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Effectiveness of Malaria Prevention Education on the Knowledge and Attitudes of Pregnant Women in Endemic Areas in 2024

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ABSTRACT

Malaria is an infectious disease that Malaria remains a public health problem, especially in endemic areas. Pregnant women are a vulnerable group to malaria because it can increase the risk of pregnancy complications and fetal death. This study aims to determine the effectiveness of malaria prevention education on improving the knowledge and attitudes of pregnant women in endemic areas. The research design used was a quasi-experimental one-group pretest-posttest design. The study was conducted in Parombunan Village, Central Tapanuli Regency in 2023 with a sample of 30 pregnant women selected using purposive sampling. The research instrument was a questionnaire. structured to measure respondents' knowledge and attitudes. Data analysis used a paired t-test with a significance level of 5%. The results showed that before being given education, most respondents had poor knowledge (66.7%) and less positive attitudes (73.3%). After education, increased knowledge become positive attitudes increased to 83.3% of respondents, with a statistical test result of p = 0.000 (p < 0.05), indicating a significant difference in knowledge and attitudes before and after education.

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1. Introduction

Malaria is still a global public health problem, especially in developing countries including Indonesia.(Ronny, 2024),(Setiadi, KM, & Fifi Dwijayanti, 2020)This disease is transmitted through the bite of a female Anopheles mosquito carrying the Plasmodium parasite. In endemic areas, pregnant women are particularly vulnerable to malaria, as it can cause anemia, miscarriage, low birth weight, and even maternal and neonatal death.(Purwatiningsih, Lestyoningrum, Sunaryo, & Puspita, 2022),(Pratiwi et al., 2022).

Pregnant women are particularly vulnerable to malaria due to a weakened immune system during pregnancy. Malaria infection in pregnant women can cause anemia, abortion, premature birth, low birth weight (LBW), and even maternal and fetal death.(Ilyas & Serly, 2021),(Wahyuni & Rindu, 2023)Therefore, malaria prevention efforts in pregnant women are very important to reduce the risk of dangerous complications.(Tondok et al., nd),(WULANDARI, 2024).

Malaria prevention efforts need to be strengthened through health education interventions, particularly for pregnant women. Education plays a crucial role in increasing knowledge and fostering

positive attitudes toward malaria prevention.(Nurdin, 2024),(Neherta & Refnandes, 2024), for example by using insecticide-treated mosquito nets, maintaining environmental cleanliness, and immediately carrying out health checks if there are symptoms(Septadina, Kesuma, Handayani, Suciati, & Liana, 2015),(Rofiki & Famuji, 2020).

This research was conducted in Parombunan Village, Central Tapanuli Regency, a malaria-endemic area. The aim was to determine the effectiveness of malaria prevention education on improving the knowledge and attitudes of pregnant women in the area.(Erlina, 2015),(Basana, 2023).

2. Methods

2.1 Research Design

This study used a quasi-experimental design with a one-group pretest-posttest approach. This design aimed to examine differences in knowledge and attitudes of pregnant women before and after receiving malaria prevention education, without a control group.(OKTAVIA, Ningsih, Patroni, Sumiati, & Sumaryono, 2021).

2.2 Population and Sample

The population in this study was all pregnant women domiciled in Parombunan Village, Central Tapanuli Regency, in 2024. The research sample consisted of 30 pregnant women selected using purposive sampling techniques, namely based on inclusion criteria such as being willing to be respondents, being able to communicate well, and being present during the education process.

2.3 Data Collection Techniques and Instrument Development

The data collection technique in this study was carried out in several stages. First, the researchers administered a pretest to all respondents to determine their level of knowledge and attitudes regarding malaria prevention before receiving education. The instrument used was a structured questionnaire that had been tested for validity and reliability. It included questions about the definition of malaria, transmission methods, symptoms, and prevention efforts, as well as attitude statements reflecting respondents' acceptance of preventive behaviors.

2.4 Analysis Techniques

Data analysis in this study was carried out in stages:

a. Univariate

to describe the characteristics of respondents and the frequency and percentage distribution of knowledge and attitudes of pregnant women before and after education. This analysis aims to provide a general overview of the respondents' conditions related to the research variables.

b. Bivariate Analysis

Using the paired t-test (if the data is normally distributed) or the Wilcoxon signed rank test (if the data is not normally distributed), this analysis was used to determine the average difference in respondents' knowledge and attitudes before and after malaria prevention education. The significance level used was 95% ($p < 0.05$), so if the p-value is less than 0.05, it can be concluded that malaria prevention education is effective in improving the knowledge and attitudes of pregnant women in endemic areas.

3. Results and Discussion

Table 1.
Distribution of Pregnant Women's Knowledge Before Malaria Prevention Education (Pretest)

Knowledge	Frequency (f)	Percentage (%)
Not good	20	66.7
Good	10	33.3

Total	30	100

Results: Before education, the majority of pregnant women (66.7%) had poor knowledge regarding malaria prevention.

Table 2.
Distribution of Pregnant Women's Knowledge After Malaria Prevention Education (Posttest)

Knowledge	Frequency (f)	Percentage (%)
Not good	4	13.3
Good	26	86.7
total	30	100

Results: After education, most pregnant women (86.7%) had good knowledge about malaria prevention.

Table 3.
Distribution of Pregnant Women's Attitudes Before Malaria Prevention Education (Pretest)

Knowledge	Frequency (f)	Percentage (%)
Not good	22	73.3
Good	8	26.7
Total	30	100

Results: Before education, the majority of pregnant women (73.3%) had a less positive attitude towards malaria prevention.

Table 4.
Distribution of Pregnant Women's Attitudes After Malaria Prevention Education (Posttest)

Knowledge	Frequency (f)	Percentage (%)
Not good	5	16.7
Good	25	83.3
Total	30	100

Results: After education, most pregnant women (83.3%) showed a positive attitude towards malaria prevention.

3.1 Discussion

The results of this study indicate that malaria prevention education significantly improved the knowledge and attitudes of pregnant women in endemic areas, particularly in Parombunan Village, Central Tapanuli Regency. Prior to the education, the majority of respondents had poor knowledge (66.7%) and less positive attitudes (73.3%). This could be due to the limited information received, limited access to knowledge sources, and a lack of attention to malaria prevention programs at the family and community levels. After the education program, which included interactive lectures, discussions, and leaflet distribution, there was a significant increase.(Arisjulyanto & Suweni, 2024),(Apay et al., 2024)Respondents' knowledge increased, with 86.7% of pregnant women having good knowledge, and positive attitudes also increased to 83.3%. This increase indicates that educational interventions are effective in changing pregnant women's mindsets and behaviors regarding malaria prevention.(Arisjulyanto & Suweni, 2024),(Aisah, Sahar, & Hastono, 2010). The statistical test results showing a p-value <0.05 confirm that the difference before and after education is not merely a coincidence, but is truly influenced by the intervention provided. The findings of this study are in line with several previous studies that state that health education plays a crucial role in increasing public understanding and shaping positive attitudes towards the prevention of infectious diseases, including malaria. Education carried out directly to vulnerable groups, such as pregnant women, has been shown

to increase their awareness to take preventive measures, such as using insecticide-treated mosquito nets, maintaining environmental cleanliness, and immediately seeking medical attention if symptoms appear (Bahar et al., 2020).

4. Conclusions

This study proves that malaria prevention education is effective in improving the knowledge and attitudes of pregnant women in endemic areas. Before education, most respondents had poor knowledge (66.7%) and less positive attitudes (73.3%). After education, good knowledge increased to 86.7% and positive attitudes increased to 83.3%. The results of statistical tests showed a p-value <0.05, which means there is a significant difference between the knowledge and attitudes of pregnant women before and after education. Thus, health education is proven to be an important effort to increase awareness of pregnant women in malaria prevention in endemic areas. For health workers: It is necessary to regularly conduct health education on malaria prevention, especially for pregnant women, so that they are more aware and active in protecting themselves from the risk of disease. For pregnant women: It is hoped that they are able to apply the knowledge gained, such as using insecticide-treated mosquito nets, maintaining environmental cleanliness, and immediately seeking medical attention if they experience malaria symptoms. For Community Health Centers and Health Offices: Strengthen education programs and increase the distribution of malaria prevention tools in endemic areas. For future researchers: It is recommended to examine in more depth other factors that may influence pregnant women's attitudes and behaviors regarding malaria prevention, and to use a research design with a control group for more robust results.

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