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# Health Education about Malaria for the Nabire Community

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## ABSTRACT
Nabire Regency with a total of 1,082 cases. In 2021, there was an increase in malaria cases, reaching 2,456 positive cases of malaria, of which the largest number of cases were in Nabire District with a total of 1,248 positive cases. To reduce the high number of malaria cases, the Nabire Regency Government issued Regent Regulation number 48 of 2019 concerning the Malaria Control Center, but in its implementation there are obstacles faced by the Health Service, namely the lack of community support and the lack of supporting infrastructure in implementing malaria control policies. The aim of community service activities carried out in Nabire Regency is to increase public knowledge and awareness in eradicating malaria. The population of this community service is the Nabire community using counseling methods through community leaders such as village elders, RT, RW and health cadres. The method for solving problems uses several methods and fishbone diagrams. The implementation that has been carried out in this community service is conducting a Forum Group Discussion (FGD) with community leaders consisting of health problems, namely malaria related to community compliance with healthy behavior such as using mosquito nets or installing coarse wire, using mosquito poison, keeping the house clean. After conducting the FGD, we first conducted education regarding malaria prevention through leaflets to community leaders. Health education to the community regarding malaria was assisted by community leaders who participated in the FGD. Community figures who assist in delivering health education are village elders, RT, RW and health cadres. As a result, 85% of community service activities aimed at increasing community knowledge were successful, the community became more knowledgeable about preventing malaria and improving their health. The Conclusion of this research is this community service program was implemented, and resulted in a change in accordance with the output target, namely knowledge about eradicating malaria, especially how to prevent it. It is hoped that the counseling provided can be carried out regularly and applied in people's lives so that the incidence of malaria can decrease.

**Keywords:** Education, health, malaria

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## INTRODUCTION

In Indonesia, malaria is still found in several areas. The areas that will still be endemic for malaria in 2023 are Papua, West Papua, Maluku and NTT. Nearly 89% of malaria cases are still found in these areas. According to the Director of Infectious Disease Prevention and

Control, Dr. Imran Pambudi explained that Indonesia contributed the 2nd largest number of cases after India in Asia. Based on WHO 2022 data, the estimated cases are 811,636 positive cases of malaria in 2021(Rokom, 2023).

According to the Papua Province health office, the Malaria Infection Rate (API) per 1000 population was 46.79 in 2017, which has decreased from 55 in 2014, but still has not reached the target of 45 in 2018. The percentage of laboratory confirmation and treatment of Malaria with ACT is 100%, This means that all suspected malaria is confirmed by laboratory or RDT and all those with malaria are treated with drugs according to standards. Reducing malaria cases seen from the Positive Rate (SPR) slide which is targeted to decrease to 11% in 2017 turns out to still be high at 39.69% from 38% in 2014 (Papua, 2017).

Nabire Regency is one of the contributors to malaria morbidity rates in Papua Province, the number of cases of malaria sufferers in Nabire Regency in 2020 is 2,359 malaria cases. Nabire District is the largest contributor to cases in Nabire Regency with a total of 1,082 cases. In 2021, there was an increase in malaria cases, reaching 2,456 positive cases of malaria, of which the largest number of cases were in Nabire District with a total of 1,248 positive cases. To reduce the high number of malaria cases, the Nabire Regency Government issued Regent Regulation number 48 of 2019 concerning the Malaria Control Center, but in its implementation there are obstacles faced by the Health Service, namely lack of community support and lack of supporting infrastructure in implementing malaria control policies (Palumpun, 2022).

Malaria is an infectious disease caused by a parasite called Plasmodium. This disease is transmitted through the bite of a mosquito infected with the parasite. Based on world data, malaria kills one child every 30 seconds. Around 300-500 million people are infected and around 1 million people die from this disease every year. 90% of deaths occur in Africa, especially in children (WHO, 2014)

With the incidence of malaria still being found, it is necessary to take steps to change. Therefore, we carry out health education in collaboration with community leaders to eradicate malaria by increasing knowledge in order to prevent malaria.

## METHOD

Community service was carried out in the Nabire community, Papua Province in March 2023. The population of this community service was the Nabire community using outreach methods through community leaders such as village elders, RT, RW and health cadres. The method for solving problems uses several methods and fishbone diagrams as follows:

Fishbone is a tool for identifying, exploring, and graphically depicting in detail all the causes related to a problem. The basic problem is placed on the right side of the diagram or at the head of the fishbone framework. The cause of the problem is described in the fins and spines. Categories that cause problems that are often used as an initial starting point include materials (raw materials), machines and equipment (machines and equipment), man power (human resources), methods (methods), mother nature/environment (environment), and measurement (measurement).

According to (Pande, 2003) There are six factors that can cause this fishbone diagram. Materials are raw inputs that will be used in processes or converted into finished goods through processes. Methods are procedures, processes and work instructions in a company. Machines and Equipment, the machines in question are equipment including computers and tools used in processing materials. Mother nature in question is the environment which is the place where processes take place or are carried out. Mother nature can include the natural environment and also facilities in the work environment. People are people who influence the processes carried out by the company Measurements/engraving is data taken from the process

is used to evaluate the quality of the process.
The USG method is useful for arranging the priority order of issues that must be resolved. Problem solving by determining the level of urgency, seriousness and development of the issue by determining a score scale of 1 – 5 or 1 – 10. The issue with the highest total score is a priority issue.
This method is to systematically identify various factors to formulate agency strategies. This analysis is based on logic that can maximize strengths and opportunities, but simultaneously minimize weaknesses and threats.
The decision-making process is always related to the development of agency missions, goals, strategies and policies. So, to plan a strategic plan, you must analyze the agency's strategic factors (strengths, weaknesses, opportunities and threats) in the current conditions (Rangkuti, 2016).

## RESULT

Based on data available at the Nabarua Community Health Center, the problems faced are related to malaria cases which are still high and have become endemic. The Papua province that contributes to malaria cases is Nabire Regency. In 2020 there were 2,359 cases of malaria in Nabire Regency. In 2021, there will be an increase in malaria cases, namely reaching 2,456 positive cases of malaria in Papua, the most of which are in Nabire with a total of 1,248 positive cases(Palumpun, 2022).
Meanwhile, data on malaria at the Nabarua Community Health Center is as follows:
Table 3.3. Malaria Disease Data from 2021 to 2023

| Patient Visits | 2021 | 2022 | 2023 |
|---|---|---|---|
| Number of Visits | 2393 | 3780 | 4271 |
| Amount checked | 2393 | 3780 | 4271 |
| Positive | 870 | 861 | 1429 |

Source: Primary Data
Table of Age Groups of Malaria Positive Patients from 2021 to 2023

| Age | 2021 | 2022 | 2023 |
|---|---|---|---|
| 0-11 Months | 79 | 92 | 136 |
| 1-4 Years | 136 | 147 | 184 |
| 5-9 Years | 194 | 236 | 361 |
| 10-14 Years | 190 | 162 | 255 |
| 15-64 Years | 271 | 224 | 493 |

Source: Primary Data

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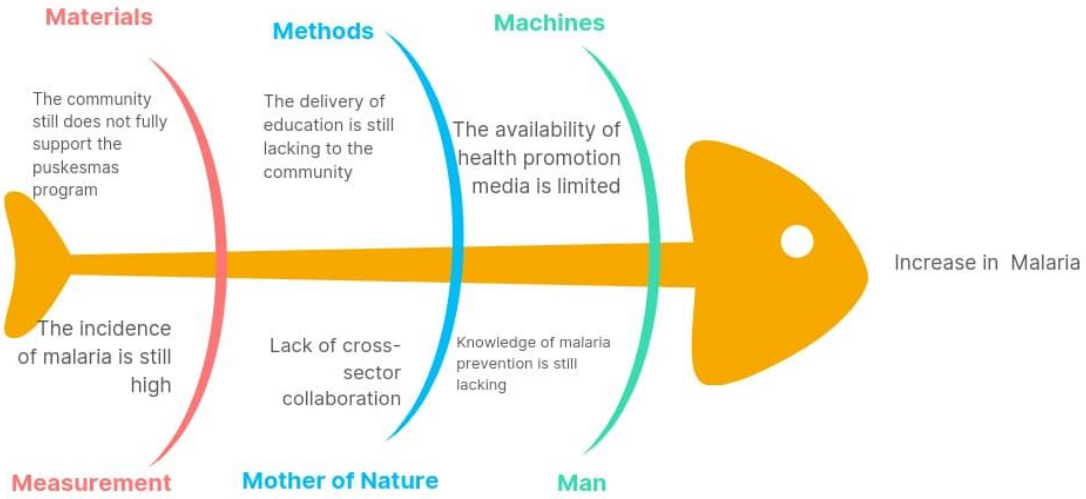


From the fishbone diagram, it can be seen that the increasing malaria problem is caused by 6 factors, namely:
Man is influenced by the lack of knowledge of malaria prevention. Machines is influenced by the limited availability of health promotion media. Methods is influenced by the inadequate way of delivering education to the public. Materials is influenced by the community who still do not fully support the puskesmas program. Measurement is influenced by the still high incidence of malaria. Mother of Nature is influenced by a lack of cross-sectoral collaboration.
The next method is Ultrasound method. Once the problem has been determined, the next step is to determine the priority of the problem. To determine the priority of the problem, use ultrasound analysis with the following criteria, U is Urgency (Level of importance), S is Seriousness (Seriousness level), G is Growth (Estimated level of worsening of a problem).

Table 3.4. Ultrasound Criteria

| MARK | CRITERIA | | |
|---|---|---|---|
| | URGENCY | SERIOUSNESS | GROWTH |
| 1 | Very urgent | Very serious | Very growing |
| 2 | Quite urgent | Seriously enough | Enough |
| 3 | Urgent | Are you serious | Grow |
| 4 | Less urgent | Not serious enough | Less growth |
| 5 | Very less urgent | Very less serious | Very underdeveloped |

Table 3.5. Problem Priority

| No | Problem | U | S | G | U+S+G | PRIORITY |
|---|---|---|---|---|---|---|
| 1 | Limited health promotion media | 3 | 3 | 2 | 8 | 5 |
| 2 | Lack of educational delivery | 3 | 3 | 3 | 9 | 4 |

| | | | | | | |
|---|---|---|---|---|---|---|
| 3 | Community support for the program is still lacking | 3 | 4 | 3 | 10 | 3 |
| 4 | The incidence of malaria is still high | 4 | 3 | 4 | 11 | 2 |
| 5 | Cross-sectoral cooperation is still lacking | 3 | 2 | 2 | 7 | 6 |
| 6 | Insufficient knowledge of malaria prevention | 4 | 4 | 4 | 12 | 1 |

The problem that is a priority to be resolved is the lack of public knowledge about malaria prevention.

Problem analysis using SWOT is to determine supporting and inhibiting factors related to public knowledge about malaria prevention which does not use SWOT analysis

Table 3.6. SWOT Analysis

| **SWOT** | **Strength (Strength)**<br>1. There is a supportive cadre.<br>2. Public trust in community figures is high. | **Weakness**<br>1. Lack of availability of media in the form of leaflets that can be read by the public.<br>2. Public awareness is still lacking regarding health problems and programs.<br>. |
|---|---|---|
| **Opportunity (Opportunity)**<br>1. Utilize the role of cadres in assisting malaria education activities.<br>2. Government support in eradicating malaria. | **SO Strategy**<br>1. Coordination with cadres related to malaria.<br>2. Establish cooperation with community leaders in implementing malaria prevention programs. | **WO Strategy**<br>1. Increase community outreach programs regarding malaria prevention.<br>2. Procure health promotion supporting media such as leaflets. |
| **Threath (Threat)**<br>1. Malaria is still endemic in Nabire Regency<br>2. Knowledge of malaria prevention is still low. | **ST Strategy**<br>1. Increase health promotion/KIE activities, put up posters and distribute leaflets to the community. | **WT Strategy**<br>1. Coordinate between the puskesmas, community leaders, cadres in making the puskesmas program a success. |

## DISCUSSION

Malaria is a disease caused by obligate intracellular protozoa from the genus Plasmodium. Malaria in humans can be caused by Plasmodium malariae, Plasmodium vivax, Plasmodium

falciparum and Plasmodium ovale. Anopheles mosquitoes consist of 4,000 species, 67 of which are infectious, and 24 of which are found in Indonesia. Apart from the bite of the Anopheles mosquito, malaria can be transmitted directly through infected blood transfusions or syringes, as well as from pregnant women to their babies (Tosepu, 2016).

In Indonesia, malaria is still found in several areas. The areas that will still be endemic for malaria in 2023 are Papua, West Papua, Maluku and NTT. Nearly 89% of malaria cases are still found in these areas. According to the Director of Infectious Disease Prevention and Control, Dr. Imran Pambudi explained that Indonesia contributed the 2nd largest number of cases after India in Asia. Based on WHO 2022 data, the estimated cases are 811,636 positive cases of malaria in 2021 (Rokom, 2023).

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From the results of problem solving using the fishbone diagram, it can be concluded that to provide health education related to malaria, it is necessary to

Adequate health promotion media such as leaflets and posters. Expand the dissemination of health education through outreach assisted by cadres and community health centers. Inviting the community to support and carry out programs at the community health center in collaboration with RT, RW, village elders or community leaders.

Through a fishbone diagram, analysis can be carried out using the ultrasound method by giving values according to category and obtaining priority results. The problem that needs to be resolved is the lack of public knowledge about malaria prevention.

Once the problem priorities are known, a SWOT analysis can be carried out. SWOT analysis is the identification of various factors to formulate company strategy(Kristanto, 2017). This analysis is based on logic that can maximize strengths and opportunities but simultaneously minimize weaknesses and threats (Saputra, 2016).

From the SWOT analysis, it can be seen that ways to increase knowledge of malaria prevention through empowering community leaders are as improve health promotion programs by collaborating with cadres and community leaders. Providing supporting facilities and infrastructure for outreach such as leaflets and posters. Establish coordination with community leaders so that the community is more supportive of health activities or programs at the local health center. Holding KIE or outreach with community leaders regarding malaria.

The implementation that has been carried out in this community service is conducting a Forum Group Discussion (FGD) with community leaders consisting of health problems, namely malaria related to community compliance with healthy behavior such as using mosquito nets or installing coarse wire, using mosquito poison, keeping the house clean. After conducting the FGD, we first conducted education regarding malaria prevention through leaflets to community leaders.

Health education to the community regarding malaria was assisted by community leaders who participated in the FGD. Community figures who assist in delivering health education are village elders, RT, RW and health cadres. As a result, people know more about preventing malaria and improving their health.

This is also in accordance with previous research conducted by (G. P, I., Sitorus, R., &

Camelia, 2016) The results of outreach activities show that there has been an increase in public knowledge about malaria and how to prevent malaria transmission in Ibu Besar I Village has generally improved quite well. Good knowledge about preventing malaria transmission plays an important role in generating good behavior in preventing malaria transmission. Lack of public knowledge about preventing malaria transmission can be a risk factor for malaria. With this outreach activity, it is hoped that it can increase public knowledge about how to prevent the transmission of malaria.

## CONCLUSION

This community service program was implemented, and resulted in a change in accordance with the output target, namely knowledge about eradicating malaria, especially how to prevent it. It is hoped that the counseling provided can be carried out regularly and applied in people's lives so that the incidence of malaria can decrease.

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