

PREGNANT WOMEN'S EXPERIENCES OF LIVING WITH MALARIA DURING PREGNANCY IN PUSKESMAS KOTA BARAT

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Abstract

Background: Malaria during pregnancy is a significant public health issue that can increase the risk of complications for both the mother and the fetus, such as anemia, preterm birth, low birth weight, and even death. Although many studies have examined the impact of malaria on pregnancy, in-depth exploration of the subjective experiences of pregnant women affected by malaria remains limited. **Objective:** This study aims to describe the experiences of pregnant women with malaria during their pregnancies in the working area of Puskesmas Koya Barat. **Methods:** This research employed a qualitative approach using a descriptive phenomenological method. Data were analyzed using the Colaizzi method to identify themes and meanings from the participants' experiences. **Results:** The study identified four main themes: (1) how pregnant women took care of themselves during pregnancy while experiencing malaria, (2) their perceptions of malaria, (3) the support received by pregnant women with malaria, and (4) their hopes in managing pregnancy with malaria. **Conclusion:** Pregnant women with malaria face challenges in managing their pregnancies, yet they continue to take various actions to care for themselves. The support they receive plays a significant role in the process of adaptation and recovery. The findings of this study are expected to serve as a foundation for developing care interventions and educational efforts for pregnant women in malaria-endemic areas.

Keywords: experience, pregnant women, malaria, self-care, phenomenology

INTRODUCTION

The level of public health in a country is used to measure the number of deaths among women due to complications during pregnancy, childbirth, and postpartum (Kemenkes, 2024). In 2020, the World Health Organization (WHO) reported that maternal deaths reached 223 per 100,000 live births (Kemenkes, 2024). Data from the Maternal Perinatal Death Notification revealed that AKI in Indonesia ranked second in ASEAN with a figure of 4,129 in 2023 (Kemenkes, 2024).

Maternal mortality can be caused by several pregnancy-related problems experienced by mothers, but maternal mortality in Indonesia is still dominated by three main causes, namely hemorrhage, hypertension in pregnancy, and infection (Kemenkes, 2019). In addition, there are indirect causes of maternal mortality, such as pregnant women who die from diseases, one of which is malaria. This disease is considered to aggravate pregnancy, thereby disrupting the health of the mother and fetus and increasing the risk of illness and death (Kemenkes, 2015).

Therefore, malaria in pregnancy is a particular concern, especially given that in 2020, there were 120.4 million pregnancies at risk of *P. falciparum* globally, with sub-Saharan Africa contributing the most cases (Gore-Langton et al., 2022). When examining the spread of malaria during pregnancy in Indonesia, national data shows that Indonesia is the second-highest contributor to malaria cases in the Asia region, with 250,644 cases. In endemic areas, particularly in Papua Province, there were approximately 2,816 cases, and in Jayapura City,

there were 60 cases of malaria in pregnant women from January to March 2022 (Kartika Sari et al., 2023).

Research conducted by Masengi et al. (2019) on 11 pregnant women with malaria showed that 100% of clinical symptoms that occurred were fever. The risk of malaria in pregnant women is higher than in non-pregnant women, due to immunological problems, hormonal changes, or other factors that occur during pregnancy (Alwi, 2023). Malaria symptoms in pregnant women are non-specific because the manifestations of malaria are similar to pregnancy symptoms such as fever and nausea and vomiting, so they can be misinterpreted as symptoms related to pregnancy. The lack of early detection of malaria has the potential to cause delays in treatment, which will result in serious complications in pregnant women infected with malaria (Almaw et al., 2024).

Serious complications that pregnant women may experience, such as severe anemia, risk of premature birth, low birth weight, and even fetal and maternal death, can occur as a result of malaria infection in pregnant women (Indrawanti, 2018; Sari et al., 2023). The risk of anemia in pregnant women infected with malaria can hinder the circulation of nutrients to the fetus through the placenta, thereby disrupting fetal growth and development and leading to fetal death (abortion) (Ilyas & Serly, 2021). In addition to the threat to the mother, malaria during pregnancy can cause serious complications in the fetus. This is reinforced by research by Cardona-Arias & Carmona-Fonseca (2022), which explains that the frequency of fetal death, stillbirth, and low birth weight in mothers with malaria is higher than in pregnant women who are not infected with malaria.

Research conducted by Gontie et al. (2020) shows that pregnant women infected with malaria are more likely to experience pregnancy complications, so it is important to understand the factors that can be taken as preventive measures against complications during pregnancy. In this regard, it is hoped that pregnant women can pay attention to self-care during pregnancy, including adequate rest, regular prenatal check-ups, and the necessary nutritional intake (Dwi Yanti & Nurrohmah, 2022). Early detection during pregnancy also plays an important role in the initial steps of prevention and care for high-risk pregnancies, namely through antenatal care (ANC) examinations (Mutiara Putri & Ismiyatun, 2020; Rehana & Mutiara, 2020). In addition, pregnant women with malaria can take other preventive measures such as using insecticide-treated mosquito nets and adhering to medication regimens. Such behaviors can reflect a mother's ability to take preventive measures (Vitania, 2023).

Although there have been studies exploring pregnant women with malaria, previous studies have mostly discussed the impact of pregnant women with malaria. Therefore, this study aims to explore this further by examining the experiences of pregnant women in caring for their pregnancies when infected with malaria.

The results of malaria case data on pregnant women during the initial data collection showed that Kampung Koya Barat emerged as one of the contributors to malaria cases in pregnant women, with 21 malaria cases, representing 9.9% of pregnant women infected in 2024. Based on the results of a data collection study conducted on March 5, 2025, on one pregnant woman with malaria at the Koya Barat Community Health Center, it was found that the mother experienced difficulties in caring for her pregnancy, namely eating. The mother said that she had difficulty eating rice, but she explained that the problem could be overcome by eating fruit.

Based on this statement, the researcher was interested in exploring more deeply the experiences of pregnant women with malaria in caring for their pregnancies. This prompted the researcher to conduct a study entitled "The Experiences of Pregnant Women with Malaria

in Undergoing Their Pregnancies in the Koya Barat Community Health Center Working Area." The aim was to obtain an overview of the self-care experiences of pregnant women with malaria in Koya Barat.

RESEARCH METHOD

This study is a qualitative study with a descriptive phenomenological approach that aims to explore the experiences of pregnant women with malaria during their pregnancy. The research was conducted in the working area of the Koya Barat Community Health Center from February to May 2025. There were five participants selected through purposive sampling based on the following inclusion criteria: having been pregnant with malaria in the past year, being able to communicate in Indonesian, and being willing to participate. Data were collected through in-depth interviews, using interview guidelines, recording devices, and field notes.

The data were analyzed using the Colaizzi method, after conducting interviews, researchers transcribed the interviews verbatim and supplemented them with field notes. Researchers read the verbatim transcripts repeatedly to find meaningful words. These words were then identified to find keywords. The keywords were then grouped into categories. Once the categories were identified, the researcher looked for appropriate themes based on the grouping of these categories.

The researcher met with the participants to validate the findings by showing them the verbatim transcripts and the analysis that had been conducted. The researcher asked the participants to read the transcripts to see if they matched their statements. Participants also have the right to add or remove existing data. The added information is then rearranged into existing themes. After that, the analysis results are written in narrative form to make it easier for readers to understand the research results.

Data validity was maintained through re-verification with participants and the bracketing principle to ensure objectivity. Data validity was maintained through credibility, dependability, confirmability, and transferability. This study has obtained ethical approval from the Jayapura Polytechnic Health Research Ethics Committee (No. 014/KEPK-J/IV/2025). Informed consent was obtained in writing from all participants, and confidentiality of identity was guaranteed by a code of ethics using codes (P1, P2, P3...).

RESEARCH RESULTS

This study identified four themes: 1) how pregnant women care for themselves during pregnancy with malaria, 2) mothers' perceptions of malaria, 3) support received by pregnant women with malaria, 4) expectations of pregnant women with malaria during their pregnancy.

How do pregnant women care for themselves during pregnancy with malaria

A. Efforts to seek health care services

The information obtained revealed that pregnant women want to recover from malaria, so they seek health care services. Most participants stated that they chose the community health center (puskesmas) as the place to seek health care when they experienced symptoms of malaria. This was expressed by four out of five participants, as stated by the following pregnant women:

"Iya (rasa keluhan) pagi makanya ke puskesmas... kalo yang pertama sore jadi ke apotikk begitu. Kalo di apotik kita bayar 30 ribu, dipuskes tidak kita cuman antar pake bpjs sudah." (P1)

However, there were also participants who chose to have their malaria checked at other health care facilities, namely laboratories, as stated in the following interview excerpt:

"Itu masih 2 hari selesai lebaran kayaknya, jadi lab saja... oh puskesmas masih libur lebaran, cuti jadi ndak ke puskesmas" (P3)

B. Efforts to meet nutritional needs

Pregnant women's awareness of efforts to meet nutritional needs was conveyed by participants, who stated that they tried to meet their nutritional needs by eating small amounts even though they could only eat fruit. This can be seen in the following interview excerpt:

"Itu kalo sakit berat (malaria), itu di mulut sini macam rasa traenak begitu... jadi tra makan banyak dulu begitu... sedikit saja" (P4)

In addition, there were also participants who explained that there were certain foods that were avoided during malaria, such as coconut water or foods that were considered to have a sour taste, because it was believed that they could worsen the condition of the body. This is in accordance with the statement of the third participant, as follows:

"...tapi ee sebenarnya kalo malaria ji saya nda boleh minum kecut-kecut, ndak boleh minum air kelapa... kayak orang sini bilang air kelapa eee biasa manis tapi air kelapa tu kecut-kecut (mengernyitkan dahi) kayak air soda toh kayak ada apa begitu ... jadi ndak saya kalo malaria minum air kelapa sama kecut-kecut mi" (P3)

C. Maintaining personal hygiene

The participants in this interview maintained their personal hygiene by mostly showering as usual, as stated by the following participant:

"Mandi biasa aja pake air dingin juga... itu barusan begitu sejak hamil saja" (P5)

Another participant also stated that she maintained personal hygiene by wiping her body with warm water, as stated below:

"Hmm... tidak mandi, ga sampe 3 hari malaria itu sihh...Ada lap-lap too, namanya perempuan... pake air hangat, karena kalo pake air dingin macam tulang sakit-sakit begitu" (P1)

D. Regular and complete adherence to malaria medication

In treating themselves for malaria during pregnancy, all participants said that they finished their malaria medication. They realized that malaria would not be cured if not treated thoroughly, so the medication must be taken until finished even if the symptoms had improved, as illustrated in the following statements:

"Trada... itu dapat kasih dari puskesmas saja obat, baru kas habis... Itu nanti sembuh... rasa baik" (P4)

"Iyaa sampe habis, baru sudah enak tapi tetap obatnya kasih habis trboleh sisa kalo tidak datang lagi malarianya" (P1)

Furthermore, four participants also explained how they took their malaria medication, which was to take three DHP tablets at once in the morning, as recommended by health workers. This is in line with the following statement:

“Iya 3 hari abis kan untuk malaria, baru obatnya juga duh... saya masalahnya kalo obat banyak banyak suka mual baru malaria kalo malaria obat 3 satu kali, satu kali minum (memperagakan tiga tablet dengan jari) ...” (P3)

E. Meeting the need for rest and sleep

The interview results revealed that one participant expressed difficulty resting and sleeping to meet their rest and sleep needs. This is consistent with the statement from the third participant, who explained that their difficulty sleeping stemmed from the symptoms they experienced, as follows:

“Satu hari tidur itu dari semalam nya, malam juga tidak... eee maksudnya baring saja, kayak tidak tenang... tapi kalo malaria memang saya biasa ndak bisa tidur, sakit kepala, mual-mual, ndak bisa makan enak, semuaa ndak enak kalo malaria” (P3)

F. Participants' strategies for alleviating malaria symptoms

The interviews revealed that participants perceived that symptoms could be alleviated through various efforts, one of which was taking medication to reduce symptoms, as explained in the following transcript:

“Sakit kepala tu? (pegang kepala) Itu minum obat saja baru brenti...” (P4)

“... kalau sudah minum obat birunya itu sudah... kembali seperti biasa yang penting itu minum obat-obat sesuai resep ajah... pusing atau apa itu menggigil sedikit berkurang... nanti enakan sudah badan...” (P2)

Moreover, one participant explained that another effort to overcome symptoms besides taking medicine is to use red lemongrass steam, which participants use only in the morning. This is in line with the statement made by the first participant:

“...Di uap pake daun sereh merah itu direbus baru dibungkus kita punya badan (telungkup) buat kasih keluar keringat. Selain minum obat, pake sereh merah itu juga bisa... Tidak menggigil lagi itu, sakit hilang... tapi tidak yang setiap hari dari yang pagi, cuman paginya saja, siang sore itu tidak” (P1)

Mothers' perceptions of malaria

A. Perceived symptoms of malaria

In in-depth interviews with five participants, the symptoms perceived by pregnant women varied. However, the symptoms that often appeared in pregnant women were headaches and chills. One participant with malaria tropica said that the headache felt like it was going to burst. These two phenomena were conveyed in the interview transcript as follows:

“Kita kepala ini macam mo picah (memegang kepala seperti di remas) ... macam mau picah saking tidak apa eeeh, pokoknya sakit sekali” (P1)

“...paling cuman sakit kepala, pusing, menggigil, kaki tangan dingin, langsung menggigil deh.” (P2)

However, one participant stated that they did not experience any symptoms when they had malaria, as stated by the fifth participant as follows:

“Kan pas hamil itu kayak tidak ada keluhan... jadi saya bingung kok bisa malaria, karena sehat sehat begitu... saya kira kayak di puskesmas salah pemeriksaan karena tidak ada kendala juga...” (P5)

B. Causes of malaria

In-depth interviews with participants revealed that most of them mentioned mosquitoes as the cause of malaria. This was mentioned in the interview statements as follows:

“Karena itu apa nih... nyamuk banyak sekali haha, apalagi dia jam 5 begini, sore, dia itu sudah ngiiikk ngiiikk (memperagakan nyamuk terbang) hahaha” (P2)

However, there were other causes of malaria mentioned by participants. Participants mentioned that the causes of malaria were stress, lack of food, and lack of rest. This is in line with what P1 said as follows:

“Sudah itu kalo, kalo banyak pikiran lagi malaria kan itu tidak pikiran apa semua itu too, kalo kita kurang makan, kurang istirahat nahh malaria datangg lagi...” (P1)

C. Malaria prevention

The mothers' perception of malaria prevention is to use mosquito nets. Four out of five participants mentioned that using mosquito nets can prevent malaria. This was expressed by the pregnant women who were interviewed, as revealed in the following statement from a pregnant woman:

“Eeee itu pakai kelambu itu masih pakai supaya tidak kena nyamuk toh... biasa saja kalo sudah makan lebih baik masuk di kelambu, disini kan banyak nyamuk...” (P3)

One participant said that she had not used the mosquito net provided by the health center because she was confused about how to install it, as reflected in the following statement:

“Dikasih kelambu juga kemaren... untuk mencegah malaria sih... tapi sa belum pake (cengengesan) hehehe... sa bingung mo pasang bagemana ini paku bagemana...bingung mo dipaku arahnya bagemana...” (P1)

D. Effects of Malaria Medication

From the results of interviews with participants who revealed the side effects of malaria medication, such as nausea felt after taking the medication. This is illustrated in the following statement:

“Iya 3 hari abis kan untuk malaria, baru obatnya juga duh... saya masalahnya kalo obat banyak banyak suka mual baru malaria kalo malaria obat 3tab satu kali, satu kali minum...” (P3)

“Kalau yang biru minum 1 kali 3 saja (sambil menunjukkan dengan tiga jari untuk memperagakan jumlah obat yang diminum) ... tapi itu nanti mual mual (memegang perut) ka habis minum itu langsung cepat minum air hangat” (P1)

E. Pregnant women's fear of malaria

In interviews with the five participants, most of them expressed fear of malaria affecting their fetuses, as stated in the following statements:

“Oohh... hehe... (cengengesan) yaa rasanya bagaimana, cuman kalo pikir takut apa janin to dalam perut kalo malaria to... karna sering sering minum obat, itu sih yang saya khawatir...” (P1)

However, there was one participant who had a positive outlook that her fetus would remain healthy. This was conveyed by the second participant with the following statement:

“...soalnya selalu berpikiran positif. Kalau negatif kan gabisa, gaboleh, nanti pengaruh to...pikiran positif, baik-baik ajah janinnya...” (P2)

Support received by pregnant women with malaria

A. Support from family

a. Forms of support received by pregnant women

Support from family includes husbands, in-laws, and nephews and nieces. Participants mentioned that husbands play a role in providing support, as illustrated by the following quote from one participant whose husband was working out of town:

“Mo malaria pertama, kedua itu sama ipar... biasanya cuman cek, atau pergi antar rumah sakit ... Tanyaaa kalo dia (suami) jauh... khawatir dia (suami) telfon tanya sudah periksa, sudah ke bidan gitu” (P1)

b. Forms of support received by pregnant women

In addition to sources of support, pregnant women with malaria also received various forms of support from their families, as expressed in the following statements:

“Diantar sama bapaknya ke puskesmas... bapaknya saja yang kerja di kebun. Tapi kalo sakit ya dibantu la sedikit di rumah” (P3)

“Suami saja eee bantu jaga anak... beres rumah, masak juga” (P5)

B. Community Support

a. Support from neighbors

One participant said that she often shared stories or confided in her neighbors when she had malaria, one of her closest neighbors being her landlady. This was conveyed by the first participant as follows:

“Ituu ada duduk duduk cerita dengan kita dan tetangga, curhat ka apa... itu yang ibu kos juga toh yang kasih tau jangan sering kasih kena panas uap sereh itu...” (P1)

C. Support from health services

a. Forms of support from health services

The form of health service support received by all participants was obtaining malaria medication from health services. Additionally, the form of support received from health services included mosquito nets and information, as conveyed by the following participant:

“Dapat obat, trus kemarin tu dapat kelambu satu... itu saja... sama bidan ada bilang kasih tau kasih tau ceramah...” (P4)

In addition to receiving support in the form of mosquito nets and medicine, one participant said that she felt supported by her doctor to take malaria medication, as stated by the third participant:

“Eee itu mi, percaya toh dengan resep dokter berarti baik to buat janin. Kayak yang penting ada yang dukung dulu begitu mi, tapi kalo banyak yang bilang anu ndak boleh minum obat sembarang, tapi kalo dokter bilang boleh, yaa minum ji toh...” (P3)

b. Reasons for choosing health services

There were several reasons given by participants for choosing health services, but most of them said they chose those services because they were close to their homes, as stated by the following participants:

“Kan taunya cuman disitu (puskesmas), paling dekat juga” (P5)

“Kalo yang pertama gejalanya sore jadi ke apotikk begitu... Posisinya puskesmas sudah tidak buka to... pagi sampe siang. Kalo ramela kan jauhh, jadi yang dekat dekat saja (dekat rumah)”
(P1)

Expectations of pregnant women with malaria during their pregnancy

A. Fetal condition

The expectations regarding the condition of the fetus were expressed by participants with malaria, namely that the condition of the fetus would be fine by praying to God Almighty. This expectation was expressed by one of the participants as follows:

“Oo ini sa ada berdoa supaya bayi tra kenapa kenapa apalagi sakit berat (malaria) begini”
(P4)

B. Expectations regarding malaria

Hopes regarding malaria were also expressed by the fourth participant, who hoped that she would not contract malaria again. This was in line with the following statement:

“Yaaa semoga ndak malaria lagi... tapi yaaa masalahnya kalo sakitnya kayak begini ndak papa, Tapi kalo yang hamil ini ndak terlalu, ndak tau kenapa mo bilang, kepala kan ndak terlalu sakit ...” (P3)

DISCUSSION

How do pregnant women care for themselves during pregnancy with malaria

Based on the results of research on pregnant women with malaria, they expressed a desire to recover from malaria, as evidenced by pregnant women seeking health care services. Pregnant women stated that if they experienced symptoms of malaria, they would go to health care services such as community health centers, laboratories, hospitals, and pharmacies. This phenomenon shows that mothers are aware of the importance of seeking health services as early as possible when they have malaria. This is in line with research by Anggraeni & Nurrachmawati (2023), which explains that when it comes to seeking treatment for malaria, most people will prioritize going to health services when they feel malaria symptoms. Mothers' awareness of the importance of seeking health care reflects their level of attention and awareness of their health and the health of their unborn child.

Therefore, as health workers, it is necessary to provide education on the importance of early detection and treatment of malaria through ANC visits so that mothers are more motivated and understand when to seek immediate treatment.

One way pregnant women with malaria cope with their pregnancy is by trying to meet their nutritional needs. The results of this study indicate that when infected with malaria, pregnant women eat less but vomit again. However, one of the five respondents mentioned that she was able to meet her nutritional needs by eating as she did before she fell ill. Efforts to meet nutritional needs are very important because, in line with research by Jugha et al. (2023), which confirms that the nutritional status of pregnant women greatly affects the impact of malaria infection and the health of the mother and fetus. If the nutritional needs of pregnant women are not met when they have malaria, the impact will be even more severe, disrupting development and increasing complications such as anemia, stunted fetal growth, and premature birth (Jugha et al., 2023; Unger et al., 2016). Therefore, health workers can provide practical education on nutritional fulfillment during pregnancy, such as recommendations for foods high in iron and easily digestible protein, which can be delivered by health workers in the form of nutritional counseling accompanied by leaflets during routine ANC checkups.

Based on interviews with pregnant women about their activities and sleep, most pregnant women stated that they had difficulty sleeping due to the symptoms they experienced. Although the participants in this study admitted that they were forced to sleep even though they remained awake, previous studies have shown various interventions that can help improve sleep quality during pregnancy. This is in line with a study conducted by Sugiharni (2017), which explains that the symptoms experienced by pregnant women with malaria can cause them to become weak and unable to sleep.

As health workers handling the complaints of pregnant women, it is important to teach non-pharmacological approaches to alleviate activity and sleep problems. Methods that can be used, such as those in the study by Smith et al. (2020), include breathing relaxation techniques that can help reduce anxiety and improve sleep patterns.

Self-care during pregnancy with malaria can also be done by taking malaria medication. In this study, all participants stated that when they contracted malaria, they took the malaria medication as recommended by the community health center. Completing the medication can completely eradicate the Plasmodium parasite in the body, prevent recurrence, and avoid the emergence of parasite resistance to antimalarial drugs (Indonesian Kemenkes, 2023b). Therefore, health workers can provide education on compliance with taking malaria medication, such as using video media in education during pregnancy check-ups.

In addition to completing the medication, pregnant women with malaria also try to alleviate the symptoms they experience, one of which is by using traditional therapies such as red lemongrass steam, to relieve chills. The use of red lemongrass leaves (*Cymbopogon nardus*) is based on the content of bioactive compounds such as citronellal, citronellol, and geraniol, which can help reduce fever and discomfort (Oktanti et al., 2022). However, although this traditional therapy reflects strong cultural beliefs, its effectiveness in treating malaria infection has not been scientifically proven and cannot replace the recommended standard antimalarial treatment. It remains important to eradicate the parasite and prevent serious complications, especially in pregnant women (Rasoanaivo et al., 2021). In addition, the use of traditional therapies without consultation can lead to delays in appropriate treatment and pose risks to the mother and fetus, while potential interactions between herbal ingredients and medical drugs can reduce the effectiveness of treatment or cause unwanted side effects (Mukherjee et al., 2021; Tangkiatekumjai et al., 2020). Therefore, it is important for health workers to provide clear education about the risks of using traditional therapies, while respecting the beliefs of the community. A communicative and open approach will help pregnant women understand the importance of comprehensive medical treatment and motivate them to continue undergoing therapy as recommended for the safety of the mother and fetus.

Mothers' perceptions of malaria

The theme of mothers' perceptions of malaria in this study highlights the symptoms experienced by mothers, the causes of malaria, malaria prevention, the effects of malaria medication, and pregnant women's fears about malaria. Based on the results of this study, most of the pregnant women participants mentioned that the symptoms of malaria they experienced included headaches, chills, nausea, and bone pain. These symptoms are consistent with the explanation from the Indonesian Ministry of Health (2023), which states that malaria is generally characterized by chills accompanied by high fever, followed by excessive sweating, and additional symptoms such as headache, nausea, aching, and muscle pain. An interesting finding from this study is that one participant reported that she did not experience any typical symptoms and only found out that she had malaria after undergoing a routine pregnancy check-

up. This shows that malaria in pregnant women can be asymptomatic, mainly due to partial immunity from previous exposure and changes in the immune system during pregnancy (Kassie et al., 2024). Therefore, health workers need to increase awareness by conducting malaria screening as part of ANC services, in line with research by Kencanawati & Padju (2023) on malaria screening services as an effort to detect malaria early in pregnant women conducted in health services.

In addition to the symptoms mentioned by the mothers, they also shared the causes of their malaria. Four out of five pregnant women answered that the cause of malaria itself was mosquitoes, but the third participant explained that she did not know what type of mosquito could cause malaria. This understanding is based on the knowledge possessed by each pregnant woman, which can be influenced by several factors, namely education, information, socio-cultural/economic factors, environment, experience, and age (Notoatmojo, 2021).

Based on the results of this study, it shows that the education level of the participants were junior high school and high school graduates. This study is in line with the finding that the level of education affects pregnant women's understanding of malaria. Higher education tends to increase awareness of the risks and importance of treatment (Dagne, Demissie, & Getahun, 2019), while lower education can limit access to accurate health information (Onoka, Hanson, & Lagarde, 2016). This is a particular concern where, as health workers, it is important to develop appropriate education strategies, for example, through the use of easily accessible communication media such as WhatsApp groups to provide information about malaria. This method is in line with the research by Darma & Husada (2021), which has been proven effective in increasing pregnant women's knowledge about the disease.

The results of the study show that some pregnant women obtain information about the causes of malaria from the words of those around them, such as the assumption that not eating enough or fatigue can cause malaria. This perception reflects the influence of culture and information circulating in the community, which is not always consistent with the medical cause of malaria, namely Plasmodium parasite infection through the bite of female Anopheles mosquitoes (Indonesian Ministry of Health, 2023a). This finding is in line with research by Syukur & Winarti (2024), which shows that public perceptions of malaria are often associated with social conditions such as nighttime activities and nutritional intake. A lack of accurate information can lead to misunderstandings and hinder prevention efforts (Eze et al., 2021). It is crucial for health workers to ensure that pregnant women receive accurate and reliable information about the causes and prevention of malaria by providing direct and regular health education during ANC visits. This is in line with research by Nkya et al. (2020), which shows that education through direct counseling is effective in increasing pregnant women's knowledge about malaria.

Perceptions regarding malaria prevention were also conveyed by pregnant women, with most explaining that using insecticide-treated mosquito nets can prevent mosquito bites. The use of these nets is effective in preventing contact between Anopheles sp. mosquitoes and healthy people during sleep at night, when Anopheles sp. mosquitoes are quite active in searching for blood (Lawinsa et al., 2021). The main targets for the distribution of insecticide-treated mosquito nets are pregnant women and mothers with infants, as pregnancy increases the risk of malaria (Dinkes 2020; Watunglawar (2024). The WHO, as a global health organization, recommends the use of insecticide-treated mosquito nets as one of the most effective ways to prevent malaria, and malaria screening during the first ANC visit is also highly recommended, especially for pregnant women living in endemic areas to prevent malaria complications (Kemenkes RI, 2023).

One participant in this study revealed that she had not used the mosquito net provided by the health center because she was confused about how to install it. This shows that even though prevention efforts such as mosquito net distribution have been carried out, the success of these interventions still depends heavily on individuals' understanding and skills in using them. This finding is in line with the results of a study by Awasthi et al. (2022) in Nepal, which showed that most people in malaria-endemic areas also did not use mosquito nets consistently even though they had received LLINs (Long-Lasting Insecticidal Nets) from the government. Some of the reasons cited include the fact that mosquito nets are quickly damaged by repeated washing, are uncomfortable to use in cold or hot weather, and a lack of understanding about the importance of using mosquito nets throughout the year.

Based on the participants' understanding and actions regarding mosquito nets as a means of malaria prevention, education on the use of mosquito nets is important to continue. Health workers can provide education on the use of mosquito nets during pregnancy check-ups and ensure the targeted distribution of mosquito nets. This approach is in line with the findings of Awasthi et al. (2022), which explain the education and distribution of mosquito nets to pregnant women.

From the interview results, it was found that fear for the fetus was also caused by ignorance about the treatment process, which could result from the mother's fear of the effects of malaria medication on her unborn child. Fear of the side effects of medication on the fetus in pregnant women with malaria can be caused by a lack of information about the safety of the medication. A similar study was conducted by Ilyas & Serly (2021). However, based on the latest guidelines from the Ministry of Health and WHO, DHP is now recommended as a substitute for quinine in the first trimester, with administration for three days in the second and third trimesters. This drug is considered safe when used in the correct dosage and with proper monitoring (Indonesian Ministry of Health, 2023; Clark, 2022). Although ACT, including DHP, has been proven to be relatively safe in the second and third trimesters, data for the first trimester is still limited, although there is no strong evidence to suggest an increased risk of miscarriage due to its use (Anderson, 2024; Dellicour et al., 2021; WHO, 2022).

Health workers can provide education and reassure mothers about the safety and importance of malaria treatment during pregnancy. Education can be provided through digital platforms, as described by Meiyeriance Kapitan et al. (2023) regarding the use of e-health applications that have been proven effective in helping pregnant women access information about malaria during pregnancy.

Based on the results of the study, pregnant women's perceptions of malaria are still influenced by incomplete knowledge and myths in the community. Therefore, health workers need to provide explanations that are easy to understand and respect the cultural perceptions of pregnant women regarding symptoms, causes, and the importance of using mosquito nets and appropriate treatment. Health workers should also assist pregnant women in properly using mosquito nets, conducting regular health check-ups to detect malaria early, and providing support to alleviate anxiety or fear. This approach should be implemented collaboratively with other health teams to ensure the health of both mothers and babies, particularly in areas with high malaria risk.

Support received by pregnant women with malaria

Support received by pregnant women with malaria can come from their families and their surrounding environment. Support can be obtained from close relatives such as husbands and family members, as well as from the surrounding community such as neighbors and health

workers. The closest support obtained by pregnant women is from their partners or husbands. The results of the study revealed that the form of support received by pregnant women was their husbands taking them to health services for treatment and helping with housework. The support from their husbands made mothers with malaria feel more at ease. This statement is in line with research conducted by Runtuwene et al. (2020), which explains that the involvement of husbands can reduce anxiety in pregnant women with malaria. Support from husbands can be physical, emotional, and psychological, making mothers more comfortable in facing a pregnancy at risk of malaria.

In addition to support from family, support from the surrounding environment, such as health services, plays a role for pregnant women with malaria. Pregnant women who have had malaria revealed that the forms of support they received were malaria screening during ANC, provision of mosquito nets, provision of malaria medication, and support in the form of information on the use of mosquito nets and medication compliance. In addition, the form of support received by the two pregnant women participants in this interview was that they felt supported by the provision of medication by doctors, which gave them a sense of security and confidence to comply with the recommended treatment. The support obtained from health services is in line with the research by Kencanawati & Padju (2023), which highlights the important role of health services in detecting and preventing malaria in pregnant women, especially through malaria control programs with ANC services, namely malaria screening, provision of insecticide-treated mosquito nets, provision of antimalarial therapy, and education for pregnant women. Therefore, the support role of services such as doctors, midwives, laboratory staff, and malaria managers at health centers is very important in the implementation of these services to prevent malaria complications in pregnant women and fetuses (Kencanawati et al., 2025).

This study also shows that most participants chose health services because of their proximity to their homes, making them the preferred choice for pregnant women in selecting health services. This phenomenon is consistent with research by Supliyani (2021) on the reasons for choosing health services, which found that distance and cost are the main factors that prevent pregnant women from accessing health services for antenatal care (ANC) visits. This study is also in line with research by Desimal et al. (2024), which states that long distances discourage people with malaria from seeking health services, thus indicating that distance can influence decisions regarding malaria treatment.

Based on the research results, the support received by pregnant women with malaria plays a crucial role in helping them cope with high-risk pregnancies. Support from husbands and families provides a sense of security and peace of mind, making mothers more confident and motivated to undergo treatment and maintain their health. In addition, support from health workers and the surrounding environment is also a major supporting factor, especially through easily accessible health services and clear education about malaria treatment and prevention. Proximity to health facilities also makes it easier for pregnant women to obtain the services they need. As health workers, it is important to maintain good communication when providing services so that mothers feel supported and motivated to adhere to treatment. In addition, health workers need to continue to optimize education and support and involve families so that they can play an active role in helping pregnant women, thereby creating an environment that supports the healing process and prevents complications from malaria during pregnancy.

Expectations of pregnant women with malaria during their pregnancy

The results of the study showed that pregnant women with malaria had expectations during their pregnancy. One pregnant woman expressed her hopes regarding malaria. The expectations expressed by pregnant women were the desire for the safety of their babies even though they were taking antimalarial drugs. One participant expressed her hope for the safety of her baby by praying to God. This study is in line with Antunes et al. (2022), which shows that closeness to God plays an important role in high-risk pregnancies as hope and strength in facing the challenges of their pregnancy. Closeness to God makes pregnant women feel more prepared to live their lives so that any stressors that arise will be dealt with well (Nurfa'izah, 2012; Nurhayati et al. 2021).

Validating the expectations of pregnant women with malaria regarding their feelings and hopes is key to emotional support. Therefore, health workers need to provide support and encouragement to pregnant women with malaria so that they remain motivated to undergo treatment properly for the safety of themselves and their fetuses.

CONCLUSIONS

Based on the results of a study involving five pregnant women with malaria in the working area of the Koya Barat Community Health Center, it can be concluded that there are four themes obtained in this study, namely how pregnant women care for themselves during pregnancy with malaria, mothers' perceptions of malaria, support received by pregnant women with malaria, and the expectations of pregnant women with malaria in undergoing their pregnancy. The results of this study have answered the research objectives, where in terms of understanding, pregnant women in this study demonstrated basic knowledge about malaria, such as recognizing symptoms and identifying mosquitoes as the cause. However, some of the mothers' understanding was not entirely in line with theoretical concepts, especially in terms of the causes and prevention of malaria.

Pregnant women experience various problems during pregnancy with malaria. The most common problems are difficulty in meeting nutritional needs, not feeling the symptoms of malaria, and problems with pregnant women's understanding of the causes and prevention of malaria. Some complaints are also not recognized as signs of malaria, which can lead to delays in treatment. This shows the importance of early detection and ongoing education for pregnant women, especially in endemic areas.

Despite facing various challenges, pregnant women with malaria still take various measures to care for their pregnancies. These measures include taking medication regularly, maintaining personal hygiene, getting adequate rest, and using traditional methods such as steam inhalation to reduce symptoms. These efforts reflect the ability of mothers to take care of themselves during pregnancy despite their limited circumstances.

The results of this study are expected to form the basis for the development of care and education interventions for pregnant women in malaria-endemic areas. They will also serve as additional references to enrich the literature on maternity nursing and community nursing.

REFERENCE

- [1] Kemenkes, "Webinar Save Mother Save The Nation," Pusat Pengembangan Pendidikan dan Pelatihan Persatuan Perawat Nasional Indonesia.
- [2] R. Kemenkes, "Profil Kesehatan Indonesia," Jakarta, 2019.
- [3] Kemenkes RI, *Pedoman Manajemen Malaria, Pedoman Panduan Pemeliharaan Eliminasi Malaria*. Jakarta: Kementerian Kesehatan Republik Indonesia, 2015.

- [4] G. R. Gore-Langton *et al.*, “Global estimates of pregnancies at risk of *Plasmodium falciparum* and *Plasmodium vivax* infection in 2020 and changes in risk patterns since 2000,” *PLOS Global Public Health*, vol. 2, no. 11, Nov. 2022, doi: 10.1371/journal.pgph.0001061.
- [5] S. Kartika Sari, L. Oktavia Madu Pamangin, M. Tappy, Y. Tambing, and A. Irjayanti, “Faktor Yang Memengaruhi Kejadian Malaria Pada Ibu Hamil,” *Jambura Journal of Health Science and Research*, vol. 5, no. 4, pp. 1144–1154, 2023.
- [6] E. M. B. P. Masengi, J. J. E. Wantania, and S. P. Mongan, “Kejadian Luaran Malaria Dalam Kehamilan Pada Beberapa Rumah Saakit di Sulawesi Utara,” *Jurnal Medik dan Rehabilitas*, vol. 1, no. 3, p. 11, 2019.
- [7] M. A. Alwi, “FAKTOR RISIKO MALARIA PADA IBU HAMIL DI PAPUA: SYTEMATIC REVIEW,” *Jurnal Ilmiah Kesehatan Rustida*, no. 02, pp. 134–144, 2023.
- [8] A. Almaw *et al.*, “Prevalence of clinical malaria and associated symptoms in pregnant women at Hamusit health center, Northwest Ethiopia,” *Heliyon*, vol. 10, no. 14, Jul. 2024, doi: 10.1016/j.heliyon.2024.e34240.
- [9] R. Indrawanti, “Efek Malaria Maternal Terhadap Kerentanan Infeksi Malaria Pada Bayi Selama 1 Tahun Pertama Kehidupan,” Universitas Gadjah Mada, Yogyakarta, 2018.
- [10] S. K. Sari, L. Pamangin, M. Tappy, Y. Tambingn, and A. Irjayanti, “Faktor Yang Memengaruhi Kejadian Malaria Pada Ibu Hamil,” *Jambura Journal of Health Science and Research*, vol. 5, no. 4, 2023.
- [11] H. Ilyas and Serly, “Gambaran Kejadian Malaria Pada Ibu Hamil di Rumah Sakit Umum Daerah Kabupaten Boven Digoel Papua,” *An Idea Health Journal*, no. 01, pp. 6–15, Aug. 2021.
- [12] J. A. Cardona-Arias and J. Carmona-Fonseca, “Frequency of gestational malaria and maternal–neonatal outcomes, in Northwestern Colombia 2009–2020,” *Sci Rep*, vol. 12, no. 1, Dec. 2022, doi: 10.1038/s41598-022-15011-1.
- [13] G. B. Gontie, H. F. Wolde, and A. G. Baraki, “Prevalence and Assosiated Factors of Malaria Among Pregnant Women in Sherko District, Benishangul Gumus Regional State,” *West Euthiopia BMC*, vol. 20, 2020.
- [14] S. Dwi Yanti and A. Nurrohmah, “GAMBARAN TINGKAT PENGETAHUAN IBU HAMIL TENTANG PERAWATAN SAAT KEHAMILAN DI WILAYAH KERJA PUSKESMAS SEMIN II KABUPATEN GUNUNGKIDUL,” *JIKKA Jurnal Ilmiah Keperawatan dan Kesehatan Alkautsar*, p. 21, 2022.
- [15] I. Mutiara Putri and N. Ismiyatun, “DETEKSI DINI KEHAMILAN BERESIKO,” *Jurnal Kesehatan Masyarakat*, vol. 8, no. 1, Aug. 2020.
- [16] I. Rehana and H. Mutiara, “Penatalaksanaan Malaria dalam Kehamilan,” *J Medula Unila*, vol. 7, no. 3, p. 41, 2020.
- [17] W. Vitania, “Perilaku Ibu Hamil dalam Pencegahan Malaria Berdasarkan Teori Health Belief Model,” *Jurnal Keperawatan Silampari*, vol. 6, no. 2, 2023.
- [18] I. Anggraeni and A. Nurachmawati, “MALARIA DALAM KEHAMILAN: KUALITATIF MODEL KEPERCAYAAN KESEHATAN DI MUARA WAHAU PROVINSI KALIMANTAN TIMUR,” *Jurnal Kesehatan Masyarakat Andalas*, vol. 11, no. 2, 2023, [Online]. Available: <http://jurnal.fkm.unand.ac.id/index.php/jkma/>
- [19] V. T. Juga, J. A. Anchang, G. S. Taiwe, H. K. Kimbi, and J. K. Anchang-Kimbi, “Association between malaria and undernutrition among pregnant women at presentation for antenatal care in health facilities in the Mount Cameroon region,” *PLoS One*, vol. 18, no. 10 October, Oct. 2023, doi: 10.1371/journal.pone.0292550.

- [20] Sugiharni, "Persepsi Ibu Hamil Tentang Dampak Malaria Bagi Kehamilan Di Wilayah Puskesmas Twano Entrop," Universitas Cenderawasih, Jayapura, 2017.
- [21] Kemenkes RI, "Percepatan penurunan beban kasus malaria di kabupaten dengan endemisitas tinggi di Papua," *Malaria Kemkes RI*, Jakarta, 2023.
- [22] S. Oktanti, N. Trisagi, and S. T. Soetjipto, "Uji Efektivitas Sediaan Anti Nyamik Menggunakan Ekstrak Serai Wangi (*Cymbropogon Nardus L.*) terhadap Nyamuk Aedes Aegypti," *Prosiding Seminar Nasional*, vol. 4, no. 1, 2022.
- [23] G. A. Kassie *et al.*, "Asymptomatic malaria infection and its associated factors among pregnant women in Ethiopia; a systematic review and meta-analysis," Feb. 01, 2024, *Elsevier Ltd.* doi: 10.1016/j.parepi.2024.e00339.
- [24] D. A. P. M. Kencanawati and W. Padju, "Implementasi Layanan Malaria Terintegrasi Kesehatan Ibu dan Anak," *Buletin Ilmu Kebidanan dan Keperawatan*, vol. 2, no. 02, pp. 91–99, Jun. 2023, doi: 10.56741/bikk.v2i02.367.
- [25] J. Darma and A. Husada, "PENGARUH PENDIDIKAN KESEHATAN MELALUI GROUP WHATSAPP TERHADAP TINGKAT PENGETAHUAN IBU HAMIL TENTANG PENCEGAHAN COVID-19 DI KLINIK PRATAMA KASIH BUNDA DELI SERDANG TAHUN 2020," *Jurnal Darma Agung Husada*, vol. 8, no. 2, pp. 112–118, 2021.
- [26] Kemenkes RI, *Buku Saku Tatalaksana Kasus Malaria*. Jakarta: Kementerian Kesehatan Republik Indonesia, 2023.
- [27] M. Syukur and E. Winarti, "ANALISIS FAKTOR PERILAKU MASYARAKAT DAN KEJADIAN MALARIA DI PAPUA : LITERATURE REVIEW," *Jurnal Kesehatan Tambusai*, vol. 5, no. 1, 2024.
- [28] M. Lawinsa, M. Raharjo, and Nurjazuli, "Faktor Risiko Yang Mempengaruhi Kejadian malaria Di Indonesia : Review Literatur 2016-2020," *Jurnal Kesehatan Lingkungan*, vol. 11, no. 1, 2021.
- [29] Dinkes, "Distribusi Kelambu Ke Kelompok Sasaran di Wilayah Kerja UPTD Puskesmas Sipayung," *Dinas Kesehatan Indragiri Hulu*, 2020.
- [30] C. E. Watunglawar, "Efektivitas Penggunaan Kelambu Berintekstisida Terhadap Angka Kejadian Malaria Pada Ibu Hamil di Puskesmas Sentani," *Jurnal Ners*, vol. 8, no. 2, 2024.
- [31] K. R. Awasthi, J. Jancey, A. C. A. Clements, and J. E. Leavy, "A qualitative study of knowledge, attitudes and perceptions towards malaria prevention among people living in rural upper river valleys of Nepal," *PLoS One*, vol. 17, no. 3 March, Mar. 2022, doi: 10.1371/journal.pone.0265561.
- [32] R. L. Clark, "Safety of treating malaria with artemisinin-based combination therapy in the first trimester of pregnancy," *Reproductive Toxicology*, vol. 111, pp. 204–210, 2022, doi: <https://doi.org/10.1016/j.reprotox.2022.05.016>.
- [33] L. A. P. Anderson, "Artemether/Lumefantrine Pregnancy and Breastfeeding Warnings," *Drugs.com*, 2024.
- [34] S. Dellicour, E. Sevene, and McGready, "The safety of artemisinin-based combination therapies in pregnancy: a meta-analysis of individual participant data.," *Lancet Infect Dis*, vol. 17, no. 5, 2021.
- [35] K. Meiyeriance Kapitan, M. Oni Betan, P. Selasa, and M. Y. Meme, "Metode e-Health 'Malaria dan Kehamilan' Deteksi Dini dan Pencegahan Malaria dalam Kehamilan," *Window of Health: Jurnal Kesehatan*, vol. 6, no. 2, pp. 190–8, 2023.

- [36] L. Runtuwene, M. Ahmad, S. Syamsuddin, N. Massi, S. Arifuddin, and A. N. Usman, “PENGARUH KETERLIBATAN SUAMI DAPAT MENURUNKAN KECEMASAN IBU HAMIL DENGAN MALARIA,” *JURNAL RISET KESEHATAN POLTEKKES DEPKES BANDUNG*, vol. 12, no. 1, pp. 62–67, May 2020, doi: 10.34011/juriskesbdg.v12i1.868.
- [37] D. A. P. M. Kencanawati, C. E. Ndapa, and E. Martha, “The role of midwives in preventing malaria in pregnant women: qualitative study from South-West Sumba Regency, Indonesia,” *International Journal of Public Health Science (IJPHS)*, vol. 14, no. 1, p. 381, Mar. 2025, doi: 10.11591/ijphs.v14i1.24099.
- [38] E. Supliyani, “JARAK, WAKTU TEMPUH, KETERSEDIAAN PELAYANAN DAN KUNJUNGAN PEMERIKSAAN KEHAMILAN DI PUSKESMAS,” *Jurnal Informasi Kesehatan Indonesia*, vol. 3, no. 1, pp. 14–22, 2021.
- [39] I. Desimal, M. Ningsih, U. Zaida, and F. Arian, “Analisis Faktor Lingkungan dan Akses Pelayanan Kesehatan Dengan Kejadian Malaria di Daerah Rawan Malaria di Wilayah Kerja Puskesmas Penimbung Kecamatan Gunungsari Kabupaten Lombok Barat,” *Jurnal Ilmiah Global Education*, vol. 5, no. 2, pp. 1510–1517, Jun. 2024, doi: 10.55681/jige.v5i2.2735.
- [40] M. Antunes, C. R. Viana, and Z. Charepe, “Hope Aspects of the Women’s Experience after Confirmation of a High-Risk Pregnancy Condition: A Systematic Scoping Review,” Dec. 01, 2022, *MDPI*. doi: 10.3390/healthcare10122477.
- [41] S. Nurhayati, I. Tri utami, S. H. Atika Sari, and N. Luthfiyatil Fitri, “THE RELATIONSHIP OF SPIRITUAL SUPPORT TO THE ANXIETY LEVEL OF PREGNANT WOMEN TRIMESTER III IN THE ERA OF THE COVID-19 PANDEMIC,” *Jurnal Wacana Kesehatan*, vol. 6, no. 2, 2021.