

Factors Related to The Occurrences Dengue Hemorrhagic Fever (DHF) In The Working Area of Puskesmas Pancoran Mas Depok City

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ABSTRACT

Dengue Hemorrhagic Fever (DHF) is a disease caused by the dengue virus which is transmitted through the bite of the *Aedes aegypti* mosquito. DHF cases at the Pancoran Mas Health Center from 2017 to 2019 were the highest cases in all health centers in the city of Depok. In 2017 there were 64 cases, then in 2018 it increased to 72 cases and in 2019 there were 145 cases. The purpose of this study was to determine the factors associated with the incidence of DHF in the work area of the Pancoran Mas Health Center in 2021. The type of research used was quantitative research using a Case Control design. The population in this study were patients with DHF from January to June 2021 at the Pancoran Mas Public Health Center (Case) and people who did not suffer from DHF who lived around the case group (Control). The sampling method used in this study was total sampling for the case group (51 cases) and purposive sampling for the control group (102 participants). The data used in this study were primary data using questionnaires and secondary data using medical records. The analysis carried out is univariate analysis and bivariate analysis with chi square test. The results of the univariate analysis showed that most of the respondents had good knowledge (63.4%), had the habit of hanging clothes (71.9%), did not drain the water reservoir (TPA) (67.3%), and did not use mosquito repellent (79.1%). There is a significant relationship between the variables Knowledge (Pvalue=0.000, OR=3.662), Habits of Hanging Clothes (Pvalue=0.042, OR=2.333), Draining Water Reservoir (TPA) (Pvalue=0.038, OR=2.251) and Use of Anti-Mosquito Drugs (Pvalue=0.049, OR=2.566) with the incidence of DHF.

Keywords: *Dengue Hemorrhagic Fever, risk factor, preventive behavior.*

INTRODUCTION

Dengue Hemorrhagic Fever (DHF) is a contagious disease that poses a health problem worldwide. The total number of dengue fever cases worldwide has increased more than eightfold over the past two decades, from 505,430 cases in 2000 to over 2.4 million in 2010, and continuing to rise to 4.2 million in 2019 (World Health Organization, 2020). In 2018, the number of dengue fever cases in Indonesia was 65,602 cases (24.7/100,000 population), with 467 deaths (Ministry of Health of the Republic of Indonesia, 2019). Then, it was reported that in 2019, dengue fever cases increased again, reaching 138,127 cases (51.5/100,000 population) with 919 deaths (Ministry of Health of the Republic of Indonesia, 2020). The increase also occurred in West Java. The number of dengue fever cases in West Java Province rose sharply, with 12,492 cases (25.6/100,000 population) in 2018 increasing to 25,282 cases (51.2/100,000 population) in 2019, making it one of the 25 provinces with the highest dengue fever cases in Indonesia (West Java Health Office, 2020). Depok City is one of the areas in West Java Province with an increasing number of dengue fever cases each year. According to the Profile of the Depok City Health Office, the number of dengue fever cases reported in 2017 was 548 cases (24.3/100,000 population). In 2018, the number of dengue fever cases increased to 891 cases (38.2/100,000 population). Then, in 2019, the number of dengue fever cases rose significantly to 2,200 cases (91.4/100,000 population) (Depok City Health Office, 2020).

Out of 32 community health centers (Puskesmas) in Depok City, the Pancoran Mas Puskesmas consistently has the highest number of dengue fever (DBD) cases, which have been increasing for three consecutive years. In 2017, there were 64 cases (23.4/100,000 population), then in 2018 it increased to 72 cases (25.5/100,000 population) and recorded 145 cases in 2019 (49.7/100,000 population). In 2020, the number of DBD cases at Puskesmas Pancoran Mas became 136 cases (55.5/100,000 population). Based on the obtained data, it shows that the number of dengue fever cases at Pancoran Mas Health

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Center is still one of the diseases with a high number of cases and needs serious handling. (Depok City Health Office, 2020).

Various factors are considered to be related to the incidence of dengue fever (DBD). Research conducted by Ferial in the working area of the Pancoran Mas Health Center in Depok City shows that there is a relationship between knowledge ($p=0.013$, $OR=3.623$) and the incidence of DBD (Ferial, 2020). Research conducted by Sari and Putri in the working area of the Payung Sekaki Health Center in Pekanbaru City shows that there is a relationship between the habit of hanging clothes ($p=0.012$, $OR=2.79$), draining water storage containers (TPA) ($p=0.01$, $OR=2.94$), and the use of mosquito repellent ($p=0.011$, $OR=4.11$) with the incidence of DBD (Sari & Putri, 2020). Unfortunately, there has been no research revealing that relationship in the working area of Pancoran Mas District.

Thus, the researcher intends to conduct a study on the factors related to the incidence of dengue hemorrhagic fever (DHF) in the working area of Pancoran Mas Health Center, Depok City, in 2021.

RESEARCH METHOD

This research is a quantitative study using an observational analytic design with a case-control approach. Data collection in this study was conducted at the Pancoran Mas Health Center in Depok City and was carried out from November 6, 2021, to December 28, 2021. The population in this study is divided into two, namely the case population, which includes all patients with dengue fever at Pancoran Mas Health Center in 2021, and the control population, which consists of people who do not have dengue fever and live around the case group. The sample in this study used total sampling technique for the case group and purposive sampling for the control group. The sample size was 153 samples, consisting of 51 case samples and 101 control samples, with inclusion criteria for both the case and control groups being patients who can communicate well. The independent variables in this study are knowledge, the habit of hanging clothes, draining water storage containers (WSC), and the use of mosquito repellent, which were collected thru primary data using a questionnaire. Meanwhile, the dependent variable is Dengue Hemorrhagic Fever (DHF), which is obtained from secondary data in the form of patient medical records. The data analysis conducted was univariate analysis and bivariate analysis using the Chi-square test.

RESULTS AND DISCUSSION

Based on the data analysis results, it is known that the average age of the respondents is 21.63 years. The majority of the respondents are male (52.9%), have completed elementary school or equivalent (32.7%), and are unemployed (63.4%) (Table 1).

Table. 1: Characteristics of Respondents in the Work Area of Pancoran Mas Health Center, Depok City, in 2021

Characteristics	n	%
Gender		
Male	81	52.9
Female	72	47.1
Education		
No schooling/not completed elementary school	10	6.5
Elementary School/Equivalent	50	32.7
Junior High School/Equivalent	28	18.3
Senior High School/Equivalent	42	27.5
Higher Education	23	15.1
Occupation		
Laborer	12	7.8
Entrepreneur	4	2.6
Privat Employe	25	16.3
Civil Servant	5	3.3
Unemployed	97	63.4
Others	10	6.5

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The description of respondents' knowledge regarding dengue fever (DF) and its prevention shows that more respondents have good knowledge, with 97 respondents (63.4%). Based on respondents' habits related to DF, the results indicate that 28.1% of respondents do not have the habit of hanging clothes, 32.7% do not drain water storage containers, and 20.9% use mosquito repellent (Table 2).

Table. 2: Description of Respondents' Knowledge and Habits Related to the Incidence of Dengue Hemorrhagic Fever (DHF) in the Working Area of Pancoran Mas Health Center, Depok City, in 2021

Variable	n	%
Knowledge		
Not Good	56	36.6
Good	97	63.4
Habit of Hanging Clothes		
Yes	110	71.9
No	43	28.1
Draining Water Storage (WSS)		
No	103	67.3
Yes	50	32.7
Use of Musquito Repellent		
No	121	79.1
Yes	32	20.9

Tabel. 3: Factors Associated with the Incidence of Dengue Hemorrhagic Fever (DHF) in the Working Area of Pancoran Mas Health Center, Depok City in 2021

Factors	Dengue Cases				OR (95% CI)	Pvalue
	Sick		Not Sick			
	n	%	n	%		
Knowledge						
Not Good	29	56.9	27	36.6	3.662	<0,001
Good	22	43.1	75	63.4	(1.805 – 7.429)	
Habit of Hanging Clothes						
Yes	42	82.4	68	66.7	2.333	0.024
No	9	17.6	34	33.3	(1.018 – 5.347)	
Draining Water Storage (WSS)						
No	40	78.4	63	61.8	2.251	0.038
Yes	11	21.6	39	38.2	(1.034 – 4.899)	
Use of Musquito Repellent						
No	45	88.2	76	74.5	2.566	0.049
Yes	6	11.8	26	25.5	(0.981 – 6.709)	

The results of the bivariate analysis using the chi-square test show that the factors significantly related to the incidence of dengue fever in the working area of Pancoran Mas Health Center, Depok City, are the variables of knowledge, the habit of hanging clothes, draining water storage containers, and using mosquito repellent. Respondents with poor knowledge are 3.66 times more likely to experience DBD compared to respondents with good knowledge. Meanwhile, respondents who have the habit of hanging clothes are 2.33 times more likely to experience DBD compared to respondents who do not have the habit of hanging clothes.

Similarly, with the variable of draining water storage containers and using mosquito repellent, respondents who do not have the habit of draining water storage containers and do not use mosquito repellent are at a higher risk of experiencing dengue fever compared to respondents who have the habit of draining water storage containers and using mosquito repellent (Table 3).

DISCUSSION

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The results of this study indicate that the level of knowledge of the respondents is related to the incidence of dengue fever (DBD). These findings are consistent with the research conducted by Harisnal (2019). Good knowledge helps a person avoid contracting dengue fever. If someone has good knowledge, they will make an effort to avoid or stay away from anything that poses a risk of contracting the disease in their body. This knowledge can be obtained from direct experience or the experiences of others, media, or other sources that are clear and factual (Notoatmodjo, 2012).

Another factor that makes someone more susceptible to dengue fever (DBD) is the presence of potential resting and breeding sites for mosquitoes, such as places for hanging clothes and water storage containers. The results of this study indicate that the group of respondents who do not empty water storage containers or hang clothes are more than 2 times at risk of contracting DBD compared to the group that empties water storage containers or does not hang clothes. Mosquitoes like hanging objects inside the house such as clothes, curtains, and mosquito nets to rest and breed. Rarely cleaning water storage places results in the appearance of mosquito eggs that develop into mosquito larvae, pupae, and then into adult mosquitoes, which can trigger the occurrence of dengue fever. Therefore, the eradication of mosquito breeding grounds needs to be taken into consideration. Hanging clothes should be stored or folded inside the wardrobe for clean clothes, and dirty clothes should be placed in the laundry basket (Suroso & Umar, 2004). Cleaning water storage places should be done regularly at least once a week so that mosquitoes cannot breed in those places. Draining the water reservoir is recommended to include scrubbing and using soap to eliminate mosquito larvae or their eggs (Susmaneli, 2010).

In addition, the use of mosquito repellent is also related to the incidence of dengue fever (DBD). Research results show that the group not using mosquito repellent is 2.5 times more at risk of contracting DBD compared to the group using mosquito repellent. The Ministry of Health recommends that the public use mosquito repellent to avoid mosquito bites. However, its use must be in accordance with the instructions on the packaging. The mosquito repellent commonly used by the public includes burning, lotion, spray, and electric. In the use of mosquito repellent, it is expected to help control mosquito vectors, thereby breaking the chain of disease transmission and serving as a protective tool for individuals in households to prevent the occurrence of dengue fever (Amrieds et al., 2016).

CONCLUSIONS

Based on the research that has been conducted, there is a significant relationship between knowledge, the habit of hanging clothes, draining water storage, and the use of mosquito repellent with the incidence of dengue fever in the working area of Pancoran Mas Health Center, Depok City, in 2021.

Health centers are expected to maintain outreach activities as educational efforts to increase public knowledge and awareness about dengue fever. In addition, the community is advised to minimize hanging clothes, whether before or after use, to drain water storage containers (TPA) both inside and outside the house once a week, and to use mosquito repellent when necessary.

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