

Determinants of Tetanus Toxoid (TT) Coverage in Premarital: Systematic Review

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ABSTRACT

Background: Many health programs have been launched by the government in reducing maternal and infant mortality. It should be re-examined that the health program will be successful if something is done that is preventive in nature and something very urgent needs to be considered, namely the decreased coverage of TT immunization in premarital. TT immunization before pregnancy really needs to be considered, which is one of the preventions before premarital couples enter the reproductive stage. This prevention program needs to be considered for the continuation of further reproductive health. The purpose of this study is to identify the determinant factors that affect the decline in TT immunization coverage in premarital. **Method:** the method used is a systematic review through the study of national online data studies through Google Scholar, Garuda Portal and international online data from Pubmed, Science Direct and Proquest from 2012-2021 with Keywords: TT immunization in women of childbearing age, preconception women, and premarital couples which is then carried out is selected based on the inclusion criteria and exclusion criteria, then an analysis is carried out on the team systematically and team discussions to facilitate understanding of the determinants of premarital tetanus toxoid immunization coverage. **Results:** Based on studies that have determined the coverage of TT immunization in the premarital, there are 3 aspects that need to be considered, namely

(1) premarital perception of TT immunization, (2) policies in providing TT immunization in premarital and (3) screening in premarital examination.

Conclusion: Found factors that influence from several studies, namely education, knowledge, health services, social economy, health insurance services, ease of information, premarital screening programs as a determinant of the existence of TT immunization coverage in premarital.

INTRODUCTION

Tetanus neonatorum generally occurs in newborns. Tetanus neonatorum attacks newborns because they are born in an unclean and sterile place, especially if the umbilical cord is infected. Tetanus neonatorum can cause death in infants and is common in developing countries. Maternal and Neonatal Tetanus (TMN) is still a public health problem. There are international agreements that must be achieved, one of which is the national immunization coverage in 2011-2020 is set at least 90%, immunization coverage in districts or cities is at least 80%, elimination of measles and rubella and the introduction of new vaccines, maintaining ETMN status (Elimination). Maternal and Neonatal Tetanus). ETMN until now has not been able to achieve the target that has been set, namely $<1/1000$ live births as the national target of ETMN¹. Neonatorum tetanus is

tetanus that occurs in newborns aged 2-28 days and Maternal Tetanus is tetanus that occurs in later pregnancy within 6 weeks after the mother gives birth². The causes of neonatal tetanus in Indonesia vary, namely due to delivery assistance, umbilical cord care, cutting the umbilical cord.

The target set by the Indonesian government regarding the Tetanus Toxoid immunization program during pregnancy is 80%, but in reality the targets achieved have not been in accordance with the national targets that have been set. Mothers with TT1 status of 23.4%, pregnant women with TT2 status of 21.8%, mothers with TT3 status of 9.4%, mothers with TT4 status of 7.8%, mothers with TT5 status of 8.2% , and TT2+ 47.3%¹.

Health Profile of Central Java in 2018 the coverage of TT immunization for women of childbearing age is the provision of TT

immunization to women of childbearing age (15-39 years) and premarital TT as many as 5 doses at certain intervals which are useful for lifelong immunity. Current data on WUS TT immunization activities are still very less accurate so that they cannot be analyzed. Implementation of TT status screening is not optimal⁴. A preliminary study of 20 premaritals in the city of Semarang, many of them did not do TT immunization before marriage. Various reasons and reluctance of premarital women in immunizing TT. The author is interested in conducting a literature review regarding the determinants of premarital tetanus toxoid coverage.

METHODS AND MATERIALS

The research method used is literature review. Data were collected with study literature from various literature sources on premarital tetanus toxoid (TT) immunization,

qualitative analysis, the analysis was carried out using method thinking ranging from general to specific data⁵. Through pubmed literature, science direct and proquest from 2012-2021, the use of keywords is TT immunization for women of childbearing age, preconceptional women, and premarital couples. Disaggregated based on the inclusion criteria of studies related to premarital couples, women who are not yet pregnant, the exclusion criteria are pregnant women, married couples and have children. Results sequality article selection using the modified Critical Appraisal Process from Loney et al's research⁶, systematically analyzed and team discussion to facilitate understanding of the determinants of premarital tetanus toxoid immunization coverage. The use of the system with Garuda Portal, Google Scholar, Pubmed, science direct and proquest is obtained as follows:

Table 1 National Online Data Search System

Search Number	Search Terms	Results
Garuda Portal, Google Scholar		
1	Tetanus toxoid immunization	55
2	Premarital tetanus toxoid immunization	20
3	1 and 2	18
4	1, 2 and 3	12
5	Appropriate and full text	5

Table 2. International Online Data Search System

Search Number	Search Terms	Results
PubMed, Science Direct and Proquest		
1	Immunization Tetanus Toxoid	162
2	For women, premarital, preconception	62
3	1 OR 2	30
4	3 AND determine	12
5	Limiters- Full text; date published update	6

RESULTS AND DISCUSSION

Search strategies on national and international online data that are potentially relevant for research are as follows:

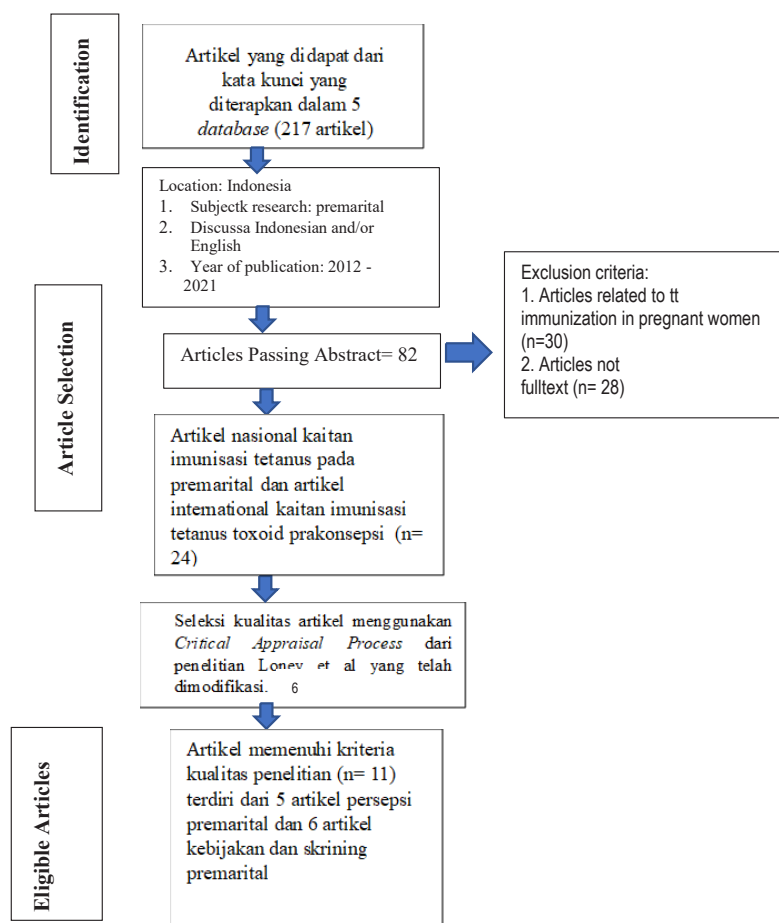


Chart 1 Article Selection Flowchart

The search strategy on national online data resulted in five studies that were potentially relevant for research. Examining the abstract, five study reviews were selected and a study review was carried out as follows:

Table 1. Study Study

No	Title	Author,Year	The place	Respondent	Method	Results
1.	Analysis of factors affecting the tetanus toxoid immunization of prospective brides in Banda Sakti sub-district, Lhokseumawe	Murniati, 2019	L h o k - seumawe City	Bride and groom/pre-marital	s u r v e y with quantitative and qualitative approaches	The trust variable has a value of Exp (B) = 22.166, meaning that respondents who have negative beliefs have the opportunity to reject the TT immunization of prospective brides as much as 22.1 times higher than respondents who believe in the positive category, trust plays an important role in shaping people's mindsets. and approval in an action and program ⁷
2.	The relationship between the level of knowledge and attitudes of the prospective bride to the administration of tetanus toxoid immunization in one of the Religious Affairs Offices (KUA) Bandung City	Anasthasya Kasan,2020	Bandung	Catin/pre-marital	Cross Sectional	The level of knowledge of the prospective bride on the provision of tetanus toxoid immunization is in the good category (80.6%). Have a positive attitude (80.5%) and there is a significant relationship between the level of knowledge and attitudes of the bride and groom towards tetanus toxoid immunization with a p value of 0.000 ⁸
3.	Management Not Doing Tetanus Toxoid Immunization in Premarital	Halimatuz Zahroh, 2021	Bangka-lan	Catin/pre-marital	Descriptive case study approach	Catin/premarital do not know clearly what immunization is TT ⁹

No	Title	Author, Year	The place	Respondent	Method	Results
4.	Relationship of Knowledge and Attitude of Women of Childbearing Age to Tetanus Toxoid Immunization	Nila Handayani, 2021	Palopat Pijorkoling Village	Women of childbearing age	Cross sectional	There is a relationship between knowledge and attitudes of women of childbearing age towards the administration of Tetanus Toxoid immunization in Palopat Pijorkoling Village ¹⁰
5.	The Relationship of Knowledge and Attitude of Premarital Mothers with the Implementation of Tetanus Toxoid (Catin) Immunization at the Padang Luar Public Health Center, Agam Regency	Hero Meiriza, Triveni, 2018	Padang Outer Health Center, Agam Regency	Catin/premarital	Analytical Descriptive with a retrospective approach	There is no relationship between knowledge and attitudes of premarital mothers with the implementation of Tetanus Toxoid (Catin) immunization with p value = 1.00 (p > 0.05) and p value = 0.39 (p > 0.05). ¹¹

The search strategy on international online data resulted in six potentially relevant papers for research. Examining the abstracts, six studies were selected and a study review was conducted. Looking at the inclusion criteria, six papers were included in this systematic review from pubmed, science direct and proquest. According to the framework provided for the quantitative meta-analysis.

Six findings and illustrations are drawn from quantitative studies, review studies and each finding is assigned a credibility rating according to the quantitative meta-analysis criteria. The findings are then identified according to the purpose of a systematic review to produce three categories, and the findings are similar in some sense.

Table 2. Study Studies

No	Title	Author, Journal and Year	The place	Respondent	Method	Results
1.	Determinants and perceptions of the utilization of tetanus toxoid immunization among reproductive-age women in Dukem	Meseret Delesa Anatea, Tesfaye Hambisa Mekonnen and Berihun Assefa Dachew	Dukem Town, Eastern Ethiopia	all women of childbearing age who lives in the current Dukem city	Cross-sectional	Utilization of TT immunization is still low and is influenced by the level of education, distance from health services, health promotion through

No	Title	Author, Journal and Year	The place	Respondent	Method	Results
1.	Town, Eastern Ethiopia: a community-based cross-sectional study	BMC International Health and Human Rights, 2018				communication media is still lacking, and the lack of strong policies in paying attention to the TT immunization program. 12
2.	Strategies to increase immunization coverage of tetanus vaccine among women in Sub Saharan Africa: a systematic review	Marius Zambou Vouking&, Carine Noubou-dem Tadenfok, Jean Marie Edengue Ekani Pan African Medical Journal, 2017	Sub-Saharan Africa	Women of childbearing age in Kenya, Ethiopia and Nigeria	Systematic Review	Lack of mobilization intervention for partners to carry out TT immunization, so that the behavior patterns and beliefs of partners require active intervention and government policies in increasing accessibility, affordability and accommodation of service places in order to attract partners to immunize13
3.	Preconception care: preventing and treating infections	Zohra S Lassi, Ayesha M Imam, Sohni V Dean, Zulfiqar A Bhutta Reproductive Health Journal, 2014	Pakistan	Women of reproductive age 20-35 years	Systematic review and meta analysis of cases	Vaccination interventions for women of reproductive age will be effective in preventing disease before pregnancy if the urgency of preconception care is taken into account. 14
4.	Tetanus vaccination status and its associated factors among women attending a primary healthcare center in Cairo governorate, Egypt	Hassan, Azza M.; Shoman, Ahmed E.; Abo-Elezz, Nahla F.; Amer, Marwa M. Journal of the Egyptian Public Health Association, 2016	El-Darb El-Ahmar primary ministry Cairo	277 women	Cross sectional	60.6% had taken all required doses of the TT vaccine and 42.6% of the mothers studied were fully protected against MNT influenced by mother's socioeconomic level, education level, place of receiving antenatal care, health education about the importance of TT vaccine, mother's knowledge about NT disease and TT vaccine and the source of this knowledge. 15

No	Title	Author, Journal and Year	The place	Respondent	Method	Results
5.	1. Knowledge, attitudes and practices related to tetanus toxoid vaccination in women of childbearing age: A cross-sectional study in peri-urban settlements of Karachi, Pakistan	Yasir Shafiq, Asif Raza Khowaja, Mohammad Tahir Yousafzai Journal of Infection Prevention, 2017	Pakistan	450 consists of women of child-bearing age, pregnant women, and women who are not yet pregnant	Cross sectional	The largest proportion married and not pregnant was 185 (41%). More than 50% of 258 women had not received the TT vaccine. The majority of unmarried women 139, (97%) were not vaccinated. Non-vaccination predictors included: women aged <25 years with no formal education (adjusted odds ratio [OR], 2.1; 95% confidence interval [CI], 1.0-4.4), lack of knowledge about free vaccination (Adjusted OR, 4.0; 95% CI, 1.64-10.20), poor knowledge of tetanus/vaccination (adjusted OR, 4.6; 95%, 2.2-9.6), living with family large (adjusted OR, 2.0; 95% CI, 1.04-3.96); unsupportive family vaccinations (adjusted OR, 5.7; 95% CI, 2.3-13.9); and husband/other family members decide issues related to women's health (adjusted OR, 2.9; 95% CI, 1.3-6.6). 16
6.	2. National and state-specific Td and Tdap vaccination of adult populations	Peng-jun Lu, MD, phd, 1Alissa O'Halloran, MSPH, 1Helen Ding, MD, MSPH, 1Jennifer L. Liang, DVM, MPVM, 2 and Walter W. Williams, MD, MPH1 Journal of Prevention Medical, 2018	America	Adult female > 18 years old	Logistic regression	National vaccination coverage for adults 18 years old for Td is 57.5% and for Tdap is 28.9%, factors that influence the amount of coverage are higher education, high income and excellent insurance services. 17

Discussion

The relation between the coverage of tetanus toxoid immunization in this systematic review study can be discussed as follows:

Premarital Perception of TT Immunization

Premarital perceptions about the importance of TT immunization that from the study of Meseret Delesa Anatea (2018) that education factors, lack of information, distance of health services, decisions in TT immunization are influenced by partners and the environment, accessibility still affects the low coverage of TT immunization in premarital couples or in women of childbearing age¹². Where in premarital couples there is also a need for awareness of the benefits of the importance of TT immunization, and the existence of educational services that are easily accessible to couples.¹⁸

According to Marius Zambou Vouking (2017) that the lack of partner support in TT immunization can also affect perceptions and behavior¹³. There are gender factors that influence decision making in couples when TT immunization is more dominant in one partner, so that it will affect premarital perceptions and behavior as well as socio-economic factors in making decisions regarding TT immunization which are deemed unnecessary. In accordance with a

study from Hasan (2016) that perceptions will also change because it is influenced by the education level and socioeconomic status of the spouse¹⁵. Where is the level of Education i.e. Formal education up to secondary school level is strongly related to the status of the coverage of TT immunization.¹³

According to Yassir (2017) that perception can change due to poor knowledge of the relationship between tetanus and ignorance of the benefits of TT16 immunization. According to Anasthasya Kasan (2020) and Nila Handayani (2021) that knowledge is very influential in the perception of giving tetanus toxoid immunization to catin or premarital^{8,10}. So that the education level factor in decision making still influences premarital perceptions regarding information on the benefits of TT immunization as well as gender and social and environmental factors are still very icons supporting the decline in TT immunization coverage. Because as in general, couples when asked about the benefits of TT immunization during the premarital period still do not know the benefits of TT immunization²⁰. Another study, according to Wira Meiriza, Triveni (2018), examines that knowledge and attitudes have no relationship with the Implementation of Tetanus Toxoid Immunization (Catin).¹¹

In this study, education and knowledge factors greatly influence the perception of couples in TT immunization, there is still a need for comprehensive intervention and education about the benefits of the importance of TT immunization for premarital couples. It is necessary to provide intensive services related to TT immunization education, because if you can increase the coverage of TT immunization before marriage, it will help in preventing tetanus and the problem of risk factors will be reduced and resolved. In addition, it is necessary to educate the support of premarital couples in deciding for joint reproductive health. According to Murniati (2019), negative beliefs will also affect the refusal to give premarital tetanus toxoid immunization, so it is very important to understand the importance of the benefits of immunization. and premarital perceptions can change to positive beliefs⁷. Meanwhile, in addition to premarital beliefs, according to Halimatuz Zahroh (2021) is ignorance of the importance of premarital tetanus toxoid immunization in premarital⁹. So it requires counseling or socialization regarding the benefits of tetanus toxoid immunization which is able to provide immunity as a prevention against tetanus²¹.

Policy in Giving TT Immunization to Premarital

The provision of TT immunization does not only change the perception of partners, but also requires the support of targeted policies and programs. In accordance with a study according to Meseret Delesa Anatea (2018) that the low coverage of TT immunization is also influenced by government policies in the program that still needs to be improved¹². There needs to be a government design and strategy so that the TT immunization service makes premarital couples have no doubts in complying with government programs. It is also necessary for the government to make a message for the TT immunization program for premaritals that is attractive, clear and reliable in relation to TT immunization through promotional media that people are interested in. This community-based health promotion can provide appropriate and delivered health services for all couples²².

According to Zohra S Lassin (2014) that TT immunization will be more effective if there are services in the preconception care intervention program, couples will be more closely monitored and couples will know the benefits of TT immunization¹⁴. According to a study by Motlatso (2021) that in the

provision of interventions, many women were found who did not want to immunize because of the ignorance of the drug substance, so it was necessary to provide education that might be given during preconception care regarding the explanation of the type of immunization, the dose, and the level of the drug. TT immunization service support is provided free of charge in this TT immunization policy program²⁰.

According to Peng-jun Lu (2015) that the coverage of this TT immunization will also increase with this program being included in insurance services which will make it easier in terms of economy, in this case it is included in the health program service, so that inevitably it will be something that couples will want to immunize for TT¹⁷.

Screening in Premarital Examination

The policy will be good in the premarital TT immunization program, will continue in the making of the premarital screening program. In accordance with the study of Zohra S Lassin (2014) that the provision of TT immunization will be the beginning of screening in preconception care for couples in conducting preconception consultation¹⁴. Preconception care will continue after the TT immunization and premarital couples

will be more closely monitored to carry out their reproductive health. Where the form of screening can be made into interprofessional collaboration according to a study from Eka (2021) there is an interprofessional collaboration model in services for premarital an integrated service model to improve premarital health. The premarital physical examination includes examination of vital signs, weighing and measuring upper arm circumference to determine premarital nutritional status, where nutritional status affects pregnancy if it is not prepared from the preconception period. So that there is collaboration from each service including nurses, midwives, nutritionists, psychological experts to the provision of TT immunization²³.

Conclusion And Suggestion

That the determinants of premarital TT immunization coverage were analyzed for factors such as education, knowledge, health services, socio-economics, health insurance services, ease of information, premarital screening programs as a reference for determinants of premarital TT immunization coverage. So it is hoped that the government's program in terms of prevention is more focused and improved.

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