

The Correlation Between Sociodemographic Status, Attitudes, and Family Behavior with the Status of PSN (Eradication of Mosquito Breeding Sites) Regularity of Endemic Dengue Fever in the Area of Purwokerto Barat

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ABSTRACT

Background: Dengue Fever (DF) is an endemic disease in Indonesia, especially in tropical climate regions, and remains a significant public health issue. The cases of DF from 2019 to 2022 have shown fluctuating trends. Dengue fever prevention involves efforts such as the Eradication of Mosquito Breeding Sites (PSN), where the success of PSN is measured by the Larval Free Index (LFI), aiming to achieve the government target of LFI 95%. Method: This study employed a quantitative research approach with a correlational design using a cross-sectional approach. The study population in West Purwokerto. The sample was 110 respondents using the Lemeshow formula. The instrument included a questionnaire sheet and was analyzed using the Chi-square test. Results: The majority of respondents are around 45 years old with a regular PSN status (58.2%), have a high school education (56.4%), are unemployed (62.7%), have a low income (53.6%), and exhibit infrequent mobility (84.5%). The respondents generally display positive attitudes (90%) and good family behavior (59.1%). The findings indicate a correlation between sociodemographic factors such as age ($p=0.020$), education ($p=0.001$), occupation ($p=0.03$), household income ($p=0.035$), but no correlation with mobility ($p=0.187$), and the status of PSN regularity. There is a correlation between attitudes ($p=0.026$) and family behavior ($p=0.0001$) with the status of PSN regularity in the West Purwokerto Region. Conclusion: There is a correlation between sociodemographic factors, including age, education, occupation, household income, and the status of PSN regularity. There is a relationship between attitudes and family behavior with the status of PSN regularity.

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1. INTRODUCTION

Dengue Hemorrhagic Fever (DHF) is a condition caused by the dengue virus which is transmitted through the aedes aegypti or aedes albopictus mosquito which often appears in tropical climates, with high rainfall, and hot and humid temperatures. Aedes mosquitoes breed in stagnant water and places that are at risk of waterlogging

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can become breeding grounds. Apart from climate and environmental elements, studies also show that mobility, population density, and community behavior also influence the spread of dengue fever. These factors are the basis for efforts to prevent and control the spread of dengue disease [1]. WHO reported that dengue disease has increased 8 times in the last 4 years. In 2019, the number of cases increased from 505,000 to 4.2 million. [2]

DHF is an endemic disease in Indonesia and is still a major public health problem. Based on reports from the Indonesian Ministry of Health, in 2021 there will be around 73,518 cases of Dengue Hemorrhagic Fever in Indonesia with an IR rate of around 27 per 100,000 population which shows a morbidity rate of around 32.5%. The national CFR is 0.96%, which was lower than the national target of ≤ 49 per 100,000 population. The latest data from the Directorate of Infectious Disease Prevention and Control (P2PM) as of the week 38th in January 2022 recorded the cumulative number of confirmed cases of dengue reached 93,203 cases (IR 33.91/100,000 population) with 849 deaths (CFR 0.91%) [1]

Central Java Province is one of the endemic areas that is at high risk of dengue disease. Based on data from the Central Java Health Office (2021), the dengue morbidity rate per 100,000 population reaches 12.80% [3]. In Banyumas, the dengue morbidity rate per 100,000 in 2019, 2020, 2021 respectively reached 11.99%; 21.3%; 15.20%. From these data, it shows that the number of dengue cases fluctuates. The distribution of dengue cases is spread in several areas in Banyumas, especially in dengue endemic areas, one of which is in the West Purwokerto region. Based on data from the Banyumas Health Office (2022), the West Purwokerto region is one of the dengue endemic areas with the highest dengue cases, reaching 25 cases with 1 death [4]

The spread of dengue fever in Indonesia is caused by factors that support its spread, such as the environment, agents and hosts. To anticipate an increase in dengue cases of dengue fever in endemic areas, the government is promoting the PSN (Mosquito Nest Eradication) program[5]. Effort to prevent Dengue Hemorrhagic Fever (DHF) are driven by Mosquito Nest Eradication Activities (PSN). The Larvae Free Rate (ABJ) is used as an indicator to measure the success of PSN and early prevention by ensuring that there are no aedes larvae in the houses. The achievement of ABJ scores $\geq 95\%$ is the main target of dengue control programs in Indonesia to reduce the transmission and impact of this disease. The regularity of PSN can be seen in ABJ (Flick Free Number), areas with ABJ $\geq 95\%$, it is said that the PSN is regular and if ABJ is $< 95\%$, it can be said that the PSN is irregular [6]

According to researchers Atika and Zaman (2021), Hermawan and Hananto (2020), Agustina (2019) stated that behavior, education level, occupation, age, income have a significant relationship with the incidence of Dengue Hemorrhagic Fever.[7][8][9]

This study aims to determine the relationship between sociodemographic status, family attitudes and behavior with the PSN regularity status of dengue fever endemic areas in the West Purwokerto region.

2. RESEARCH METHOD

This research uses a quantitative type of research with a correlation studies with a cross sectional approach. The population from PSN Recapitulation data in community groups living in dengue endemic areas with the highest percentage of ABJ ($> 95\%$) and the lowest percentage of ABJ ($< 95\%$), based on the government target (ABJ $> 95\%$), of the 153 houses that tested positive for larvae, there were 68 houses in Rejasari Village (ABJ=96.43%) and 111 houses in Pasir Kidul Village (ABJ=94.59%). Samples using purposive sampling were obtained by 110 respondents with the Lemeshow formula. Data collection was carried out using a questionnaire sheets and recapitulation of PSN results was obtained using the validity test results of 23 questions, of which only 21 questions were declared valid (> 0.444) and rehabilitation test results used split half technique (> 0.444). The data was analyzed using spss tools using Chi-square and Prevalence Ratio (RP) tests. The study was conducted from June to July 2023 in Pasir Kidul and Rejasari Villages in West Purwokerto District, Banyumas Regency to determine whether there is a relationship between Sociodemographic Status, Family Attitudes and Behavior towards PSN Regularity Status ($p < 0.05$).

The research was carried out in accordance with the research code of ethics with registration number: KEPK/UMP/30/VI/2023, issued by Uninvestisy Muhammadiyah Purwokerto, so that the research can be recognized as correct.

3. RESULT AND DISCUSSIONS

Table 1. Sociodemographic Status of respondents based on Age, Education, Occupation, Income, and Mobility to PSN Regularity Status

Status Sosiodemografi	Regularity Status						<i>p-value</i>	RP (95%CI)
	Irregular		Regularity		Total			
	n	%	n	%	n	%		
Age ≥ 45 years old	38	59,4	26	40,6	64	100	0,020	1,607 (1,047-2,466)

Status	Regularity Status						p-value	RP (95%CI)
	Irregular		Regularity		Total			
Sosiodemografi	n	%	n	%	n	%		
< 45 years old	17	37,0	29	63,0	46	100		
Education								1,938
< High School	33	68,8	15	31,3	48	100	0,001	(1,317-2,850)
≥ High School	22	35,5	40	64,5	62	100		
Employment Status								0,631
Work	15	36,6	26	63,4	41	100	0,03	(0,402-0,990)
Not Working	40	58,0	29	42,0	69	100		
Income								1,513
< Rp 1.970.000	35	59,3	24	40,7	59	100	0,035	(1,012-2,261)
≥ Rp 1.970.000	20	39,2	31	60,8	51	100		
Mobility								1,368
> 4x/week	11	64,7	6	35,3	17	100	0,187	(0,906-2,064)
≤ 4x/ week	44	47,3	49	52,7	93	100		
Total	55	50,0	55	50,0	110	100		

*RP(95%)CI= to measure the prevalence of diseases or conditions between two different groups. RP is calculated using OR or RR with a 95% confidence level.

Based on table 1, most respondents in general are aged ≥ 45 years by 64 respondents (58.2%), high school \geq education level by 62 respondents (56.4%), the majority of unemployed employment status by 69 respondents (62.7%), income less than MSEs by 59 respondents (53.6%) and mobility less than 4 times as many as 93 respondents (84.5%). While some respondents in the irregular PSN group are mostly over 45 years old (59.4%), have low education (68.8%), are not working (58%), and low-income level (59.3%) with high or frequent mobility (64.7%). While in the regular PSN group the majority of respondents are young or less than 45 years old (63%), higher education level (64.5%), have a job (63.4%), with high income (60.8%) and low or not frequent mobility (52.7%). The magnitude of the risk of PSN regularity status can be seen from the results of RP (95% CI). In the age variable RP = 1.607 (1.047-2.466), compared to younger respondents, older respondents lowered the risk of regularity to perform PSNs 1,607 times. In the education variable RP = 1,938 (1,317-2,850), compared to respondents with higher education levels, education at risk of regularity conducts PSN 1,938 times.. In the job variable RP = 0.631 (0.402-0.990) compare to respondent who have work, respondent who did not work decreased the risk of the regularity for doing PSN 0.631 times.

According to Tomia (2020) states that there is a relationship between age and the prevention of dengue hemorrhagic fever. A person's age affects dengue prevention practices and some respondents show age between 45-60 years which shows age factors affect PSN activities. This happens because the level of one's thinking or person's maturity in thinking will be a driver to take positive or negative actions. From the results of this study it can be concluded that with age, the way a person thinks and works becomes more mature and mature. Society tends to trust adults more. In epidemiological research, including case studies of Dengue Hemorrhagic Fever (DHF), age is always a factor to consider and pay attention to. A person's age will affect a person's activities and actions in carrying out PSN activities so that it affects the status of PSN regularity seen from the ABJ value. [10]

According to Sari (2020) stated that there is a relationship between education and dengue prevention, because the level of education in a person's knowledge will affect their behavior. This shows the influence of a high level of education on public awareness to prevent DHF. According to Ramadhan (2021) said that families with low education levels have a lack of understanding about Mosquito Nest Eradication (PSN), causing vectors in settlements. Therefore, low education factors contribute to bad behavior in people's lives, thus causing more dengue cases compared to those with a high level of education. [13][12]

According to Felta (2021) stated that employment status has a significant relationship with the incidence of Dengue Hemorrhagic Fever. Non-working respondents had more free time at home, which allowed them to be more active in hygiene practices and mosquito nest eradication. In contrast to Rofida, et al (2021) who stated that there is no relationship between work and mosquito nest eradication practices or dengue incidence. The cause of this difference may be caused by other factors such as the level of public awareness about the importance of PSN and the dangers of DHF, as well as community activities in implementing PSN practices which can be influenced by various aspects. Employment status can play a role as a factor influencing a person in encouraging or inhibiting healthy behaviors. One of the reasons is the demand for work that makes the community have relatively limited time to carry out Mosquito Nest Eradication (PSN) [16][15]

According to Sutriyawan (2022), stated that most respondents have a low income level. This is in accordance with the results of this study which shows the majority of respondents have low income. Researcher Febryani (2021) stated that income has a significant relationship with health attitudes and behaviors in disease prevention efforts. Income affects a person's habits and outlook. A person with a low income tends to have more

difficulty or enough to meet or facilitate the needs to improve his health and will only focus on the needs of clothing, food and shelter. This affects bad behavior in efforts to prevent DHF. In contrast to Sidharta (2023) who states that income has nothing to do with the incidence of dengue fever.[14] [17][18]

According to Baitanu (2022) stated that the majority of respondents have active or frequent mobility. In contrast to the results of this study which shows most respondents have inactive mobility, mobility plays an important role in the incidence of DHF. A person with a high level of mobility will influence behavior in carrying out PSN practices. This is influenced by economic factors that allow a person to leave home to earn income in an effort to meet daily needs.[20]

The conclusion of the research results on sociodemographic status including age, education, occupation, income, and mobility is one of the factors that can influence a person in carrying out DHF prevention measures with PSN practices. To increase knowledge and awareness about health in a family, more education is needed about the dangers of DHF and how to prevent it, so that the incidence of DHF can be reduced and PSN practices can be carried out optimally and consistently so that the government's target in efforts to prevent DHF with vector control can be achieved with intention (ABJ >95%). The more a person receives information about a disease, the more his knowledge about the disease will increase. [21].

Table 2. Family Attitude towards PSN Awareness Status

Family Attitude	Regularity Status						p-value	RP (95%CI)
	Irregular		Regularity		Total			
	n	%	n	%	n	%		
Negative	9	81,8	2	18,2	11	100.		1,761
Positive	46	46,5	53	53,5	99	100.	0,026	(1,241-2,498)
Total	55	50,0	55	50,0	110	100		

*RP(95%)CI= to measure the prevalence of diseases or conditions between two different groups. RP is calculated using OR or RR with a 95% confidence level

Based on table 2, in the irregular PSN group, the majority of respondents showed negative family attitudes (81.8%). Meanwhile, the regular PSN group showed more positive attitudes (53.5%). The results of the chi-square statistical test $p = 0.026$ (<0.05) concluded that there was a significant relationship between attitude and PSN regularity. The magnitude of the risk of PSN regularity status can be seen from the value of $RP(CI = 95\%) = 1.761$ (1.241-2.498), compared to respondents who have a positive attitude, respondents with a negative attitude tend to have a risk of irregular PSN by 1,761 times

The results of this study are in accordance with research conducted by Simaremare, et al (2020) which found a significant relationship between attitude and the presence of mosquito larvae. According to Sitanggang (2019), the positive and negative attitudes formed in a person depend on the benefits and level of knowledge. The more benefits that are known to eat, the more positive attitudes will be formed. This negative attitude occurred based on the social conditions in the research area. Differences in attitudes are influenced by the environment, for example respondents who work as farmers etc., in general they work all day so they do not get new information. In contrast to researcher Dalilah (2019) who stated that there is no relationship between attitude and the success of the PSN program. The difference in attitudes among respondents was due to the influence of different beliefs, beliefs, and concepts on the Mosquito Nest Eradication (PSN) program. In addition, emotional life towards the PSN program also affects their attitudes, as well as the tendency to act differently in response to the program. Families who have a good attitude but show bad behavior, it is because attitude is readiness or willingness to act.[25] [22] [24].

Table 3. Family Behavior towards PSN Awareness Status

Family Behavior	Regularity Status						p-value	RP (95%CI)
	Irregular		Regularity		Total			
	n	%	n	%	n	%		
Bad	32	71.1	13	28.9	45	40.9		2,010
Good	23	35.4	42	64.6	65	59.1	0,000	(1,378-2,932)
Total	55	50,0	55	50,0	110	100		

*RP(95%)CI= to measure the prevalence of diseases or conditions between two different groups. RP is calculated using OR or RR with a 95% confidence level

Based on table 3, in irregular and regular PSN groups, there are differences, namely in irregular PSN, the majority of respondents show bad behavior (71.1%). Meanwhile, in regular PSN, there are more respondents with good family behavior (64.6%). The results of the chi-square statistical test $p = 0.0001$ (<0.05) concluded that there is a significant relationship between behavior and PSN regularity. The magnitude of the risk of PSN regularity status can be seen from the value of $RP (95\% CI) = 2,010$ (1,378-2,932), compared to respondents who have a good behavior, respondents with a bad behavior tend to have a risk of irregular PSN by 2,010 times.

The results of this study are different from other researcher who stated that family behavior regarding dengue prevention has the majority of good behavior. The factors that play a role in respondents' understanding of dengue prevention behavior are influenced by people's experiences that tend to be good for dengue prevention.[26] The results of this study showed a significant relationship between family behavior in efforts to prevent DHF against PSN regularity and bad family behavior less likely to do PSN than respondents who showed good behavior. One of them is influenced by people's knowledge and attitudes about DHF. The community admitted that they had never received abate powder and did not routinely carry out mutual aid activities to clean the environment around the house. This research is in line with research by Husin et al (2020) which found that draining and closing water reservoirs is closely related to the presence of mosquito larvae. So it is hoped that environmental management can reduce the number of mosquito larvae in an effort to meet the government's target in reducing ABJ levels. The success of PSN also depends on the frequency of its implementation.[27]

The difference in this study is caused by various factors, including the discrepancy between respondents' answers and actual behavior. Family behavior in Mosquito Nest Eradication is influenced by several factors, one of which is knowledge, attitude, availability of information and the role of health workers.[28] To improve PSN practices, counseling is needed either through mass media or through socialization about good PSN practices. Family participation in the form of health behavior is a very important element in efforts to prevent dengue disease. Lack of concern for preventive behavior can cause problems in people's understanding of dengue disease and its preventive measures. [29].

4. CONCLUSION AND RECOMMENDATION

Most respondents on sociodemographic status had differences between age, education, occupation, income of the head of the family and mobility in regular and irregular PSN. In the regular PSN group, most respondents are young or less than 45 years old, with high educational status, more working employment status, with high income and not frequent mobility levels. Meanwhile, in the irregular PSN group, most respondents with older age, with low educational status, employment status are more unemployed, with low family income and frequent mobility levels. In family attitudes, there are differences in regular and irregular PSN, namely in regular PSN the most respondents with a positive attitude, while in irregular PSN the most respondents with a negative attitude. In family behavior, there are differences in regular and irregular PSN, namely in regular PSN there are the most respondents with good behavior, while in irregular PSN there are most respondents with bad behavior.

In sociodemographic status, there is a relationship between age, education, occupation and income with PSN regularity status, while in mobility there is no relationship with PSN regularity status. In family attitudes and behaviors, there is a relationship with the status of PSN regularity.

Recommendation: It is expected for all families and communities to participate and actively participate in PSN activities consistently and continuously to reduce the risk of spreading and breeding mosquito nests in an effort to prevent dengue fever events. The next researcher will provide education to the community regarding the importance of Mosquito Nest Eradication activities to increase community knowledge.

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