

Triple Elimination Screening Examination Results for Pregnant Women of Healthy Reproductive Age in First Trimester at Lebdosari Community Health Center, Semarang City

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ARTICLE INFO

Keywords: Triple Elimination Screening, Pregnant mother, Healthy Reproductive Age

Received : 04, February

Revised : 20, March

Accepted: 28, April

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ABSTRACT

Pregnant women are one of the populations at risk of contracting HIV infection, syphilis and Hepatitis B. The prevalence of HIV/AIDS transmission from mother to child is 20-50%, of which 5-10% occurs during pregnancy. Syphilis transmission is 69-80% and Hepatitis B transmission is more than 90% with the potential for transmission during pregnancy and childbirth being very high. Based on RI Minister of Health Regulation No. 52 of 2017 concerning the Elimination Program for Transmission of HIV, Syphilis and Hepatitis B from Mother to Child or often called " *Triple Elimination* " The aim of this research is to determine the results of the *Triple Elimination Screening examination* of pregnant women of healthy reproductive age in the first trimester at the Lebdosari Community Health Center based on parity, education and employment. This is an observational analytical study with a *cross sectional approach*. Results from 49 pregnant women, all of them were non-reactive (100%) to HIV testing. Syphilis examination showed that 1 pregnant woman (2%) was reactive and 48 pregnant women (98%) were non-reactive. Hepatitis B examination showed that 1 pregnant woman (2%) was reactive and 48 pregnant women (98%) were non-reactive.

INTRODUCTION

Pregnancy is a fertilization process that begins with the meeting between spermatozoa and ovum until the fetus develops in the woman's womb. The ideal age for women to get pregnant is the age of healthy reproduction, namely between the ages of 20 - 35 years. Because the development of female reproductive organs is influenced by age and organ maturity. Age 20 - 35 years is a safe range for female reproductive organs to carry out fertilization. STIs are also influenced by personal hygiene habits, where hygiene refers to clean living habits (Kahar, 2019). Healthy reproduction does not only mean being free from disease, but being physically, mentally and socially healthy. Pregnant women are one of the populations at risk of contracting sexually transmitted infections (STIs) such as HIV, syphilis and Hepatitis B. The prevalence of HIV/AIDS transmission from mother to mother. children is 20-50% of which 5-10% occurs during pregnancy. Syphilis transmission is 69-80% where the greatest risk occurs during the pregnancy phase. Hepatitis B transmission is more than 90% with the potential for transmission during pregnancy and childbirth being very high (Kemenkes RI,2019).

Human Immunodeficiency Virus (HIV) is an infection that attacks lymphocytes so that the body's immunity decreases. This decline in the immune system increases the risk of the body experiencing various infections, causing *Acquired Immunodeficiency Syndrome* (AIDS) (Wibowo & Priyatno, 2019). Syphilis is a systemic disease and can cause severe conditions including brain infections (neurosyphilis), body defects (gums) caused by the *Treponema Pallidum* bacteria. Syphilis can increase the risk of contracting HIV because syphilis can increase the ability of HIV infection and susceptibility to contracting HIV (Kemenkes, 2022). Hepatitis B is a disease that can cause serious problems and result in liver damage and even death or liver cancer. Hepatitis B is caused by the Hepatitis B Virus (HBV) (Priyatno & Qomariyah, 2019). These three diseases are diseases that can be transmitted not only from mother to fetus, but can also be transmitted between individuals. Likewise with Covid-19, malaria, tuberculosis and worms (Kahar *et al.*, 2020).

The World Health Organization (WHO) states that in 2022 there will be 1.2 million pregnant women with HIV positive status (WHO, 2022). Every year, WHO states that around 1.5 million pregnant women worldwide are reported to be infected with syphilis, with the Southeast Asian continent showing an increase of 0.32% with a figure of up to 167,000 cases. Meanwhile, Hepatitis B in 2019-2021 infected 630,000 women out of a total of 1.5 million people (WHO, 2021). HIV examination in Central Java in 2017 stated that 686 pregnant women were detected as HIV positive (Dinkes Jateng, 2018). HIV cases in Semarang City in 2021 amounted to 35 pregnant women (Dinkes Kota Semarang, 2023). The number of syphilis cases in Central Java in 2018 reached 377 cases with a percentage of 64.72% in women and in 2017 the percentage of pregnant women with reactive HBsAg reached 2.08%.

In an effort to reduce and overcome this, the Indonesian Ministry of Health issued Regulation no. 52 of 2017 concerning the Program to Eliminate Transmission of HIV, Syphilis and Hepatitis B from Mother to Child or often

called " *Triple Elimination* ". This program aims to stop the transmission of HIV, Syphilis and Hepatitis B from mother to child by conducting laboratory tests on pregnant women at least once during pregnancy. These laboratory examinations are the HIV rapid test, Syphilis rapid test, and HBSAg rapid test (Kemenkes RI, 2015) . The achievement target for this program is that by 2022 the number of new HIV, Syphilis and/or Hepatitis B infections in children will be less than or equal to 50/100,000. To realize this target, an elimination strategy will be implemented by increasing access, quality and facilities for health services for mothers and children. (Kemenkes, 2017)

METHODOLOGY

The type of research in this research is analytical observational with a *cross sectional approach*. The population in this study were all pregnant women who underwent *Triple Elimination Screening* at the Lebdosari Community Health Center, Semarang City. The subjects of this research were pregnant women of healthy reproductive age, namely 20 - 35 years old and in the first trimester of pregnancy and willing to be research subjects.

The data collected in this research is primary data consisting of respondent data taken through *informed consent* and questionnaires, data from *the Triple Elimination Screening examination* which was examined at the Lebdosari Health Center Laboratory. The sampling technique used purposive sampling and the sample size was based on inclusion and exclusion criteria using the formula Lameshow et al., 1990, quoted by Ariawan, 1998 (in Notoatmodjo, 2014) with a total of 49 samples. The research has been registered with the ethics commission with number ethic research No. 068/EA/KEPK/2024.

RESEARCH RESULT

Results

Table 1 Frequency Distribution of Respondent Characteristics

Characteristics		f	%
Parity	Nulliparous	19	38.8%
	Primipara	18	36.7%
	Multiparous	12	24.5%
Education	Elementary School	1	2.0%
	Junior High School	11	22.4%
	Senior High School	22	44.9%
	College	15	30.7%
Work	Civil Servants	7	14.3%
	Private Sector Employee	14	28.6%
	Self-Employed	11	22.4%
	Housewife	17	34.7%
	Doesn't work	0	0%
	Other	0	0%

Table 1 shows that from a total of 49 respondents, the results showed that the majority of pregnant women in the nulliparous parity group were 19

respondents (38.8%). The majority of pregnant women's education is high school, namely 22 respondents (44.9%) and the majority of jobs are as housewives (housewives) with 17 respondents (34.7%).

Table 2 Frequency Distribution of *Triple Elimination Examination Results*

Inspection	Reactive		Non Reactive		Total	
	f	%	f	%	f	%
HIV	0	0%	49	100%	49	100%
Syphilis	1	2%	48	98%	49	100%
Hepatitis B	1	2%	48	98%	49	100%

Table 2 shows that of the 49 respondents, all pregnant women's HIV test results were non-reactive (100%). A total of 1 pregnant woman (2%) was reactive to the syphilis test, and 1 pregnant woman (2%) was reactive to the Hepatitis B test.

Table 3 Frequency Distribution of HIV Test Results

Characteristics		Reactive		Non Reactive		Total	
		f	%	f	%	f	%
Parity	Nulliparous	0	0%	19	100%	19	38.8%
	Primipara	0	0%	18	100%	18	36.7%
	Multiparous	0	0%	12	100%	12	24.5%
Education	Elementary School	0	0%	1	100%	1	2.0%
	Junior High School	0	0%	11	100%	11	22.4%
	Senior High School	0	0%	22	100%	22	44.9%
	College	0	0%	15	100%	15	30.7%
	Civil Servants	0	0%	7	100%	7	14.3%
Work	Private Sector	0	0%	14	100%	14	28.6%
	Employee	0	0%	11	100%	11	22.4%
	Self-Employed	0	0%	11	100%	11	22.4%
	Housewife	0	0%	17	100%	17	34.7%
	Doesn't work	0	0%	0	100%	0	0%
	Other	0	0%	0	100%	0	0%

Table 4 shows the results of syphilis examination on 49 respondents. Based on the characteristics of parity, education and employment, reactive results were found in the nulliparous parity group, as many as 1 pregnant mother (5.3%). Educational characteristics, in the junior high school group there was 1 reactive pregnant woman (9%) and in the self-employed work characteristics there was 1 reactive pregnant woman (9%).

Table 5 Frequency Distribution of Hepatitis B Examination Results

Characteristics		Reactive		Non Reactive		Total	
		f	%	f	%	f	%
Parity	Nulliparous	0	0%	19	100%	19	38.8%
	Primipara	0	0%	18	100%	18	36.7%
	Multiparous	1	8.3%	11	9.7%	12	24.5%
Education	Elementary School	0	0%	1	100%	1	2.0%
	Junior High School	0	0%	11	100%	11	22.4%
	Senior High School	1	4.5%	21	95.5%	22	44.9%
	College	0	0%	15	100%	15	30.7%
Work	Civil Servants	0	0%	7	100%	7	14.3%
	Private Sector Employee	0	0%	14	100%	14	28.6%
	Self-Employed	0	0%	11	100%	11	22.4%
	Housewife	1	5.9%	16	94.1%	17	34.7%
	Doesn't work	0	0%	0	100%	0	0%
	Other	0	0%	0	100%	0	0%

Table 5 shows the results of Hepatitis B examination on 49 respondents. Based on the characteristics of parity, education and employment, reactive results were found in the multiparous parity group, as many as 1 pregnant woman (8.3%). Educational characteristics, in the high school group there was 1 reactive pregnant woman (4.5%) and in the household work characteristics there was 1 reactive pregnant woman (5.9%).

Figure 1 Results of the Pregnant Women's Knowledge Questionnaire

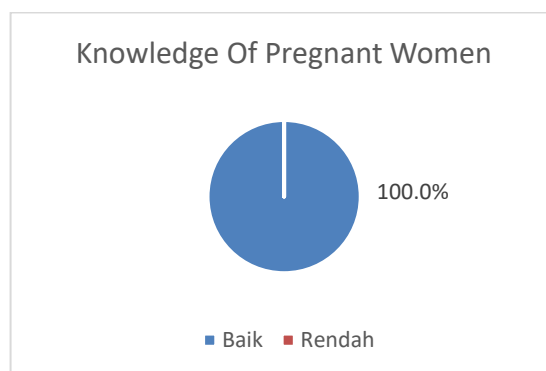


Figure 1 shows the results of a summary of the knowledge questionnaire that was filled in by 49 pregnant women who were research respondents, showing that all pregnant women had good knowledge (100%). The knowledge questionnaire for pregnant women contains five statements that can be answered as true or false, consisting of three true statements and two false statements.

Figure 2 Results of the Pregnant Women's Behavior Questionnaire

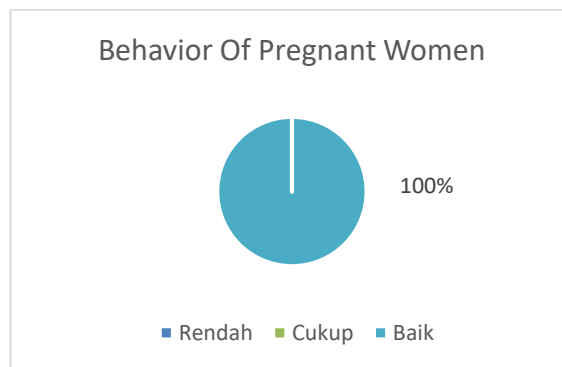


Figure 2 shows the results of a summary of the behavioral questionnaire that was filled in by 49 pregnant women who were research respondents, showing that all pregnant women behaved well (100%). The pregnant women's behavior questionnaire contains five statements regarding life behaviors that can cause sexually transmitted infections in pregnant women. These statements were answered often, rarely and never by pregnant women who were respondents in the research.

DISCUSSION

HIV Test Results by Parity, Education and Employment

Table 3 shows that all respondents (100%) were non-reactive to HIV testing. This is in line with Sagita & Anggraeni's 2022 research conducted in the PKM Saboking-King Palembang work area with the results of all pregnant women tested for HIV showing 20 non-reactive results. people (100%) (Sari & Anggeriani, 2022) . Although the results of this study show that there is no reactive HIV in pregnant women, this is not a trivial matter because HIV in pregnant women can be transmitted during pregnancy, especially through infection or damage to the placenta. The risk of HIV transmission from mother to child is higher in vaginal delivery because the pressure on the placenta increases, causing a connection between the mother's blood and the baby's blood and the baby is at risk of being exposed to the mother's blood and mucus in the birth canal (Widhyasih *et al.* , 2020) .

Syphilis Examination Results based on Parity, Education and Occupation

Table 4 shows that there were 1 pregnant women (5.3%) in the nulliparous parity group. Educational characteristics, in the junior high school group there was 1 reactive pregnant woman (9%) and in the self-employed work characteristics there was 1 reactive pregnant woman (9%).

Parity is defined as a situation where a woman gives birth to a child either alive or dead. Nulliparous parity is a woman who has never given birth to a live or dead baby. This research is in line with research conducted by Sulistyorini & Ratmawati in 2021, which obtained results from 22 respondents (53.7%) in the low risk category (<3 births). Several factors that influence parity include education, employment, economic conditions, cultural background and knowledge. Thus, pregnant women who were reactive to syphilis in this study

could be influenced by educational and occupational risk factors (Sulistyorini & Ratmawati, 2020) .

The last education of pregnant women who were detected as reactive to syphilis was junior high school (9%) or included in basic education. This research is also in line with Costa de Macêdo, et al. in 2017 who explained that the level of education can be related to public awareness in responding to socialization about sexual menstrual infections provided by health workers. This results in low community participation in the prevention and treatment of sexually transmitted infections. Pregnant women who have low education are at risk of experiencing sexual menstrual infections and complications. Low level of education causes a lack of interest and difficulty in communication, giving rise to unhealthy sexual behavior (Costa de Macêdo *et al.* , 2017) .

Based on work, pregnant women with reactive syphilis work as private employees (9%). In line with research by Umniya, et al in 2023, respondents who are at higher risk of syphilis are respondents who work (68.7%) with a risk 2.14 times higher than those who do not work. Employment status can influence a person's behavioral exposure and risk of transmitting sexually transmitted infections (Umniya *et al.* , 2022) . Workers are very active and socially interactive, which can generate attraction and potentially increase risky sexual activity. This condition can cause the transmission of sexually transmitted diseases because it is carried out in unsafe places and methods. (Ardiyansyah *et al.*, 2023) and financial conditions due to the impact of work can lead to risky social behavior (Nabukenya *et al.* , 2020) .

Hepatitis B Examination Results based on Parity, Education and Occupation

Table 5 shows that reactive results were found in the multiparous parity group as many as 1 pregnant woman (8.3%). Educational characteristics, in the high school group there was 1 reactive pregnant woman (4.5%) and in the household work characteristics there was 1 reactive pregnant woman (5.9%).

Data on Hepatitis B examination results based on parity showed reactive results in 1 pregnant woman (8.3%) in the multiparous parity group. This research is in line with research conducted by Pither, et al. in 2021, namely the risk factors for the incidence of hepatitis B in pregnant women with the results that the majority of pregnant women were in the high parity group, had a high school education and worked as housewives (Pither *et al.* , 2021) . Parity is a factor in the transmission of Hepatitis B during the pregnancy phase. Mothers with high parity have a higher prevalence (9.8%) due to repeated exposure to risky sexual activities. The increased risk can also be caused by repeated exposure to birth instruments and increased exposure to risk factors such as the use of intravenous drugs, blood transfusions, and the surgical process during delivery (Abongwa *et al.* , 2016) .

The education level of pregnant women with hepatitis B reactivity is high school (4.5%). A person's perception of the risk of disease transmission is influenced by their level of education. Pregnant women with a high level of education will have good knowledge so they will tend to have information about the factors that cause certain diseases. In line with research by Metaferia et al in

2016 which revealed that education is a factor in the incidence of hepatitis B in pregnant women. Pregnant women without formal education are three times more likely to be infected with HBV (Metaferia *et al.* , 2016) . The higher the education, a person's knowledge will also increase. Research conducted by Priyatno & Qomariyah in 2019 stated that there was a statistically significant relationship between knowledge and attitudes that influence Hepatitis (Priyatno & Qomariyah, 2019) .

The occupation of pregnant women with reactive Hepatitis B is housewives (7.1%). The work of pregnant women is not a risk factor for transmission of Hepatitis B. This means that transmission of hepatitis B to pregnant women may be caused by exposure or transmission between family members that occurs within the household through sharing personal items. The house is one part of the environment that influences the occurrence of disease (Kahar, Dirawan, *et al.*, 2021) . In line with this research, Molla, *et al.* in 2015 also explained that hepatitis B transmission in pregnant women often occurs between family members through the use of personal items with infected people and contact with syringes contaminated with HBsAg or other household items from chronically infected people. . (Molla *et al.* , 2015) . Apart from that, pregnant women will have minimal social interaction because they do not work in the formal sector so they have less knowledge and awareness of the risk of infection directly or indirectly.

The Relationship between Knowledge and Behavior of Pregnant Women on the Results of Triple Elimination Screening Examinations

Figure 1 shows the results of the knowledge questionnaire of pregnant women respondents which shows that all pregnant women (100%) have good knowledge about Triple Elimination pregnancy checks and the causes and impacts of sexually transmitted infections. Good knowledge can be obtained through information from formal and non-formal education (Kahar *et al.* , 2022) . Pregnant women generally get information about sexually transmitted infections from health workers during pregnancy classes, posyandu, social media and others. Information received by pregnant women about sexually transmitted infections will increase knowledge so that pregnant women will discuss together with their partners how to prevent sexually transmitted infections that can be transmitted to the fetus they are carrying. The role of knowledge in managing healthy pregnancy conditions, mental and physical preparation of mothers. Diniarti, *et al.* stated that low knowledge has a 2.418 times higher risk of experiencing STIs (Diniarti *et al.* , 2019) .

Figure 2 shows the results of the behavioral questionnaire for pregnant women which shows that all pregnant women (100%) who underwent the Triple Elimination examination at the Lebdosari Community Health Center behaved well and complied with the entire series of pregnancy examinations and did not have sexual behavior by changing partners. This can reduce the risk of transmitting STIs, as mentioned by Suwandani in 2015, who stated that someone who has sexual relations with multiple partners has a 9 times higher risk of contracting STIs (Suwandani, 2015) . Pregnant women with positive attitudes towards the *Triple Elimination examination* will also have a positive attitude and response in accepting, supporting and complying with the series of examinations

recommended by the midwife or doctor. So sexually transmitted infections will be detected early and can be treated before they get worse. Clean and healthy living behavior is also a factor that influences the transmission of infectious diseases between individuals (Kahar, Purlinda, *et al.* , 2021)

CONCLUSIONS AND RECOMMENDATIONS

Conclusions

- 1) Of the 49 respondents, the results of the HIV examination showed that all pregnant women were non-reactive (100%). A total of 1 pregnant woman (2%) was reactive to the syphilis test, and 1 pregnant woman (2%) was reactive to the Hepatitis B test.
- 2) The results of HIV testing based on parity, education and employment characteristics of all pregnant women respondents (100%) showed non-reactive results to HIV testing.
- 3) results based on parity characteristics, education and employment, reactive results were found in the nulliparous parity group as many as 1 pregnant mother (5.3%). Educational characteristics, in the junior high school group there was 1 reactive pregnant woman (9%) and in the self-employed work characteristics there was 1 reactive pregnant woman (9%).
- 4) Hepatitis B examination results based on parity characteristics, education and employment, reactive results were found in the multiparous parity group, as many as 1 pregnant woman (8.3%). Educational characteristics, in the high school group there was 1 reactive pregnant woman (4.5%) and in the household work characteristics there was 1 reactive pregnant woman (5.9%).

Recommendations

- 1) Respondents are expected to increase compliance and enthusiasm in the Triple Elimination examination to prevent the spread of sexually transmitted infections (HIV, Syphilis and Hepatitis B) from mother to child.
- 2) For future researchers who will conduct research on Triple Elimination examination of pregnant women, they can develop other variables such as attitudes, perceptions, culture, social support, and others that can influence HIV, Syphilis, and Hepatitis B screening.

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