

A Model of Malaria in Pregnancy Prevention Counseling in Clinics, District of Jayapura, Papua

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Abstract: *Malaria is still the health problems in the community, especially in endemic areas like Papua. Malaria in pregnancy is contributing to the high numbers of pain and maternal mortality. One effort decreases the prevalence of malaria is empowering officers and clients or pregnant women by increasing knowledge to do prevention. One effort to increase knowledge with counseling at the time of antenatal. Effective counseling using the picture/media sheets behind a great way make it easier for mothers to understand the information provided. This research was to know relationship counseling using media sheet back toward an increase in knowledge, attitudes and compliance perform prevention of malaria infection. The Method used was the stage that is training midwives Next research experiments with design pre-and post-test-test, determination of sample with randomized assignment, group counseling is a treatment using media sheet turning 85 mothers and control group counseling without the media as much as 85 mothers. After counseling, conducted observation for 3 months in a row to see malaria prevention practices. Results: there was a change in the average knowledge of 2.014 ($p < 0.05$) between the pre and posttest-test. Statistically, there is a change of attitude and knowledge difference 2.07 6.68 group treat compared to the group control. Malaria prevention practices as using mosquito nets do not hang the thrift in the home, use protective clothing when outside the House on the first and second month after statistically meaningful counseling with a value of $p < 0.05$. Conclusion: turning sheet using media counseling can improve knowledge, attitudes in a positive and pregnant mother dutifully do well compared with malaria prevention counseling without the media. Recommended to maternal and child health services in particular in the territory of Papua to benefit from this feedback sheet when giving malaria prevention counseling to pregnant mothers.*

Keywords: Model, Malaria, Pregnancy, Counseling

1. Introduction

Prevalence of malaria still is one of the contributing causes of maternal and child death indirectly in Indonesia. In particular in Papua prevalence and incidence has decreased from year to year. Nationally, according to the report on the achievement of the Millennium development goals in Indonesia in 2011, has decreased from 4.68 per 1,000 inhabitants to 1.75 per 1,000 inhabitants. However, the highest incidence of malaria (63%) is found in the province of NTT, Papua and West Papua. To that end, efforts to reduce the numbers in areas such as Papua is endemic with the prevention and treatment of infection of malaria parasites is a top priority, one of prevention efforts by reducing the transmission through the protection of vulnerable groups such as pregnant women and knowledge of human resources.

Prevention of malaria in pregnancy in Jayapura Regency was no longer using drugs as protection, preferred doing prevention community behavior to avoid malarial mosquito bites. Can be done using mosquito nets while sleeping the night with insecticide especially at risk groups (pregnant women, infants and children), use protective clothing when being outside the home at night, using the anti-mosquitos, hygiene in the home page and from the water puddle.

Prevention of malaria can be done well if health workers provide information clearly to the public. Information can be

provided in various ways, and in this study the information given by way of face-to-face counseling using media sheet back specifically for pregnant women. Expected with counseling using media sheet behind it, people especially pregnant women can understand and can apply it well. The results will be compared with pregnant women who are consulting without media.

2. Purpose of Study

This research aims to find out: a) the identifying characteristics of pregnant women against malaria prevention practices; b) knowledge and attitudes of mothers against malaria prevention practices; c) counseling relationship to knowledge, attitude and compliance of pregnant women against malaria prevention; d) media relations knowledge and attitudes towards pregnant women.

3. The Benefits of Study

This study was conducted in order to give more benefits to:

a) Theoretically

Scientific substantiation that the turning sheet using media counseling will be more effective to improve understanding and empower expectant mothers to change the behavior of individuals, families in carrying out precautionary measures of infection of malaria parasites. Research results are

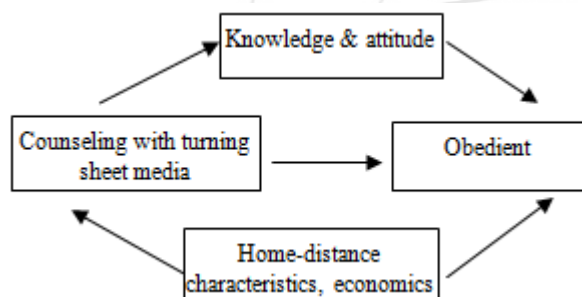
expected to be useful for the next research, and for the development of science, particularly about the model of the media as a means of communication and information to the early prevention of malaria in pregnant women

b) Practically

Practical Counseling using media sheet back will be more effective and more useful in the implementation of preventive programmers against parasitic infections and complications of malaria in pregnancy. For the giver of services expected to be more professional and can be applied appropriately, the right on target with the right situation. Contribute information and as a material consideration for the Manager's policy for tackling malaria in pregnancy to think of counseling model using appropriate media and right on target in Jayapura, and help the acceleration of malaria elimination programmers 2030 in Papua. For expectant mothers and families, to empower and enhance the self-reliance of early prevention practices in the efforts against the malarial parasite infection and its complications.

The cornerstone of the theory.

- Cornerstone research is the theory of Knowledge and attitude change: pregnant women can occur when done to the intervention. Interventions may include the granting of information knowledge through counseling.
- Framework of study



4. Method of Study

The method of this research uses experimental design pretest – post on two groups of treatment and control group. On the Group's treatment was given counseling and back sheet using the media control group were given counseling without the media. Study area and population.

Research conducted in Jayapura on some government health services center i.e. clinics and posyandu. The population was pregnant women visiting clinics for the first time to check her pregnancy. Design research studies randomized controlled trial (RCT) design pretest – post in the intervention group and the control group. Record keeping and intervention does is granting counseling using media sheet back and control group counseling without the media. /Follow up observations done each month after the giving of the counseling as much as 3 times consecutive observations.

Laboratory examination methods on the thick blood drop samples for examination of parasitemia officers conducted by laboratories using microscopes and RDT. The management of data collected using a questionnaire for the assessment of the knowledge and attitude, and sheets of observations for the assessment of compliance. Methods of statistical analysis with its homogeneity test, paired t-test, t-test to compare the mean results of the pre-and post-test-test in the intervention group with a control group, the research hypothesis testing decision based on the significance level $p < 0.05$. The results of statistical tests and analysis results are interpreted to address the research objectives.

5. Result

a) Characteristics of officers

Based on table 5 above, the range of age between 21-52, midwife of the year with an average of 36.5 years and most in the age group 31-40 years (66.7%). Education diploma at the level most of the last 3 as many as 15 people (62.5%) and diploma 1 by as much as 5 people (7.7%). A long stint in the top 3 years by as much as 21 people (87.5%). Counseling training who ever followed is as many as 17 people (70,8%), the remaining 7 people have never followed a training

b) Knowledge of midwives

Chart above, showing the value of the mean pre-and post-test on knowledge of midwives, it turns out there is a change with the lapse of 2.014 and value $p = 0000$ ($p < 0.05$). This means that with one training can enhance positive towards the knowledge of 2.014 after training. Changes to increase this knowledge can be influenced by some factors that are owned by level of education, namely most midwives on the level 3 diploma in midwifery (62.5%), long the most work above 3 years (87.5%), and the frequency of training counseling ever followed before (70,8%).

c) Characteristics of respondents

Based on the table above, age of mother on the group not at risk (20-35) most in the group without media (86.29%), there was no statistically meaningful difference $p = 0081$ ($p > 0.05$). Most parity multipara on media group (46.8%), there was no statistically meaningful difference $p = 0746$ ($p > 0.05$). 2nd trimester of pregnancy most age group without media (56.5%), there was no statistically meaningful difference $p = 0877$ ($p > 0.05$). Higher education media group (57.0%) no statistically difference $p = 0103$ ($p > 0.05$). Distance ≤ 5 km at most media groups (67.1%) no statistically meaningful difference $p = 0746$ ($p > 0.05$). High economic level on most media group (57.6%) no statistically meaningful difference $p = 0282$ ($p > 0.05$). Statistically, the p value of its homogeneity test > 0.05 can be inferred that a variant of the group data is the same on the group counseling with media and group counseling without media.

d) Changes in knowledge and attitudes of respondents

Table: The relationship of changes in knowledge and attitudes towards score pre-and post-test-test.

	Changes in knowledge and attitudes					T	P	Δ	CI 95%
	N	Pre-test		post-test					
		Mean	Sd	Mean	Sd				
Knowledge									
Media	85	8.4	2.09	10.47	2.1	7.04	0	2.07	1.48-2.65
Without media	85	7.98	1.92	8.99	1.28	5.48	0	1.01	0.64-1.37
Attitude									
Media	85	58.47	5.57	65.15	4.43	14.7	0	6.68	5.77-7.58
Without media	85	58.65	4.7	63.39	4.68	10.97	0	4.74	3.88-5.60

Sig = p < 0.05

Table: Independent t-test analysis of the difference between knowledge and attitude change

	Difference in knowledge and attitude change				T	P	Δ	CI 95%
	Mean	Media	without media					
		Sd	Mean	Sd				
Knowledge	2.07	2.71	1.01	1.7	3.04	0.002	1.06	0.37-1.74
Attitude	6.68	4.18	4.74	3.98	3.09	0.002	1.94	0.70-3.17

Sig = p < 0.05

The table above shows the average score value, pre-test of knowledge and value score average post-test anomaly difference statistically meaningful 2.07, p = 0000 (p < 0.05) at the media group. The difference in the average value of pre-test and posttest group without media amounted to 1.01, a statistically meaningless p = 0000 (CI 0.64-1.37). Value score average pre-test attitude and post-test attitude there is a statistically meaningful change p = 0000 (p < 0.05) on media group and a change in attitude in the group without a

statistically meaningful also media p = 0000 (p < 0.05). The results of the analysis showed the value of average difference changes post-test and pre-test a statistically meaningful on knowledge with an average value of 2.07 (p = 0.002) and attitude with the average value of 6.68 value p = 0000

e) Paired sample t-test results-test of knowledge, attitudes, and behavior

Table: The relationships between the variables are free, beyond and against compliance characteristic

	Compliance				χ^2	p	RR	95% CI
	Obedient		Without					
	n	%	N	%				
Counseling with								
Media	58	68.2	27	31.8	9.57	0.002	1.53	1.15-2.01
Without media	38	44.7	47	55.3			1	
Age								
20-35	76	55.5	61	44.5	0.28	0.594	0.91	0.66-1.25
< 20 or > 35	20	60.6	13	39.4			1	
Gravid								
Multipara	66	58.9	46	41.1	0.8	0.369	1.14	0.85-1.52
Primipara	30	51.7	28	48.3			1	
Age Gravid								
Trimester2	54	56.8	41	43.2	0.01	0.912	1.01	0.77-1.32
Trimester3	42	56	33	44			1	
Education								
High	84	56.4	65	43.6	0.01	0.947	0.98	0.66-1.46
low	12	57.1	9	42.9			1	
Distance								
> 5 km	31	53.5	27	46.5	0.32	0.567	0.92	0.69-1.22
≤ 5 km	65	58	47	42			1	
Economic								
High	59	64.8	32	35.2	5.57	0.018	1.38	1.04-1.83
Low	37	46.8	42	53.2			1	

Sig = p < 0.05

Based on the table above, the variable age groups, gravida, gestational age, maternal education and distance beakna not statistically (p > 0.05), it means there is no relationship towards compliance. Based on the results of the analysis in the table above, it is seen that the proportion of media group of 42.4% compared to 27.8% media without having links against a statistically meaningful compliance with the value p

= 002 (p < 0.05) and the value of RR 1.53 (95% CI 1.15-2.01). This means that the media likely being dutifully 1.53 times as compared to the group without media.

Economic variables with high proportions of 40.3% higher than the low economy, statistically meaningful relationship has p = 0.018 (p < 0.05) and the value of RR 1.38 (95% CI

1.04-1.83). That is, high levels of social possibilities become obedient amounting to 1.38 times in comparison with economy.

f) Multivariate Analysis.

Multivariate analysis was used to find out the influence and significance of the free variable relation (counseling) and the outer variable (distance, economic) against variables bound (knowledge, attitudes and compliance). Analysis of logistic regression is used because the scales on a variable are a dichotomy.

Multivariable Analysis conducted to see Knowledge relationship counseling, meaningful economic-level variables are statistically against the difference in knowledge by using multiple linear regression test and the result can be seen in the following below the counseling had a relationship with the media significantly to knowledge difference $p < 0.05$, but < clinically meaningless value of CI 0.37-1.74. Variable distance and economic level statistically there is no difference in the relationship towards knowledge. It can be concluded that a statistically meaningful counseling in the change of knowledge, whereas the variable distance and economic level as a random variable.

g) Attitude Multivariable.

Multivariable Analysis done attitude to see the relationship counseling, economic level variables statistically meaningful difference in attitude towards using multiple linear regression test and the result can be seen in the following that seen counseling with the media, distance and level of economic ties is a significant difference in the attitude towards the value of $p < 0.05$. On the value 95% CI clinically meaningful is the economic level (CI 1.52-3.84), while counseling and clinical does not meaningful distance.

h) Compliance

To view the compliance practice prevention of malaria, will be presented in the form of recurrent observations measure results on the second and third month after giving of the counseling. It can be seen in the following that

At the initial visit no statistically meaningful ($P > 0.05$). After counseling conducted observations then seen that in the first month and two pregnant women who use nets, do not hang the thrift in the home and use protective clothing outside the House statistically meaningful value $p < 0.05$, and if the comparison between the initial visits with 1 month after counseling practices look meaningless in statistic ($p > 0.05$), whereas if compared to the practice in the second month, statistically meaningful. To practice the ANC visit statistically meaningless both from the beginning up to the observation after counseling.

i) Multilevel Analysis

To see the effect of media counseling against the difference between knowledge and attitudes after the analysis is performed in the same crucible with variable control after a midwife. Then it can be assumed the existence of a meaningful relationship.

6. Discussion

Based on the results of the t-test analysis, there is a change in the mean score of knowledge and attitude between the pre-and post-test significantly value t calculate (7.04) greater than t table (1989), meaning that there is a difference between H_0 is rejected or the mean difference between the test and post-pre-test that showed an increase in knowledge and attitude between the pre-and post-test after being given counseling by turning sheets than media without the media. According to the research of Catarina, et al (2012), said that by administering counseling using media pamphlet there is increased knowledge changes between pre and post.

The t-test analysis results mean the attitude there is meaningful difference score average values of pre and posttest-test on media groups than without the media. According to the research of Hamida (2012), in his work the use of comics in education on media, there is a difference in score media group increased compared with no media in choosing food hawker. According to Zulkarnain (2009), using media flipcharts and compact disc (CD) there are changes in knowledge and attitudes of early initiation of breastfeeding for mothers (IMD). Nurhidayat (2012), using media power point and flipcharts is no change increased knowledge of oral health. Rahmawati, et al (2007) using the media Audio visual changes value between pre-and post-test-test and an increase in knowledge, attitude and behavior of the mother of a toddler. The change of knowledge according to the senses, which transmit the knowledge into the human brain is the sense of eyes (75-85%) than the other senses (Sandjaya, 2010; Pradhan, 2003).

Relationship of the level of knowledge and attitudes toward the economy. Based on the results of the analysis variables outside (distance and socio-economic) of difference in knowledge (table 11), there is a statistically meaningful relations at a high level of socio-economic changes than to economic level of knowledge is low. Socio-economic relationships within the attitude there is a statistically meaningful relationship, meaning that high economic level have a change in the attitude of the average difference is higher than the economic level is low. By having a good understanding over how the prevention of malaria, then followed with an attitude to want to practice prevention of malaria.

Relationship counseling, external variables against the difference between knowledge and the difference in attitude are performed with multivariate analysis. Based on the results of the analysis (table 14) indicates the counseling with statistically meaningful and media had influence on the difference of knowledge when analyzed along with the economic level and distance. Likewise on Multivariate analysis against the difference in attitude stated that the economic level of counseling and the distance has positive influence to change the difference in attitude. Very meaningful is the level of the economic value of $p = 0.000$ (95% CI 1.53-3.84).

Relationship counseling towards compliance. Observations made on malaria prevention practices after the giving of the counseling during the first month and months into two

meaningful statistically ($P < 0.05$), where pregnant women use mosquito nets at night while sleeping, there hung a thirt in the home, use protective clothing when outside home.

Malaria prevention practices in comparison between the initial observations with the month first just practice thirt drape a statistically meaningful. While in the initial observation with month-2 statistically meaningful on using mosquito nets, not hanging in homes, thirt and use clothes protecting when outside the home. It can be concluded that pregnant women can practice prevention malaria properly when being in the second month after receiving counseling and followed with periodic observation.

According to some studies say that meaningful counseling against adherence to using mosquito nets while sleeping the night, for various reasons such as the hot, uncomfortable, contain chemicals that are harmful to pregnant women and infants, (Chukwocha, 2010; Mbonye, 2005). According to research Wulley dkk, 2010, stating that as much as 40% of pregnant women use mosquito nets when sleeping the night, due to prevention strategies conducted by officers of the low (14.4%) less got recommendations from health workers. This means that even if for various reasons but pregnant women still dutifully use mosquito nets. There is a significantly relationship between knowledge with the malaria mosquito bite Prevention Act (Fathonah, et al, 2010).

On the practice of the ANC, a statistically meaningless since the beginning of the counseling up to the last observation. This illustrates that counseling does not affect the frequency of visits of pregnant women to conduct the examination. It can be said also that the expectant mother visits in accordance with the initial deal with the officer. According to Thorndike (Browning and Shane, 2005; Glanz, 2008), that one of the principle is learning an activity forming the Association of five senses impression with a propensity to act.

7. Summary

Risk characteristics of respondents include: age, gestational age, gravid, and education. There is no meaningful difference between a score of pre-and post-test. Counseling using media sheet behind the statistically meaningful increase knowledge and attitude with the difference in average higher results compared to counseling without the media.

Counseling with statistically improve media conducted compliance precautions by using mosquito nets while sleeping at night without hanging the thirt at home, using protective clothing when outdoors. High economic level are statistically meaningful improvement in attitude and compliance malaria precautions. Thus it can be concluded that, with the media counseling sheet behind the positive influence and the result is quite effective to enhance the knowledge, attitudes and compliance to conduct malaria infection, prevention, and action.

References

- [1] Browning, C. J., Shane, A. T., 2005., *Behavioural Change: An Evidence- based Handbook for Social and Public Health.*, Elseiver Churchil Livingstone.
- [2] Catarina Yossi. BNS, Julian Dewantiningrum, Rebriarina Hapsari., 2012., Pengaruh Pemberian Pamflet Persalinan terhadap Tingkat Pengetahuan dan Tingkat Kecemasan Ibu Hamil., Departemen Obstetri dan Ginekologi Universitas Diponegoro, Semarang., *Majalah Obstetri & Ginekologi*, Vol. 20 No. 3 September – Desember 2012: 111-116.
- [3] Chukwocha UM., Dozie INS., Onwuliri COE., Ukaga CN., Nwoke BEB., Nwankwo BO., Nwoke EA., Nwaokoro JC., Nwoga KS., Udujih OG., Iwuala CC., Ohaji ET., Morakinyo OM., and Adindu BC., 2010., *Perceptions on the Use of Insecticide Treated Nets in Parts of the Imo River Basin, Nigeria: Implications for Preventing Malaria in Pregnancy.*, *African Journal of Reproductive Health* Mar 2010; 14(1):1 1 7
- [4] Mbonye, A. K., Stella, N., and Pascal, M., 2005., *Preventing malaria in pregnancy: a study of perceptions and policy implications in Mukono district, Uganda.*, *Hygiene and Tropical Medicine.*, doi:10.1093/heapol/ez/002
- [5] Wylie. B.J., Hashmi. A. H., Neeru Singh., P Singh M., Tuchman. J, Hussain. M., Sabin. L., Yeboah-Antwi. K., Banerjee. C., Brooks.M., Desai. M., Udhayakumar. V., B MacLeod. W., Aditya P Dash. A., H Hamer. D., 2010., *Availability and utilization of malaria prevention strategies in pregnancy in eastern India.*, *BMC Public Health* 2010, 10:557. <http://www.biomedcentral.com/1471-2458/10/557>
- [6] Sanjaya, H. W., 2010., *Perencanaan dan Desain Sistem Pembelajaran.*, Kencana Prenada Media Group., Jakarta.
- [7] Pradhan, H. B., 2003., *A text book of Health Education (philosophy and principles).*, Edisi ke 4., Educational Publishing House Kathmandu.
- [8] Rahmawati. I., Toto Sudargo., Paraswati. I., 2007., *Pengaruh Penyuluhan dengan Audio Visual terhadap Peningkatan Pengetahuan, Sikap dan Perilaku Ibu Balita Gizi Kurang dan Buruk di Kabupaten Kotawaringin Kalimantan Barat.*, *Jurnal Gizi Klinik Indonesia*. Vol 4. No 2. November 2007; 69-77.
- [9] Nurhidayat. O., Eram Tunggul P, Bambang Wahyono., 2012. *Perbandingan Media Power Point dengan Flip Chart dalam Meningkatkan Pengetahuan Kesehatan Gigi dan Mulut.*, *Unnes Journal of Public Health* <http://journal.unnes.ac.id/sju/index.php/ujph>
- [10] Zulkarnain.E., Leersia Yusi R., Nikmatul Farida., 2009., *Perbedaan Efektifitas antara Metode Penyuluhan dengan Flipchart dan Menggunakan Video Compact Disc (vcd) dalam Meningkatkan Pengetahuan dan Sikap Ibu Hamil terhadap Inisiasi Menyusui Dini.* Fakultas Kesehatan Masyarakat Universitas Jember

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