

BEHAVIOR OF PREGNANT MOTHERS TO PREVENT MALARIA WITH *PRE AND POST* PERSONAL COUNSELING METHODS

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ABSTRAK : PERILAKU IBU HAMIL UNTUK MENCEGAH MALARIA DENGAN METODE KONSELING SEBELUM DAN PASCA PERSONAL

Latar Belakang : : Salah satu masalah kesehatan masyarakat yang dapat meningkatkan angka kematian dan kesakitan ibu dan bayi adalah malaria. Risiko komplikasi kehamilan dapat terjadi pada setiap ibu hamil dan dapat mengancam nyawanya, sehingga ibu hamil harus mengetahui apa saja komplikasi tersebut dengan memberikan informasi sesuai kebutuhan ibu terkait kehamilan menjadi strategi yang tepat untuk menurunkan angka komplikasi kehamilan. Menurut WHO, pada tahun 2015 jumlah kasus baru yang ditemukan di seluruh dunia adalah 214 juta kasus dan pada saat yang sama terdapat 438.000 kasus malaria yang menyebabkan kematian. Berdasarkan data Endemisitas Malaria per Kabupaten/Kota di Indonesia tahun 2018, kabupaten endemis malaria tingkat ketiga adalah Provinsi Papua yaitu Jayapura, Kepulauan Yapen, Mimika, Boven Digoel, Sarmi, Keerom (endemisitas malaria Indonesia, 2018). Berdasarkan data sebelumnya pasien malaria yang diperiksa oleh petugas kesehatan melalui pemeriksaan darah, provinsi tertinggi adalah Papua (12,07%), Papua Barat (8,64%) dan Nusa Tenggara Timur (1,99%). Berdasarkan data terakhir jumlah kasus positif malaria dan jumlah infeksi malaria (Annual Parasite Incidence/API), seluruh kasus malaria tahun 2019 di Indonesia sebanyak 250.644 kasus dan kejadian malaria pada kehamilan tahun 2019, Provinsi Papua merupakan provinsi di Indonesia dengan jumlah kasus terbanyak pada kategori 1769 kasus.

Tujuan: Menganalisis perilaku ibu hamil terhadap pencegahan malaria dengan metode konseling pra dan pasca personal di Wilayah Kerja Puskesmas Sentani Tahun 2022.

Metode: Jenis penelitian ini adalah quasi-experimental dengan pendekatan pre-post control design yang mendekati dua kelompok, yaitu kelompok intervensi dengan memberikan treatment (konseling personal) dan kelompok kontrol (leaflet). Data yang dikumpulkan adalah data primer dan data sekunder dengan variabel bebas konseling personal dan perubahan pengetahuan, sikap dan perilaku sebagai variabel terikat. Sampel penelitian adalah ibu hamil sebanyak 33 responden pada masing-masing kelompok. Pengambilan sampel dengan teknik purposive sampling sesuai dengan kriteria yang telah ditentukan. Instrumen yang digunakan adalah angket pengetahuan, sikap dan perilaku. Analisis data yang digunakan adalah uji non parametrik yaitu uji Mc Nemar dan uji Mann-Whitney.

Hasil: Terdapat perubahan pengetahuan ibu hamil tentang pencegahan malaria pra dan pasca konseling personal di Puskesmas Sentani Kabupaten Jayapura pada kelompok intervensi dengan hasil perhitungan χ^2 dengan tabel distribusi Mc Nemar menggunakan derajat kebebasan 1 dengan taraf = 0,05 yaitu 3,841 diperoleh χ^2 hitung 18,05 > 3,841 dengan nilai 0,000 < 0,05, sedangkan pada kelompok kontrol diperoleh χ^2 hitung 7,04 > 3,841 dengan nilai 0,021 < 0,05 dan terdapat perbedaan pada perubahan pengetahuan pre-post pada kedua kelompok diperoleh nilai 0,011 < 0,05. Terdapat perubahan sikap ibu hamil terhadap pencegahan malaria sebelum dan sesudah konseling personal di Puskesmas Sentani Kabupaten Jayapura pada kelompok intervensi diperoleh χ^2 hitung 25,03 > 3,841 dengan nilai 0,031 > 0,05, sedangkan pada kelompok kontrol diperoleh χ^2 hitung 5,93 > 3,841 dengan nilai 1,000 < 0,05 dan terdapat perbedaan perubahan sikap pre-post pada kedua kelompok diperoleh nilai 0,001 < 0,05. Terdapat perubahan perilaku ibu hamil terhadap pencegahan malaria pra dan pasca konseling personal di Puskesmas Sentani Kabupaten Jayapura pada kelompok intervensi diperoleh χ^2 hitung 21,33 > 3,841 dengan nilai 0,031 < 0,05, sedangkan pada kelompok kontrol diperoleh χ^2 hitung 6,32 > 3,841 dengan nilai 0,500 > 0,05 dan terdapat perbedaan perubahan sikap pre-post pada kedua kelompok diperoleh nilai 0,013 < 0,05.

Kesimpulan: Ada perubahan pengetahuan, sikap dan perilaku ibu hamil setelah diberikan konseling personal tentang pencegahan malaria di Wilayah Kerja Puskesmas Sentani dan ada perbedaan perubahan pengetahuan, sikap dan perilaku ibu hamil pada kelompok intervensi dan kelompok kontrol.

Kata kunci : Perilaku ibu hamil, pencegahan malaria, personal pre-counseling, personal post-counseling

ABSTRACT

Background : One of the public health problems that can increase maternal and infant mortality and morbidity is malaria. The risk of pregnancy complications can occur in every pregnant woman and can threaten her life, so pregnant women must know what these complications are by providing information according to the mother's needs related to pregnancy to be the right strategy to reduce the number of pregnancy complications. According to WHO, in 2015 the number of new cases found worldwide was 214 million cases and at the same time there were 438,000 cases of malaria which caused death. Based on data on Malaria Endemicity per Regency/City in Indonesia in 2018, the third level of malaria endemic districts is Papua Province, namely Jayapura, Yapen Islands, Mimika, Boven Digoel, Sarmi, Keerom (Indonesian malaria endemicity, 2018). Based on previous data on malaria patients who were examined by health workers through blood tests, the highest provinces were Papua (12.07%), West Papua (8.64%) and East Nusa Tenggara (1.99%). Based on the latest data on the number of positive malaria cases and the number of malaria infections (Annual Parasite Incidence/API), all malaria cases in 2019 in Indonesia were 250,644 cases and the incidence of malaria in pregnancy in 2019, Papua Province is the province in Indonesia with the highest number of cases in the 1769 category case.

Destination: Analyzing the behavior of pregnant women towards malaria prevention with the method of pre and post personal counseling in the Working Area of the Sentani Health Center in 2022.

Method: This type of research is *quasi-experimental* with a *pre-post control design* approach which approaches two groups, namely the intervention group by providing treatment (personal counseling) and the control group (leaflets). The data collected is primary data and secondary data with personal counseling variables as independent variables and changes in knowledge, attitudes and behavior as the dependent variable. The research sample was pregnant women as many as 33 respondents in each group. Sampling with *purposive sampling technique* in accordance with predetermined criteria. The instrument used is a knowledge, attitude and behavior questionnaire. Analysis of the data used is a non-parametric test, namely the *Mc Nemar* and *Mann-Whitney test*.

Results: There was a change in the knowledge of pregnant women on the prevention of malaria pre and post personal counseling at the Sentani Health Center, Jayapura Regency in the intervention group with the results of the calculation of χ^2 with the *Mc Nemar distribution table* using degrees of freedom 1 with a level of $\alpha = 0.05$ ie 3.841 obtained χ^2 count $18.05 > 3.841$ with a value of $0.000 < 0.05$, while in the control group obtained χ^2 count $7.04 > 3.841$ with a value of $0.021 < 0.05$ and there are differences in changes in *pre-post knowledge* in the two groups obtained a value of $0.011 < 0.05$. There is a change in the attitude of pregnant women towards malaria prevention pre and post personal counseling at the Sentani Health Center, Jayapura Regency in the intervention group obtained χ^2 count $25.03 > 3.841$ with a value of $0.031 < 0.05$, while in the control group obtained χ^2 count $5.93 > 3.841$ with a value of $0.000 < 0.05$ and there are differences in *pre-post attitude changes* in the two groups obtained a value of $0.001 < 0.05$. There is a change in the behavior of pregnant women towards malaria prevention pre and post personal counseling at the Sentani Health Center, Jayapura Regency in the intervention group obtained χ^2 count $21.33 > 3.841$ with a value of $0.031 < 0.05$, while in the control group obtained χ^2 count $6.32 > 3.841$ with a value of $0.000 < 0.05$ and there is a difference in *pre-post attitude changes* in the two groups obtained a value of $0.013 < 0.05$.

Conclusion: There was a change in knowledge, attitude and behavior of pregnant women after being given personal counseling about malaria prevention in the Sentani Health Center Work Area and there were differences in changes in knowledge, attitudes and behavior of pregnant women in the intervention group and the control group.

Keywords : *Behavior of pregnant women, malaria prevention, personal pre-counseling, personal post-counseling*

INTRODUCTION

Malaria is one of the public health problems that can increase mortality and morbidity in mothers and babies. Malaria is an infectious disease with general symptoms such as fever (high fever) that can periodically go up and down, fever, pale face,

headache, dizziness, lack of appetite, nausea, vomiting, muscle aches and aches. Malaria is caused by a parasite that is transmitted or transmitted by the female *Anopheles* sp mosquito which is between 6 pm and 6 am. To confirm this disease, the diagnosis is made by conducting blood tests using either a

rapid diagnostic test (RDT) or through a microscope (Riskseddas, 2018) .

Several factors that influence the increase in mortality and morbidity rates due to malaria are the environment, hosts, vectors, agents, health services and community behavior on how to prevent malaria. So that efforts can be made in the malaria eradication program such as making an early diagnosis, conducting immediate and correct treatment, monitoring and controlling malaria vectors in directing the community to change malaria prevention behavior so as to break the chain of malaria transmission. The success of malaria prevention requires supporting factors in behavior such as habits at night outside the home, the use of insecticide-treated mosquito nets and the use of mosquito repellent. As for the behavior in controlling malaria, ideal behavior towards these supportive behaviors is being in the house at night, using insecticide-treated mosquito nets, using mosquito repellent, not hanging used clothes in the room/house, making sure the house is not dark and humid, installing wire netting in all ventilation holes, dispose of waste water that causes puddles and kills mosquito larvae. The risk of pregnancy complications can occur in every pregnant woman and can threaten her life, so pregnant women should be able to detect pregnancy complications early, but beforehand pregnant women should know what these complications are by providing information according to the needs of mothers related to pregnancy to be the right strategy to reduce the number of deaths and morbidity in pregnant women. During pregnancy, health promotion is needed which can be provided through various methods, one of which is through counseling. So with this counseling knowledge and attitudes will increase so that it affects the behavior of pregnant women (Christy et al., 2019) (Arsunan Arsin, 2012) (Budiman & Riyanto, 2013).

Behavior is one of several factors that affect the health of both individuals and communities. It takes a process or time to see the formation of a person's behavior. The most important thing to realize health for both individuals and society is the process of forming and changing behavior because of changing behavior which is the goal of health education that can support other health programs (Basuki, 2019) . Various community behaviors that exist by each individual will affect a person's lifestyle, such as the habit of using insecticide-treated mosquito nets while sleeping, the habit of going out at night and people who do not consistently consume malaria drugs, so that these habits will affect the incidence of malaria (Astin & Alim, 2010). 2020) . The success of these factors requires public awareness

or pregnant women about malaria transmission and prevention as well as the role of health workers in providing health counseling or education related to malaria prevention (Teshahunegn et al., 2019) . According to previous research, providing consultation and health education on malaria prevention significantly reduces the rate of malaria infection during pregnancy. The use of mosquito nets has a significant impact on reducing malaria infection in pregnant women (Gontie et al., 2020) . Public health efforts to reduce the impact of malaria play an important role in the successful delivery of information on malaria prevention (Desai et al., 2018). The novelty in this study is that in this study, the researcher not only assesses the behavior of pregnant women in malaria prevention but also assesses the domain of the behavior itself. The delivery of information in this study is more in-depth, namely person to person so that pregnant women can better understand and understand the application of malaria prevention, namely through personal counseling.

One of the causes of various health problems is a person's behavior so that an effort is needed in the health education process. The learning process is expected to change and shape behavior towards healthy behavior and there are several things that support the behavior change, namely changes in attitudes and knowledge (Arsunan Arsin, 2012) .

RESEARCH METHODS

This research was conducted in February-August in the Working Area of the Senatani Health Center, Jayapura Regency in 2022. The study began by asking the respondents for approval, namely an informed consent sheet to be used as a sample. The type of research used is a quasi-experimental approach to pre-post control design using purposive sampling technique with a sample size of 66 respondents. In this study, respondents were divided into 2 groups, namely 33 pregnant women in the intervention group providing personal counseling and 33 pregnant women in the no intervention group (only given leaflets). The initial step in this study was to conduct informed consent then provide a questionnaire for an initial assessment (pre-test) then given treatment and after that a final assessment (post-test) was carried out to assess changes in knowledge, attitudes and behavior of pregnant women towards malaria prevention in the region. Sentani Health Center work. The instrument used in this study was a knowledge, attitude and behavior questionnaire. This research has received permission from the ethics committee of the Faculty of Public Health, Hasanuddin University with

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13, 2022.

RESEARCH RESULT

Table 1.
Frequency Distribution of Respondents based on Characteristics in the Intervention and Control Group

Characteristics Respondent	Intervention (Personal Counseling) (n= 33)		Control (Leaflet) (n= 33)		p-value
	n	%	n	%	
Age					
< 20 Years	1	3	1	3	0, 795
20-35 Years	31	93.9	32	97	
>35 Years	1	3	0	0	
Education					
High (high school and university)	22	66.7	26	78.8	0.708
Low (SD and SMP)	11	33.3	7	21.2	
Parity Status					
Primi gravida	7	21.2	4	12.1	0, 785
Multigravida _	26	78.8	29	87.9	
Grandemulti gravida	0	0	0	0	

*Chi Square Test

Table 1 shows that based on the characteristics of the respondents, most of the mothers' ages in the intervention and control groups were in the 20-35 years category, namely 31 (93.3%) and 32 (97%). Based on the mother's education, most of the mothers had higher education (SMA and College) as many as 22 (66.7%) and 26 (78.8%) and Based on the parity status of the mother, most of the mothers were in the multigravida category as many as 26 (78.8%) and 29 (87.9%). With the results of the chi square test, the p value > 0.05 means that there

is no difference in the characteristic data in the intervention group and the control group.

Table 2 shows, from 33 respondents in each group, namely intervention and control, most of the respondents' knowledge was obtained in the good category before treatment 20 (60.6%); 19 (57.6%) and after treatment 33 (100%); 27 (81.8%). Based on attitudes, most of the mothers were positive before treatment 27 (81.8%); 24 (72.7%) and after treatment 33 (100%); 24 (72.7%) while based on behavior, most of the mothers behaved well before 26 (78.8%); 23 (69.7%) and after treatment 32 (97%); 25 (75.8%).

Table 2.
Frequency distribution based on *pre* and *post* personal counseling variables in the working area of the Sentani Health Center

Variable	Intervention (Personal Counseling)				Control (Leaflet)			
	Before		After		Before		After	
	n	%	n	%	n	%	n	%
Knowledge								
Well	20	60.6	33	100	19	57.6	27	81.8
Not enough	13	39.4	0	0	14	42.4	6	18.2
Attitude								
Positive	27	81.8	33	100	24	72.7	24	72.7
Negative	6	18.2	0	0	9	27.3	9	27.3
Behavior								
Well	26	78.8	32	97	23	69.7	25	75.8
Not enough	7	21.2	1	3	10	30.3	8	24.2

*Primary Data 2022

Table 3.
Changes in Knowledge, Attitudes and Behavior of Pregnant Women towards Malaria Prevention with Pre and Post Personal Counseling Methods in the Work Area of the Sentani Health Center

Sample Group			Knowledge (<i>posttest</i>)		Amount	X ² count (X ² 3,841)	value
			Well	Not enough			
Intervention	Knowledge (<i>Pretest</i>)	Well	20	0	20	18.05	0.000
		Not enough	13	0	13		
Control	Knowledge (<i>Pretest</i>)	Well	19	1	20	7.04	0.021
		Not enough	8	5	13		
			Attitude (<i>Posttest</i>)		Amount	X ² count (X ² 3,841)	value
			Positive	Negative			
Intervention	Attitude (<i>Pretest</i>)	Positive	27	0	27	25.03	0.031
		negative	6	0	6		
Control	Attitude (<i>Pretest</i>)	Positive	24	0	24	5.93	1,000
		Negative	0	9	9		
			Behavior (<i>Posttest</i>)		Amount	X ² count (X ² 3,841)	value
			Well	Not enough			
Intervention	Behavior (<i>Pretest</i>)	Well	26	0	26	21.33	0.031
		Not enough	6	1	7		
Control	Behavior (<i>Pretest</i>)	Well	23	0	23	6.32	0.500
		Not enough	2	8	10		

*Mc Nemar Statistic Test

Table 4 above, shows that in the intervention group there was a change in knowledge after being given treatment (counseling) ie there were no mothers who had less knowledge , while in the control group there was no change after being given treatment, namely there were still mothers who had less knowledge . From the results of the calculation of x2 with the Chi-Square distribution table using

degrees of freedom 1 with a level of = 0.05, which is 3.841. While the acquisition of the value of x2 on the knowledge variable in the intervention group was 18.05, meaning x2 3.841 with a value of value < (0.000 < 0.05). In the control group obtained 7.04 means x2 > 3.841 with a value of value < (0.021 < 0.05).

In the intervention group, there was a change in attitude after being given treatment (counseling), namely there were no mothers who had a negative attitude, while in the control group there was no change in attitude before treatment, namely there were still mothers who had a negative attitude. From the results of the calculation of χ^2 with the Chi-Square distribution table using degrees of freedom 1 with a level of $\alpha = 0.05$, which is 3.841. While the acquisition of the value of χ^2 on the knowledge variable in the intervention group was 25.03 meaning $\chi^2 3.841$ with a value of $p < (0.031 < 0.05)$. In the control group obtained 5.39 meaning $\chi^2 > 3.841$ with a value of $p > (1,000 > 0.05)$.

intervention group, there was a change in behavior after being given treatment (counseling), i.e. there was no mother who behaving less, while in the control group there was no change in attitude before the leaflet was given, namely there were still mothers who had negative attitudes but became negative. From the results of the calculation of χ^2 with the Chi-Square distribution table using degrees of freedom 1 with a level of $\alpha = 0.05$, which is 3.841. While the acquisition of the value of χ^2 on the knowledge variable in the intervention group was 21.33 meaning $\chi^2 3.841$ with a value of $p < (0.031 < 0.05)$. In the control group obtained 6.32 means $\chi^2 > 3.841$ with a value of $p > (0.500 > 0.05)$.

Table 4.
Differences in changes in knowledge, attitudes and behavior between the intervention group and the control group

Variable	Group	n	%	P-Value *
Knowledge	Intervention (personal counseling)	33	100	0.011
	Control (Leaflet)	33	100	
Attitude	Intervention (Personal Counseling)	33	100	0.001
	Control (Leaflet)	33	100	
Behavior	Intervention (Personal Counseling)	33	100	0.013
	Control (Leaflet)	33	100	

Mann-Whitney test

Table 5 above illustrates the differences in knowledge changes in the intervention and control groups with a value of $\text{sig} = 0.011$, changes in attitudes in the intervention and control groups with a value of $\text{sig} = 0.001$ and changes in behavior in the intervention and control groups with a value of $\text{sig} = 0.013$.

DISCUSSION

Characteristics of Respondents

Age is closely related to one's behavior, age 20-35 is an adult age so that one's performance and physical skills can increase which can encourage the formation of a behavior. This age is also a productive age group where pregnant women at this age are considered adults and can make their own decisions in preventing malaria (Khairunnisa et al., 2021), (Simbolon et al., 2021). There is a relationship between education and malaria prevention behavior, the higher the education, the better the behavior towards malaria eradication. Higher education will improve knowledge about various health problems. The low level of education about malaria causes reduced public awareness and less active role in malaria prevention efforts (Farihatun & Mamdy, 2016). The experience of pregnant women about

malaria makes them aware of how to prevent malaria during pregnancy (Sutama et al., 2020). However, malaria is still affected by the behavior of pregnant women who do not use mosquito nets when sleeping, leave the house at night without wearing long sleeves, hang clothes and do not keep the home environment clean (Nihayatul et al., 2021).

Respondent's Knowledge, Attitude and Behavior

The results of this study were supported by previous researchers that maximum participants had good knowledge of malaria as much as 73.2%, knowledge of pregnant women about malaria and related factors was very helpful in making policies and decisions in planning maternal and child health services (Goshu & Yitayew, 2019). Women who have good knowledge of malaria can be associated with awareness about malaria, both prevention and treatment will make women take actions such as malaria prevention, asking for malaria medicine if there are symptoms of malaria if health care providers forget (Diengou et al., 2020). Attitudes and behavior affect a person in taking action, especially in terms of health. Knowledge, attitudes and practices should be consistent so that pregnant women will care about their health and that of their

fetus. Although the mother's knowledge is good about malaria, malaria prevention, malaria treatment, but if there is no consistency between attitudes and behavior in doing what she knows, the mother will be easily infected with malaria (Andrew et al., 2015).

Changes in Respondents' Knowledge, Attitudes and Behavior

Based on the data in table 4 above, the change in knowledge shows the results of the χ^2 calculation with the Chi-Square distribution table using degrees of freedom 1 with a level of $\alpha = 0.05$, which is 3.841. The χ^2 value of the knowledge variable in the control group obtained the value of $\chi^2 (7.04) > 3.841$ with a value of $p < (0.021 < 0.05)$ so it can be concluded that there is a change in knowledge of pregnant women about malaria prevention with pre and post leaflet methods. and there is an effect of leaflets on malaria prevention on changes in knowledge of pregnant women in the working area of the Sentani Health Center. While in the intervention group is 18.05 meaning $\chi^2 > 3.841$ with a value of $p < (0.000 < 0.05)$ so it can be concluded that there is a change in knowledge of pregnant women about malaria prevention with pre and post personal counseling methods and there is an effect of personal counseling about malaria prevention on changes in knowledge of pregnant women in the working area of the Sentani Health Center. The low level of knowledge can also be caused by poor interpersonal relationships between patients and health workers so that patients do not receive well what is conveyed by health workers (Obagha et al., 2020). Knowledge of malaria prevention using bed nets and coils at the time of the study was relatively low, highlighting the need to improve education of health workers and make better use of health workers to spread awareness and knowledge about the selection of effective malaria prevention methods in pregnant women (Sabin et al., 2018). In line with previous research that sufficient knowledge and good perceptions encourage people to take malaria prevention measures, so that it is necessary to provide information on health workers and malaria prevention facilities (Sahiddin et al., 2019).

Based on changes in attitude, it shows that the results of the χ^2 calculation with the Chi-Square distribution table use degrees of freedom 1 with a level of $\alpha = 0.05$, which is 3.841. The χ^2 value of the attitude variable in the intervention group was 25.03 meaning $\chi^2 > 3.841$ with a value of $p < (0.031 < 0.05)$ so it can be concluded that there is a change in knowledge of pregnant women about malaria prevention with pre and post personal counseling

methods and there is an effect of personal counseling on malaria prevention on changes in the attitudes of pregnant women in the working area of the Sentani Health Center. Personal counseling (individual) is a process of information through personal counseling interviews in solving problems. Personal counseling has a big influence on increasing the client's attitude because in this personal counseling, the counselor tries to improve the attitude of pregnant women in malaria prevention by interacting within a certain time, meeting face to face to improve or change the way of thinking, acting and behaving (Kusmawati, 2019). In the control group the value of χ^2 for the attitude variable was 5.93, meaning that $\chi^2 > 3.841$ with a value of $p < (1,000 > 0.05)$ so it can be concluded that there is a change in knowledge of pregnant women about malaria prevention with pre and post personal counseling methods in the region. The work of the Sentani Health Center and there is no effect of leaflets on malaria prevention on changes in the attitudes of pregnant women in the Sentani Health Center Work Area. Leaflet does not have a significant effect because the client only gets information related to malaria prevention from the sheet that the client reads which leads to one-way communication without any direct motivation from the counselor who can direct the client to have a positive attitude towards malaria prevention (Hestuningtiyas, 2014). The realization of an attitude in order to become a real action (action) requires supporting or enabling conditions, for example the support factor from the family, close friends and the surrounding community (Arsunan Arsin, 2012). Respondents' attitudes about the importance of malaria as a health problem for pregnant women are different. Most of the respondents knew and mentioned proven malaria prevention methods. Most pregnant women said that malaria was the top three health problems faced by pregnant women, thereby increasing the interest of pregnant women in preventing malaria. Attitudes are of particular concern about malaria as a life-threatening health problem for pregnant women in Chhattisgarh to improve malaria prevention behavior (Sabin et al., 2018). Attitude is the reaction of a person who is still closed to a stimulus. In everyday life, attitude is an emotional response to social stimuli (Arthini, 2019).

Based on changes in behavior, it shows that the results of the calculation of χ^2 with the Chi-Square distribution table use degrees of freedom 1 with a level of $\alpha = 0.05$, namely 3.841. In the intervention group the value of χ^2 on the behavioral variable was 21.33 meaning $\chi^2 > 3.841$ with a value of $p < (0.031 < 0.05)$ so it can be concluded that

there is a change in attitudes in pregnant women about malaria prevention with pre and post personal counseling methods. in the working area of the Sentani Health Center and there is an effect of personal counseling on malaria prevention on changes in the behavior of pregnant women in the working area of the Sentani Health Center. In the control group, the value of χ^2 on the behavioral variable was 6.32, meaning that $\chi^2 > 3.841$ with a value of $p < (0.500 > 0.05)$ so it can be concluded that there is a change in attitudes among pregnant women about malaria prevention with pre and post personal counseling methods. in the working area of the Sentani Health Center and there is no effect of leaflets on malaria prevention on changes in the behavior of pregnant women in the working area of the Sentani Health Center. Health workers in providing direct and face-to-face information such as counseling and counseling are very influential in providing understanding to clients so that it will be difficult to behave in a healthy manner. If the client is only given leaflets about malaria prevention then the mother only receives information without any reciprocal information so that the mother will find it difficult to understand what is read so that the mother will ignore what is read and do not apply it in malaria prevention behavior. The motivation for clients to behave will also be reduced because there is no direct assistance and support from health workers (Rahayu, 2013). The formation and change of behavior is the most important aspect of a person's behavior to stay healthy, because this change is the goal of health education or counseling as a supporter of health programs. The indicators used in measuring changes in health behavior are knowledge, attitudes and actions (Basuki, 2019). The success of disease prevention and treatment efforts depends on the willingness of the person concerned to carry out and maintain his behavior to always be healthy. One of them is the ideal behavior which is the type of behavior of each individual. Some supporters of behavior against the incidence of malaria are the habit of being outside the house at night, using mosquito nets and using mosquito repellent (Arsunan Arsin, 2012).

Differences in Knowledge, Attitude and Behavior Changes between the Intervention and Control Group

Table 5 shows that there are differences in changes in knowledge, attitudes and behavior in the intervention group who were given personal counseling compared to the control group who was only given leaflets. Providing information through counseling can increase mother's knowledge so that

it can change the daily behavior of pregnant women, especially about malaria prevention. Changes in knowledge and attitudes greatly affect the behavior of mothers in preventing malaria. Leaflet does not have a significant effect because the client only gets information related to malaria prevention from the sheet that the client reads which leads to one-way communication without any direct motivation from the counselor who can direct the client to have a positive attitude towards malaria prevention (Hestuningtiyas, 2014). The existence of an integrated behavioral communication intervention to increase knowledge about malaria regarding prevention measures, causes and symptoms of malaria requires consistent efforts to provide relevant information by health workers in reducing and controlling the incidence of malaria in the community (Yaya et al., 2017). Through personal counseling the client will get information about malaria prevention where the information will be taken into consideration by someone in a positive attitude and after being positive the client will respond by deciding to take action in behavior. Counseling increases client knowledge and then affects attitudes to be more positive so that it is proven to be effective in changing a better attitude (Gamelia et al., 2015). Personal counseling (individual) is a process of disseminating information through personal counseling in solving problems. Personal counseling has a great influence on increasing the client's attitude because in this personal counseling, the counselor tries to improve the attitude of pregnant women in malaria prevention by interacting in a certain time directly face to face to improve or change the way of thinking, behaving and behaving (Kusmawati, 2019).

CONCLUSION

Malaria is more prone to occur in pregnant women because during pregnancy the mother will experience hormonal changes, decreased immunoglobulin synthesis and decreased function of the reticuloendothelial system are thought to be the cause of immunosuppression in pregnancy. So that malaria transmission is more easily transmitted when the mother is pregnant. One of the measures taken to reduce the incidence of malaria is to carry out malaria prevention behaviors before and during pregnancy. To create this behavior, good knowledge about malaria prevention in pregnant women is needed from the husband, family and surrounding community. The provision of counseling by health workers related to malaria prevention is proven to provide changes in knowledge, attitudes and behavior of pregnant women to prevent malaria because of the interaction between officers and

clients so that pregnant women become comfortable. It is recommended to all pregnant women to routinely conduct examination visits during pregnancy, seek information related to health during pregnancy and be able to change behavior in preventing malaria so that pregnant women and fetuses are not infected with malaria.

SUGGESTION

It is recommended for health workers to provide person-to-person information to all pregnant women to routinely conduct examination visits during pregnancy, seek information related to health during pregnancy, especially about malaria prevention and be able to change behavior in preventing malaria so that pregnant women and fetuses are in good health. healthy and not infected with malaria.

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