtheria or tetanus toxoid immunization for maternal and infant health. The more information you get, the more likely it is that pregnant women will decide to get immunized. Conversely, a lack of information can hinder pregnant women from taking this important step. Eliagita Research, et al. (2021). showed a statistical analysis of the value of  $p = 0.001$ , meaning that there was a very significant relationship between the sources of information obtained by pregnant women and their decision to immunize against TT. These results indicate that efforts to provide accurate and easily accessible information are essential to improve TD or TT immunization coverage [16].

The analysis of data in this study shows that various sources of information, both print and electronic media, play an important role in increasing the knowledge of pregnant women about TD immunization. With the highest percentage of respondents obtaining information from both types of media (43.1%), this study concluded that a multi-media approach can be an effective strategy in immunization campaigns. The researcher's assumption is that wider exposure to information is positively correlated with the level of knowledge of pregnant women. The UPTD Community Health Center Amban service

plays an important role in providing information through print media, where in the health center environment there are various health education posters for pregnant women, immunization schedules, and others. In addition, pregnant women also obtain various information because they are actively using their mobile devices to find health information. However, it is also important to determine whether the information obtained from social media is accurate and can be verified as true. Therefore, it is important for all health workers to utilize media services as a health promotion medium.

### **CONCLUSION AND RECOMMENDATION**

This study reveals that the role of information media, support of health workers, and families is very important in predicting the knowledge of pregnant women about Tetanus Diphtheria (TD) immunization in Manokwari. Family support, especially from husbands, has proven significant in increasing awareness among pregnant women about the importance of TD immunization. Although support from health workers did not show a statistically significant relationship, their role remained crucial in providing information and support during pregnancy screenings. In addition, information media plays a vital role in disseminating accurate knowledge about TD immunization, which in turn increases the awareness and decision of pregnant women to get immunized. Thus, an approach involving synergy between families, health workers, and information media is urgently needed to increase the coverage of Td immunization among pregnant women in Manokwari. The study confirms that the combination of support from these various sources can create a supportive environment for pregnant women to get the information they need and make informed decisions regarding their health and the baby they will be born.

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