KESANS: International Journal of Health and Science
e-ISSN: 2808-7178, p-ISSN: 2808-7380
Web: http://kesans.rifainstitute.com/index.php/kesans/index

Study of the Use of Insecticide-Treated Mosquito Nets in Nolokla Village, Jayapura Regency

Nursyah Fitriana, Dolfinus Yufu Bouway, Inriyanti Assa
Faculty of Public Health, Universitas Cenderawasih, Indonesia
nsyftriaa@gmail.com, yuboepidfkm@gmail.com, inriassa@gmail.com

Article Information
Submitted: **05 April 2023**
Accepted: **07 April 2023**
Online Publish: **20 April 2023**

Abstract
Introduction: *The use of insecticide-treated mosquito nets is expected to reduce the incidence and morbidity of malaria, especially in the Papua region.* ***Objective:*** *This study aims to determine whether there is a relationship between the use of insecticide-treated mosquito nets in Nolokla Village, Jayapura Regency with the characteristics of respondents, knowledge, and treatment of mosquito nets.* ***Method:*** *Quantitative research with cross-sectional* design. *The research location is in Nolokla Village, Jayapura Regency. The study sample amounted to 116 heads of families with a simple random sampling technique. Research measuring instruments using questionnaires and data analysis using the chi-square test.* ***Result and Discussion:*** *The results showed that respondents had used insecticide-treated mosquito nets (85.3%) and female respondents (75.0%) with high school education or equivalent (64.7%), and most jobs as self-employed (37.1%). The knowledge level of respondents is good (85.3%) and respondents who perform mosquito net treatment and are qualified (66.4%).* ***Conclusion:*** *Based on the results of the chi-square test, the factor that has a significant relationship with the use of insecticide-treated mosquito nets in Nolokla Village is treatment (p-value = 0.000; PR=9.125) and knowledge (p-value=0.005; PR=4,737). A factor that has no relationship with the use of insecticide-treated mosquito nets in Nolokla Village is education (p-value = 0.233; PR=2.813), occupation (p-value=0.299; PR=1.868), and gender (p-value=0.363; PR=0.555).*
Keywords: Insecticide-Treated Mosquito Net; Knowledge; Treatment;

How to Cite **Nursyah Fitriana, Dolfinus Yufu Bouway, Inriyanti Assa/Study of the Use of Insecticide-Treated Mosquito Nets in Nolokla Village, Jayapura Regency, Vol. 2, No. 7, 2023**
DOI https://doi.org/10.54543/kesans.v2i7.167
e-ISSN/p-ISSN **2808-7178 / 2808-7380**
Published by **Rifa'Isntitute**

Introduction

Malaria is an infectious disease, caused by malaria parasites (*plasmodium*) transmitted by malarial mosquitoes of the Anopheles type (Puasa &; Kader, 2018). Malaria is transmitted through the bite of a female *Anopheles* mosquito from a sick person to a non-sick person, a person who is sick with malaria can be a source of malaria transmission (Harijanto, 2000)

Based on data from the Ministry of Health, around 86% of malaria cases occurred in Papua Province with 216,380 cases in 2019. Followed by East Nusa Tenggara Province with 12,909 cases and West Papua Province with 7,079 cases (Mofu, 2022). However, there are still high endemic areas in central Indonesia, precisely in North Market Penajaman Regency, East Kalimantan Province (Ministry of Health of the Republic of Indonesia, 2020).

The mosquito nets distributed are insecticide-treated mosquito nets or *Long Lasting Insecticide Net* (LLIN) which are effectively used and protect the community from malaria transmission for 3 years (Indriyati et al., 2016). This mosquito net contains insecticides that are mixed or wrapped into fibers (Simanjorang &; Kodim, 2017). Until now, there are eight districts in Papua whose *Annual Parasite Incidence* (API) rate reaches 67%, namely in Jayapura, Keerom, Sarmi, Boven Digoel, Yapen Islands, Mimika, Asmat, and Mamberamo Raya Regency (Dinkes Papua, 2020) in (Kalsum et al., 2018)

Nolokla Village has the highest number of positive cases among 6 other villages, namely Nendali, Ayapo, Asei Besar, Asei Kecil, Puay and Yokiwa located in the working area of the Puskesmas Harapan. The total positive cases are 9.92% of malaria cases from the total population living in Nolokla village, which is 27.59% of people. So, one of the efforts of the local government by distributing 1588 pieces of insecticide-treated mosquito nets to Nolokla village.

Through this effort, it is hoped that every mosquito net distributed can be used and treated properly, so that mosquito nets can provide good effectiveness in reducing the number of malaria cases in Jayapura Regency. Therefore, researchers are interested in conducting research on the Study of the Use of Insecticidal Nets in Nolokla Village, Jayapura Regency.

Method

The research design is *cross-sectional* analytics. It was carried out in October 2021, located in Nolokla Village, Jayapura Regency. With the population for all recipients of insecticide-treated mosquito nets in Nolokla Village amounting to 690 households. Samples were taken randomly with *a simple random sampling* technique totaling 116 households. Research using questionnaire measurement tools and analysis tests using *chi-square tests.*

Result and Discussion

Result

Table 1
Frequency Distribution Characteristics of respondents in Nolokla Village, Jayapura Regency

No	Variable	Frequency (n=116)	Percentage (100%)
1	**Gender**		
	Man	29	25.0
	Woman	87	75.0
2	**Education**		
	No school	4	3.4
	ES	3	2.6
	JHS	5	4.3
	SHS	75	64.7
	Diploma	4	3.4
	Undergraduate/Post graduate	25	21.6
3	**Work**		
	Civil Severant/Military/Police	37	31.9
	Self employed	43	37.1
	Farmer/Fisherman/Laborer	18	15.5
	Does not work	18	15.5
4	**Knowledge**		
	Good	99	85.3
	Enough	10	8.6
	Less	7	6.0
5	**Use**		
	Yes	99	85.3
	Do not	17	14.7
6	**Therapy**		
	Qualify	77	66.4
	Not eligible	39	33.6

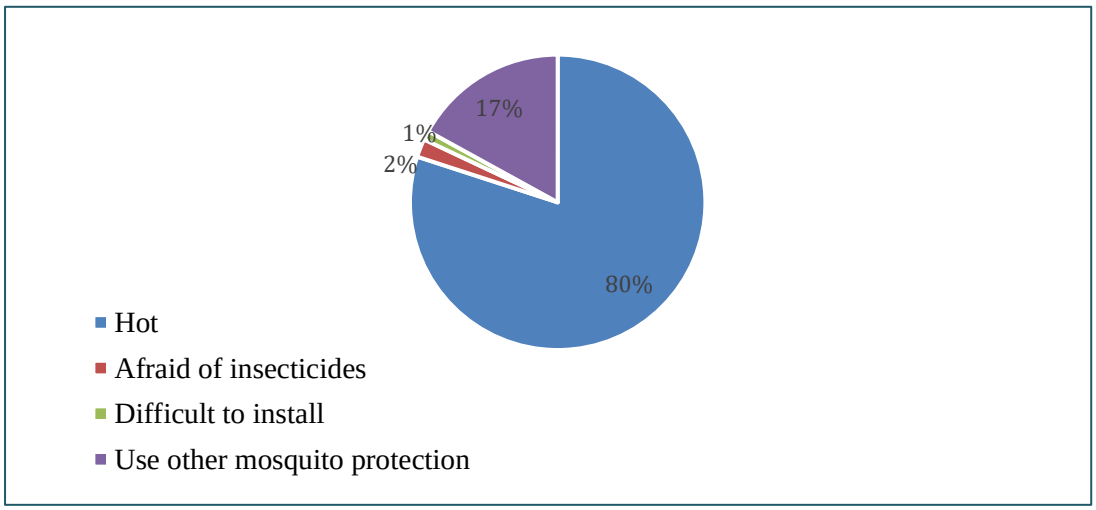

Figure 1
Reasons not to use insecticide-treated mosquito nets

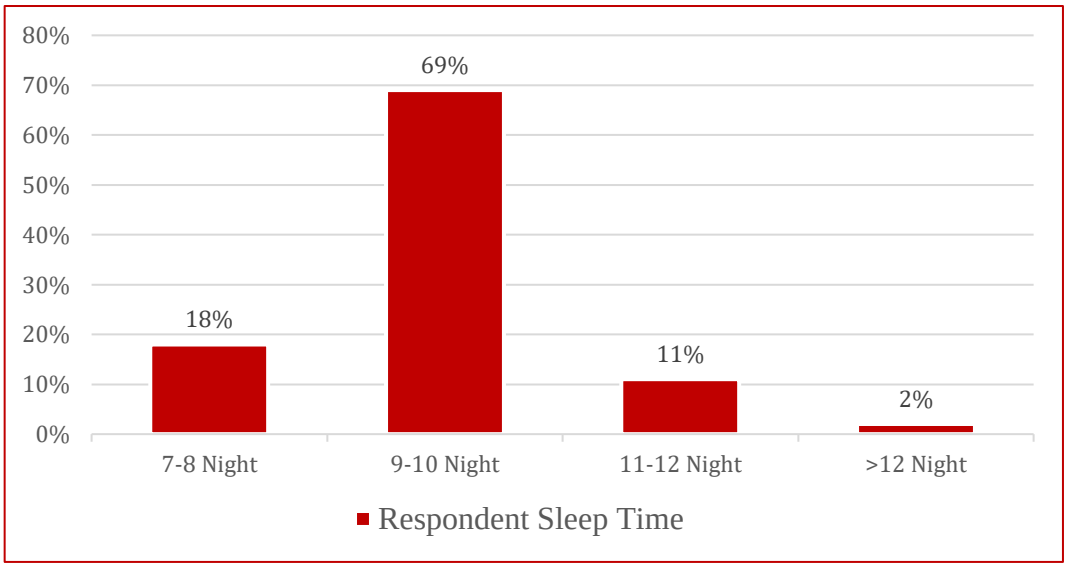

Figure 2
Sleep hours of respondents in Nolokla Village Area

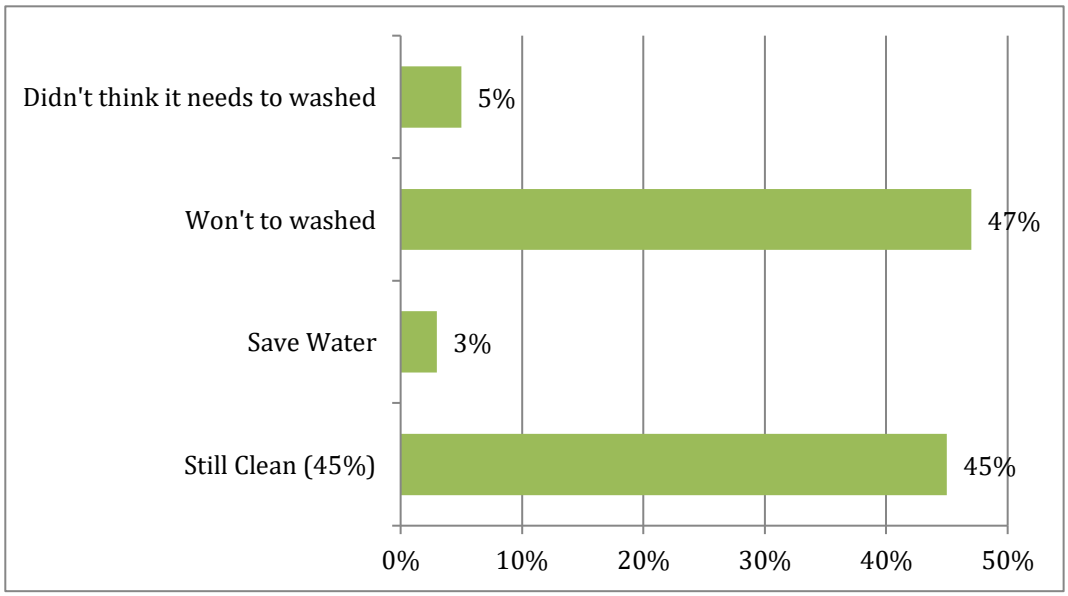

Figure 3
Reasons respondents do not wash mosquito nets

Bivariate Analysis

The results of the *chi-square* test stated that the factors that had a relationship with the use of insecticide-treated mosquito nets in Nolokla Village were Knowledge (p-value 0.005) and Treatment (p-value 0.000). Meanwhile, factors that did not have a relationship were gender (p-value 0.363), education (p-value 0.233), and occupation (*p-value* 0.299).

Table 2
Relationship between sex and use of insecticide-treated nets in Nolokla Village, Jayapura Regency

Gender	Use of insecticide-treated mosquito nets				Total		P-*Value*	PR 95% Cl
	Yes		Do not					
	n	%	N	%	n	%		
Man	23	79.3	6	20.7	29	100	0.363	0.555 (0.185-1.665)
Woman	76	87.4	11	12.6	87	100		

Table 3
The relationship between education and the use of insecticide-treated mosquito nets in Nolokla Village, Jayapura Regency

Education	Use of insecticide-treated mosquito nets				Total		P-*Value*	PR 95% Cl
	Yes		Do not					
	n	%	n	%	n	%		
Higher Education	27	93.1	2	6.9	29	100	0.233	2.813 (0.603-13.123)
Lower Education	72	82.8	15	17.2	87	100		

Table 4
Occupational Relationship with the use of insecticide-treated mosquito nets in Nolokla Village, Jayapura Regency

Work	Use of insecticide-treated mosquito nets				Total		P-*Value*	PR 95% Cl
	Yes		Do not					
	n	%	n	%	n	%		
Work	85	86.7	13	13.3	98	100	0.299	1.868 (0.532-6.554)
Not Working	14	77.8	4	2.6	18	100		

Table 5
Knowledge Relationship with the Use of Insecticidal Nets in Nolokla Village, Jayapura Regency

Knowledge	Use of insecticide-treated mosquito nets				Total		P-*Value*	PR 95% Cl
	Yes		Do not					
	n	%	n	%	n	%		
Good	80	90.9	8	9.1	88	100	0.005	4.737 (1.615-13.889)
Less	19	67.9	9	32.1	28	100		

Table 6
Treatment relationship with the use of insecticide-treated mosquito nets in Nolokla Village, Jayapura Regency

Therapy	Use of insecticide-treated mosquito nets				Total		P-*Value*	PR 95% Cl
	Yes		Do not					
	n	%	n	%	n	%		
Qualify	73	94.8	4	5.2	77	100	0.000	9.125 (2.730-30.501)
Not eligible	26	66.7	15	33.3	39	100		

Discussion

The participation of respondents in Nolokla Village, Jayapura Regency in this study amounted to 116 people with the number of female respondents (75.0%) more than male respondents (25.0%). On average, respondents who have taken the last high school education or equivalent are 75 respondents (64.7%) and respondents who have a higher level of education, namely Diploma, there are 4 respondents (3.4%) and respondents who study at S1 / S2 / S3 universities there are 25 respondents (21.6%). Most respondents in Nolokla Village have good knowledge regarding insecticide-treated mosquito nets (85.3%). However, there are still some respondents who do not know the correct and qualified use of mosquito nets.

The results of the *chi-square* test showed no relationship between sex and the use of insecticide-treated mosquito nets. This research is in line with research (Daulay, 2016) which shows that the female population is more dominant than men, in addition to the fact that men in the area are working, other observations illustrate that the female population uses mosquito nets more often and is more enthusiastic about participating in meeting programs than men.

The results of the chi-square test showed that there was no relationship between education and the use of insecticide-treated mosquito nets. This study is in line with research (Septiyani et al., 2018) which shows that there is no relationship between education and the use of insecticide-treated mosquito nets.

The chi-square test showed that there was no relationship between work and the use of insecticide-treated mosquito nets. Where respondents who have jobs and use insecticide-treated mosquito nets as many as 85 respondents (86.7%) and respondents who do not work and use mosquito nets as many as 14 respondents (77.8%). This is in line with research with research by Iqbal Aryo (2015) which showed the results of analysis tests that there was no relationship between work and the use of insecticide-treated mosquito nets.

The factors that have a relationship with the use of insecticide-treated mosquito nets in this study are knowledge and treatment of mosquito nets. There are several ways respondents in Nolokla village to prevent malaria, on average, answered by using insecticide-treated mosquito nets while sleeping at night, and respondents also answered the use of mosquito nets to prevent contact with malaria mosquitoes and insecticides function to kill malaria mosquitoes.

Knowledge is indeed the most underlying risk factor for health behavior change, but sometimes even though respondents know about insecticide-treated mosquito nets, they do not necessarily want to carry it out in the form of preventive measures, especially using insecticide-treated mosquito nets. Another study that is in line, Teisly (2018) with a *p-value* of 0.000 shows that there is a meaningful relationship between knowledge and the use of mosquito nets.

Respondents who have good knowledge can influence in using mosquito nets. One of the factors that influence respondents to prevent malaria is the level of knowledge that respondents have. This is in accordance with the theory put forward by Lawrence Green that knowledge is one of the determining factors for a person's behavior.

There are some people who do not really understand how to care for mosquito nets that meet these requirements because there is still uneven provision of information/socialization about good and correct mosquito net care by local health workers.

The results of another study that is in line with the use of mosquito nets in Bangka Regency also emphasizes the importance of socialization and counseling on the use of mosquito nets in the community, because the lack of socialization of the use of mosquito nets is well and correctly shown by the results of his research.

Conclusion

The average respondent in Nolokla village is a woman with the most education, namely high school and has a job as an entrepreneur. The results of the *chi-square* test in this study showed factors that had no relationship with the use of insecticide-treated mosquito nets, namely gender, education, and occupation. Meanwhile, the results of the *chi-square* test that show factors associated with the use of insecticide-treated mosquito nets are knowledge, and treatment of insecticide-treated mosquito nets.

It is recommended to the leaders of relevant agencies to further improve information and services to provide socialization to the community in the Jayapura Regency Area, especially in Nolokla Village, Jayapura Regency. From the results of the study, there are still people who do not understand and understand how to use insecticide mosquito nets properly and correctly. People complained that the frequent distribution of mosquito nets was carried out but sometimes without information on counseling on the use of insecticide-treated mosquito net in accordance with the procedures of the Ministry of Health.

Reference

Daulay, A. A. M. (2016). *Kontribusi Pendapatan Tenaga Kerja Wanita Pada Usaha Pembuatan Tempe Terhadap Pendapatan Keluarga (Studi Kasus: Kelurahan Tanjung Sari, Kecamatan Medan Selayang)*. Universitas Sumatera Utara.

Harijanto, P. N. (2000). Malaria: epidemiologi, patogenesis, manifestasi klinis, dan penanganan. *Jakarta: Penerbit Buku Kedokteran EGC*.

Indriyati, L. Yuana, W. T. (2016). Kepemilikan, penggunaan dan perawatan kelambu berinsektisida tahan lama oleh rumah tangga di daerah endemis malaria Kabupaten Kotabaru Propinsi Kalimantan Selatan. *Journal of Health Epidemiology and Communicable Diseases*, *1*(1), 8–13.

Kalsum, U. Wulandari, A. (2018). Determinan yang Berhubungan dengan Kejadian Malaria di Indonesia Tahun 2016. *Jurnal Kesmas Jambi*, *2*(1), 81–91.

Mofu, R. M. (2022). Faktor Dominan Kejadian Malaria pada Masyarakat di Kampung Sosiri Distrik Waibu, Kabupaten Jayapura Tahun 2020. *Bidan Prada*, *13*(1).

Puasa, R., & Kader, A. (2018). Identifikasi Plasmodium Malaria Didesa Beringin Jaya Kecamatan Oba Tengah Kota Tidore Kepulauan. *Jurnal Riset Kesehatan*, *7*(1), 21–24.

Septiyani, D. D. Udiyono, A. (2018). GAMBARAN PENGETAHUAN, SIKAP, DAN PERILAKU PEMAKAIAN KELAMBU BERINSEKTISIDA TAHAN LAMA (KBTL)(STUDI DI WILAYAH KERJA PUSKESMAS KALIGESING KABUPATEN PURWOREJO). *Jurnal Kesehatan Masyarakat (Undip)*, *6*(5), 259–266.

Simanjorang, C., & Kodim, N. (2017). Pengetahuan dan Kepatuhan Penggunaan Kelambu Berinsektisida di Wilayah Kerja Puskesmas Manalu Kabupaten Kepulauan Sangihe Provinsi Sulawesi Utara. *Jurnal Ilmiah Sesebanua*, *1*(1), 20–24.