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THE RELATIONSHIP OF OUTSIDE HOUSE ACTIVITIES AT NIGHT AND THE USE OF NETS WITH THE EVENT OF MALARIA IN SIBOLGA UTARA DISTRICT YEAR 2021

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ABSTRACT

Malaria is an infectious disease that is still an important problem in Indonesia, especially in achieving the goal of a Malaria-free Indonesia in 2030 through the program to eradicate malaria again. The prevalence of malaria in Indonesia is still quite high, 2.9% of the total population of Indonesia. Meanwhile in Riau Islands Province, the prevalence is 1.4% and in Batam City 1.1%. The existence of breeding places in the form of water puddles ex-sand excavations, lakes, sewers that do not flow, ponds that are not maintained, which are widely available in Batam are supporters of malaria. The habit of residents doing activities outside the house at night and self-protection by using speech nets affects the incidence of malaria in Batam City. This study aims to determine the relationship between activities outside the house at night to the incidence of malaria and the relationship between the use of mosquito nets to the incidence of malaria that occurred in the district of South Sibolga and its impact on the community. This study used a case-control design, where cases were malaria sufferers found during a mass blood survey, and controls were taken from the same activity. The risk factor data used primary data obtained from interviews with case and control respondents. From the results of the study, it was found that respondents who did activities outside the house at night were at risk of suffering from malaria by 2.6 times (ORcrude = 1.623; ORadjusted = 2.578) compared to respondents who did not go out of the house at night after being controlled by the variables of age, gender. , use of mosquito nets and use of mosquito repellent. The impact caused by activities outside the house at night in the population is 29%. Meanwhile, respondents who do not use mosquito nets at night are at risk of suffering from malaria by 2.3 times compared to those who use mosquito nets (ORcrude = 1,629; ORadjusted = 2,313) after being controlled by the variable length of stay, activities outside the house at night and the use of mosquito repellent. The impact on the population is 47%. To reduce the incidence of malaria, it is necessary to increase the coverage of the use of mosquito nets by distributing insecticide-treated mosquito nets, counseling on the use of long-sleeved clothes and topical mosquito repellent when outside the home.

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1. Introduction

Malaria is an infectious disease that has long been known throughout the world. Records of malaria found in China state that since 2700 BC, malaria sufferers have been found. Likewise with the documentation made by Homer, Aristotle, Plato, Socrates, Chaucer, Pepys, and Shakespeare. Knowledge that malaria is caused by a parasite that infects red blood cells and is transmitted

between humans through mosquito bites has been known for more than 100 years. In 1902, Ronald Ross was awarded the Nobel Prize in medicine for his work in observing malaria and its transmission cycle (Nelson & Williams, 2007).

Malaria is an infectious disease caused by the Plasmodium parasite which is transmitted from human to human through the bite of the Anophelin mosquito (WHO, 2007). Malaria attacks humans, birds, monkeys, and other primates, reptiles and rodents, which is caused by protozoa of the genus Plasmodium and is easily recognized by the symptoms of chills (chills and chills) and prolonged fever ("Malaria", 2007, p. 46). There has been no indication of direct human-to-human transmission of malaria.

Sibolga City is a malaria endemic area with a prevalence rate of 1.41%. This figure has indeed decreased compared to previous years, but it is still a big problem, where the prevalence is still quite high compared to the Java-Bali region (≤ 0.5%) (Riskesdas, 2007).

The high prevalence of clinical malaria is certainly a problem for the development of the city of Batam, which relies on the economy in terms of industry and tourism. Investors and tourists will think twice about visiting Batam because of their concerns about the transmission of malaria which is classified as a re-emerging disease.

According to a peripheral blood survey (Mass Blood Survey / MBS) conducted in the sub-district of south sibolga, in 2021, it was found that 86 out of 102 people who had never experienced symptoms of malaria and had their peripheral blood taken, were declared positive for Plasmodium. While the results of the peripheral blood examination at the 2019 MBS activity, from 3,474 people whose blood samples were examined through the RDT and microscopic methods, 218 were positive for malaria, consisting of 112 positive Plasmodium falciparum, 83 positive Plasmodium vivax, and 23 Mix cases. From these figures, it is clear that the danger that is not realized due to malaria transmission by sufferers is still very large.

One of the most effective efforts to prevent malaria is the use of mosquito nets. Over the last ten years, experimental studies using insecticide-treated bed nets (ITNs) in different regions of Africa have shown that the use of mosquito nets can reduce the incidence of malaria at the transmission stage, clinical disease, and death in children. Overall, at the Abuja high-level meeting in 2000, 44 countries on the African continent even set a target of reducing the incidence of malaria by 60%, especially in pregnant women and children under the age of 5 years (Nelson & William, 2007).

Therefore, researchers are interested in conducting a research entitled the relationship of outside house activities at night and the use of monets with the event of malaria in the sub-district of north sibolga in 2021.

2. Research Methods

2.1 Research Design

This study used a Case-Control study design (case-control). A case-control study is a type of retrospective study that begins with an assessment of the patient (case) and identifies controls who are not sick. Case-control was chosen because of several advantages, including the research costs are relatively not too large and the research subjects needed are not too many. Case-control studies also make it possible to observe more than one etiologic factor and explain the interactions between these factors.

2.2 Population and Sample

Using the microscopic examination method and was declared negative for malaria or did not contain Plasmodium. The minimum total number of controls (population) in this study was 250 respondents and the sample in this study was 102 people.

2.3 Analysis Techniques

This research is a type of analytic epidemiological research with a case-control design using secondary data from the results of MBS activities carried out by the Sibolga City Health Service for the period May to November 2020 and primary data from interviews with respondents using

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questionnaires to obtain behavioral data and individual characteristics of respondents. consists of total cases and selected controls.

3. Result And Discussion

Bivariate analysis is useful for selecting variables that become candidate models in multivariate analysis. The variables that will be included in the multivariate analysis are variables that have a p-value of the Wald test <0.25 in the basic logistics model.

TABLE 1
RESULTS OF BIVARIATE ANALYSIS BETWEEN OUTDOOR ACTIVITIES AT NIGHT AND USE OF MOSQUITO NETS WITH MALARIA INCIDENCE AND EXTERNAL VARIABLES ON MALARIA INCIDENCE IN NORTH SIBOLGA DISTRICT IN 2021

No.	Nama Variabel	Kasus		Kontrol		p-value	OR	95% CI	
		n = 143	%	n = 457	%			Lower	Upper
1	night out	52	36,36%	119	26,04%	0,023	1,623	1,088	2,421
2	use of mosquito nets	110	76,92%	307	67,18%	0,035	1,629	1,054	2,517
3	Age	89	62,24%	206	45,08%	0.000	2,008	1,366	2,951
4	Gender	71	49,65%	195	42,67%	0,171	1,325	0,909	1,931
5	level of education	114	79,72%	362	79,21%	0,239	1,352	0,857	2,133
6	Profession	26	18,18%	95	20,79%	0,577	0,847	0,523	1,370
7	Long Live	18	12,59%	25	5,47%	0,007	2,488	1,315	4,708
8	How to dress	65	45,45%	138	30,20%	0,001	1,926	1,311	2,831
9	Use of Anti-Mosquito Drugs	67	46,85%	167	36,54%	0,035	1,531	1,047	2,238
10	House Construction	126	88,11%	399	87,31%	0,913	1,077	0,605	1,917
11	Mosquito Screen	140	97,90%	452	98,91%	0,620	0,516	0,122	2,187
12	The Presence of a Parenting Place	89	62,24%	212	46,39%	0,001	1,905	1,296	2,799
13	The Presence of Big Cattle	92	64,34%	239	52,30%	0,015	1,645	1,116	2,426
14	Knowledge	38	26,57%	123	26,91%	1,000	0,983	0,643	1,503

The Relationship of Outdoor Activities at Night with Malaria Incidence. The relationship between activities outside the house at night by someone starting at 18.00 – 06.00 WIB, has a significant relationship with the incidence of malaria (p = 0.019; OR = 1.623; 95%CI = 1.088 - 2.421). People who are active outside the house at night have a risk of contracting malaria by 1.6 times compared to people who do not work outside the house at night. Relationship between the use of mosquito nets and the incidence of malaria.

There was a significant relationship between the use of mosquito nets and the incidence of malaria (p = 0.025; OR = 1.629; 95%CI = 1.054 – 2.517). Respondents who do not use mosquito nets at night are at risk of developing malaria 1.6 times compared to respondents who use mosquito nets.

Relationship of External Variables with Malaria Incidence. Respondents' age was divided into 2 categories, namely productive 15-64 years, and unproductive (< 15 years and > 64 years). From table 1. it was found that the age group was significantly related (p = 0.000) with the incidence of malaria. The conclusion of the results obtained is that the age group has a significant relationship and is included in the multivariate analysis model.

From table 1. it can be concluded that the respondent's gender was statistically significant for the incidence of malaria (p=0.143; OR=1.325; 95%CI = 0.909 – 1.931). The conclusion of the results obtained is that gender has a significant relationship and is included in the multivariate analysis model.

The relationship between education level and the incidence of malaria did not show a statistically significant relationship (p = 0.239; OR = 1.352; 95%CI = 0.857 – 2.133). The conclusion of the results obtained is that the level of education is statistically related to the incidence of malaria and is included in the multivariate analysis model.

The relationship between types of work at risk (farmers, fishermen, laborers, night watchmen) and jobs that are not at risk did not have a statistically significant relationship (p = 0.494; OR = 0.847; 95% CI = 0.523 – 1.370). This shows that the type of work is not statistically related to the incidence of malaria and is not included in the multivariate analysis model.

The length of time a person lives in a certain area has a significant relationship with the risk of malaria incidence (p = 0.007; OR = 2.488; 95%CI = 1.315 – 4.708). This shows that the length of

stay has a significant relationship and is included in the multivariate analysis model.
The relationship between the way a person dresses using long sleeves and long pants when leaving the house at night has a statistically significant relationship with the incidence of malaria suffered (p = 0.001; OR = 1.926; 95%CI = 1.311 – 2.831). The conclusion of the results obtained is that the way of dressing has a significant relationship and is included in the multivariate analysis model.
The relationship between the use of mosquito repellent by a person and the incidence of malaria has a statistically significant relationship (p = 0.028; OR = 1.531; 95%CI = 1.047 – 2.238), which means that the use of mosquito repellent has a significant relationship and is included in the model. multivariate analysis.

The relationship of house construction which was assessed as risky to the incidence of malaria was not statistically related to the incidence of malaria (p = 0.799; OR = 1.077; 95%CI = 0.605–1.917). The data shows that house construction is not statistically related and is not included in the next analysis model.

The relationship between mosquito netting and the incidence of malaria did not have a significant relationship with the incidence of malaria (p = 0.385; OR = 0.516; 95%CI = 0.122–2.187). The data showed that the installation of mosquito netting was not statistically related and was not included in the next model.
There was a significant relationship between the presence of breeding sites and the incidence of malaria (p = 0.001; OR = 1.905; 95%CI = 1.296 – 2.799). The conclusion obtained is that the existence of breeding places has a significant relationship and is included in the multivariate analysis model.

The absence of large livestock in the environment around the house has a significant relationship with the incidence of malaria (p = 0.011, OR = 1.645, 95%CI = 1.116 – 2.426). The data showed that the presence of large livestock had a statistically significant relationship and was included in the multivariate analysis model.

The relationship between respondents' knowledge about malaria, its prevention and treatment is not statistically related to the incidence of malaria (p = 0.936; OR = 0.983; 95%CI = 0.643 – 1.503), and does not need to be included in the next analysis model.

4. Conclusion

The absence of large livestock in the environment around the house has a significant relationship with the incidence of malaria (p = 0.011, OR = 1.645, 95%CI = 1.116–2.426). The data showed that the presence of large livestock had a statistically significant relationship and was included in the multivariate analysis model. The relationship between respondents' knowledge about malaria, its prevention and treatment is not statistically related to the incidence of malaria (p = 0.936; OR = 0.983; 95%CI = 0.643 – 1.503), and does not need to be included in the next analysis model.

References

Achmadi, Umar Fahmi, 2008, Manajemen Penyakit Berbasis Wilayah, Penerbit Universitas Indonesia (UI-Press), Jakarta

Bendru, Adny, 2006, Hubungan Kondisi Rumah Tempat Tinggal dan Kebiasaan Penduduk di Luar Rumah pada Malam Hari dengan Kejadian Malaria Masyarakat Usia 15 – 55 Tahun di Pesisir Pantai Kota Bengkulu Tahun 2006, [Thesis], Program Pascasarjana FKM Universitas Indonesia Program Studi Ilmu Kesehatan Masyarakat, Depok.

Centers for Diseases Control and Prevention. 2004, The History of Malaria, an Ancient Disease, Departemen of Health and Human Service, Content source : Division of Parasitic Diseases National Center for Zoonotic, Vector-Borne, and Enteric Diseases (ZVED), Page last modified : April 23, 2004, http://www.cdc.gov [17 Februari 2009]

Centers for Diseases Control and Prevention. 2004a, The Impact of Malaria, a Leading Cause of Death Worldwide, Content source : Division of Parasitic Diseases National Center for Zoonotic, Vector-Borne, and Enteric Diseases (ZVED), Page last modified : September 13, 2004, http://www.cdc.gov. [17 Februari 2009]

Centers for Diseases Control and Prevention. 2006, Disease, Content source : Division of Parasitic Diseases National Center for Zoonotic, Vector-Borne, and Enteric Diseases (ZVED), Page last modified : September 21, 2006, http://www.cdc.gov [17 Februari 2009]

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Centers for Diseases Control and Prevention, 2005, Fighting Malaria in Tanzania, Content source : Division of Parasitic Diseases National Center for Zoonotic, Vector-Borne, and Enteric Diseases (ZVED), Page last modified : Juli 26, 2005, http://www.cdc.gov [17 Februari 2009]

Centers for Diseases Control and Prevention. 2004b, Epidemiology, Content source : Division of Parasitic Diseases National Center for Zoonotic, Vector-Borne, and Enteric Diseases (ZVED), Page last modified : April 23, 2004, http://www.cdc.gov. [17 Februari 2009]

Centers for Diseases Control and Prevention. 2009, Malaria Control in Endemic Countries, Content source : Division of Parasitic Diseases National Center for Zoonotic, Vector-Borne, and Enteric Diseases (ZVED), Page last modified : January 8, 2009, http://www.cdc.gov [19 Maret 2009]

Cook, Gordon C. & Zumla, Alimuddin I., 2009, Manson's Tropical Diseases, 22nd edition, Saunders Elsevier, Philadelphia.

Dahlan, M. Sopiyudin, 2009, Besar Sampel dan Cara Pengambilan Sampel dalam Penelitian Kedokteran dan Kesehatan,, edisi 2, Salemba Medika, Jakarta

Depkes RI, 1999, Epidemiologi Penyakit Malaria,, Direktorat Jenderal Pemberantasan Penyakit Menular dan Penyehatan Lingkungan Pemukiman, Departemen Kesehatan RI, Jakarta.

Depkes RI, 2001, Pedoman Teknis Klinik Sanitasi Untuk Puskesmas, Ditjen PPM dan PL, Jakarta.

Depkes RI, 2001, Pedoman Ekologi dan Aspek Perlaku Vektor, Ditjen PPM dan PL, Jakarta

Depkes RI, 2003, Modul Epidemiologi Malaria, Direktorat Jenderal Pemberantasan Penyakit Menular dan Penyehatan Lingkungan Pemukiman, Departemen Kesehatan RI, Jakarta

Depkes RI, 2006, Pedoman Surveilans Malaria, Direktorat Jenderal PP dan PL, Direktorat Pengendalian Penyakit Bersumber Binatang, Jakarta.