



Health Workers' Anxiety Experience Against Dengue Hemorrhagic Fever During Rainy Season: A Phenomenological Study

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ABSTRACT

Dengue Hemorrhagic Fever (DHF) is still a health problem and a serious threat in some areas of Indonesia. This disease not only has an impact on the health sector, the social sector, and the community's economy, but also anxiety for health workers during the rainy season. The objective is to find out the anxiety experienced by health workers regarding DHF during the rainy season, the causal factors, and how to anticipate them. The method was phenomenological approach with descriptive analysis. The stages include bracketing, intuitive, analyzing, and describing. The research was conducted during the rainy season in December 2022. Five informants were randomly selected to represent the regions of Aceh, West Java, East Java, Flores, South Maluku, and Papua. Primary data were obtained from semi-structured interviews with four. Secondary data were obtained from official documents and reputable journals for the last five years. The data were processed using phenomenology (bracketing, intuitive, analyzing, and describing) and analyzed it descriptively. Results show healthcare workers experience anxiety that can potentially arise due to changing seasons during the rainy season (18.75%), the dynamics of government regulations against DHF (31.25%), increased workload especially during the Covid-19 pandemic (31.25%), and the location of the place work (18.75%). Program enrichment in the form of debriefing training in dealing with DHF for healthcare workers in case-prone places needs to emphasize helping psychological and mental readiness so that it can reduce the level of anxiety when there is a change in weather which is followed by an increase in the incidence rate of DHF

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ABSTRAK

Dengue Hemorrhagic Fever (DHF) masih menjadi masalah kesehatan dan ancaman serius di sejumlah wilayah di Indonesia. Penyakit ini tidak hanya berdampak terhadap sektor kesehatan, sektor sosial dan ekonomi masyarakat, namun juga terhadap kecemasan bagi petugas kesehatan. Tujuannya untuk mengetahui sejauh mana kecemasan petugas kesehatan terhadap DHF selama musim penghujan, faktor penyebab serta bagaimana mengantisipasinya. Pendekatan penelitian ini fenomenologi dengan analisis deskriptif. Tahapannya mencakup bracketing, intuiting, analyzing, dan describing. Penelitian dilakukan selama musim hujan bulan Desember 2022. Lima informan dalam penelitian ini dipilih secara random untuk mewakili wilayah Aceh, Jawa Barat, Jawa Timur, Flores, Maluku Selatan dan Papua. Data primer diperoleh dari hasil interview semi struktur dengan empat tema. Data sekunder diperoleh dari dokumen resmi dan jurnal bereputasi selama lima tahun terakhir. Olah data menggunakan fenomenologi (bracketing, intuiting, analyzing and describing) dan

dianalisis secara descriptive. Hasilnya petugas mengalami kecemasan yang secara potensial bisa timbul karena adanya perubahan musim khususnya pada musim hujan (18.75%), dinamika aturan pemerintah terhadap DHF (31.25%), peningkatan beban kerja khususnya selama pandemic Covid-19 (31.25%), dan lokasi tempat kerja (18.75%). Kesimpulannya pengkayaan program berupa pelatihan pembekalan dalam menghadapi DHF bagi healthcare workers di tempat yang rawan kasus perlu penekanan dalam membantu kesiapan mental psikologis sehingga bisa mengurangi tingkat anxiety ketika terjadi perubahan cuaca yang diikuti meningkatnya incidence rate DHF

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INTRODUCTION

Dengue Hemorrhagic Fever (DHF) is a disease that is still a scourge for the community (Asri et al., 2017). This disease is caused by the dengue virus which is carried by the *Aedes aegypti* mosquito (Wang et al., 2020). DHF is a disease that contributes to a high number of deaths with hundreds of deaths each year (T. W. Sari et al., 2020). More than 100 countries are reported to be infected with the dengue virus, especially in densely populated and residential urban areas such as Brazil, other parts of South America, the Caribbean, Southeast Asia, and India. It is estimated that 40 percent of the world's population or around 2.5 billion people living in DHF endemic areas are infected with the dengue virus through mosquito bites (Armaita et al., 2021). Seven provinces in Indonesia have an Incidence Rate (IR) of over one hundred or are prone to DHF cases (Gani et al., 2022). The seven provinces are Bali, East Kalimantan, DKI Jakarta, DI Yogyakarta, North Kalimantan, Southeast Sulawesi and South Kalimantan. Until now, there are 4 provinces with a very high number of DHF cases in Indonesia, namely, East Java (340 cases), West Java (270 cases), Central Java (213 cases), and East Kalimantan (103 cases) (Arisanti et al., 2021). The lowest number of cases was achieved by Papua (0 cases), NTT and West Sulawesi (2 cases), and the Bangka Belitung Islands (3 cases) (Tomia et al., 2020). Overall Indonesia is considered high because the IR is 78.0 (Arisanti et al., 2021). Therefore, preventive efforts are needed to reduce the number of cases of infection and even death caused by the *Aedes aegypti* mosquito (Hidayah et al., 2017). Indonesia is a tropical country which is very good for the growth of animals and plants (Hidayah et al., 2017). Indonesia is also a place where various diseases develop, especially diseases carried by vectors, namely organisms that spread pathogenic agents from host to host, such as mosquitoes which transmit many diseases (Armaita et al., 2021). Many DHF sufferers live in tropical and subtropical regions, especially in Southeast Asia, Central America, America, and the Caribbean (Asri et al., 2017; Sanyaolu, 2017). DHF sufferer usually experience bleeding, shock, and even death (Irma & Masluhiya AF, 2021). Often the species of mosquito thrives in water reservoirs that are rarely cleaned, bathtubs, used cans, used tires, and certain places that can hold water, especially during the rainy season (Rau et al., 2019).

In the rainy season, the *Aedes aegypti* population will increase because the unhatched eggs will hatch when their breeding habitat begins to be flooded with rainwater (Mahdiana et al., 2017). The spread of DHF by vectors can increase due to rainfall (Wang et al., 2020). This is because there are breeding grounds for *Aedes* mosquitoes to breed (Herdianti et al., 2022). Those conditions will increase the

mosquito population can lead to an increase in the transmission of DHF disease (Paschalia et al., 2021). It is reported that 90 percent of DHF occurs in children under 15 years of age, this means that children are susceptible to infection by the dengue virus carried by the *Aedes aegypti* mosquito (Kosasih et al., 2021). Therefore, the efforts of all parties are expected to care about DHF because it can be fatal, namely, death. In addition, many studies also discuss the role of health workers in eradicating DHF which prioritizes three integrated steps, namely understanding the community (socialization), providing medical assistance, and monitoring, in anticipation of direct spread (Herdianti et al., 2022; Hidayah et al., 2017; Susianti, 2019).

This research using the phenomenological method aims to determine the level of anxiety of health workers about DHF during the rainfall, what the supporting factors are and how to anticipate them. The research focus was to put forward the side of the experience of healthcare workers' anxiety about DHF during the rainy season. The implications of this research can be used as input for health workers, especially program managers and policymakers, as well as enriching the repertoire of research related to DHF.

METHODS

Research Design

The phenomenological method with qualitative descriptive data analysis techniques was applied in this study. The phenomenological approach was a qualitative data analysis technique to reveal the similarity of meaning that is the essence this study. The same method is widely used by researchers to measure the problem of phenomena that exist in society (Casafont et al., 2021; Karimi et al., 2020). The research was conducted during the rainfall season in November to December 2022.

Sampling

The five informants in this study served as healthcare workers in Aceh, West Java, East Java, Flores, South Maluku, and Papua. Each was a registered nurse of Indonesia. Four of them were working in Public Health Center (*Puskesmas*) and one nurse working in hospital.

Measures

The primary data was obtained from the results of semi-structured interviews with four themes, namely: the incidence rate of DHF cases, the trend of DHF cases during the rainy season, the workload of health workers related to the DHF program, and the level of anxiety of healthcare workers regarding DHF cases during the rainy season. The themes that were raised as interview materials were sourced from the validated Community-based Assessment for healthcare workers (K. R. Y. Sari, 2021; Win et al., 2004). Secondary data were obtained from official documents and reputable journals for the last five years (from 2017 to 2022). The data were processed used phenomenology model that include bracketing, intuitive, analyzing, and describing.

Data Analysis

There are four stages to go through when conducting this research, namely bracketing, intuitive, analyzing, and describing. Bracketing is a process of identifying and retaining any beliefs and opinions of informants regarding the phenomenon or symptoms of DHF. Intuiting is a process that occurs when researchers are open to the meaning associated with a phenomenon by those who have experienced it so as to produce a general understanding of the DHF phenomenon. The third stage is Analyzing, which is a process that includes coding, categorization and understanding the meaning of the phenomenon. While Describing is an activity in which the researchers understand, and defines the phenomenon to be studied. The goal was to communicate and offered a difference, or critical description, in written or verbal form. The results of data processing were analyzed descriptively.

RESULTS AND DISCUSSION

In the bracketing phase, data were taken and based on the interview of healthcare workers randomly selected. They served in Aceh, West Java, East Java, Flores, South Maluku, and Papua. Their initials were ZK (represented Aceh), HD (East Java), HS (represented Flores and South Maluku), WT (Papua), and DD (West Java). At the intuitive stage, the interview themes are as follows:

Theme 1: Incidence rate of DHF cases.

The pattern of DHF cases tends to rise, especially in 2016 where there was the highest increase (Irma & Masluhiya AF, 2021). This is due to a climate anomaly that causes a wet-dry season and an increase in air temperature with an anomaly of 0.8 Celsius (Herdianti et al., 2022).

ZK: "Except for the city of Banda Aceh, other areas in Aceh province are classified as having very few DHF cases, even in the rainy season. Several areas such as Aceh Tamiang were hit by floods some time ago.....even though the incidence rate of DHF remains low in our area in general...."

HD: "At the end of the rainy season, cases of Dengue Hemorrhagic Fever in our place, Magetan Regency tend to decrease. I am no longer active in the service, but I heard data from the local Health Service, DHF cases during 2022 will decrease. The decline in DHF cases was also marked by a decrease in requests for fogging (fumigation) from the community or villages. In the past, we had to fog almost

every day, now the demand for fogging has also decreased. As far as I know, even though cases have decreased, people are asked to remain vigilant and implement Clean Living Behavior (PHB). Continue to carry out the 3M movement, namely draining water reservoirs, closing water reservoirs, burying or recycling used goods, which have the potential to cause stagnant water."

HS: "I have joined the Nusantara Sehat program for 2 years, stationed in Flores and South Maluku, for one year each. I worked in a remote health center. In Flores and South Maluku cases of DHF are rare, but they do exist. I've handled it only once or twice. Flores is a dry area, rainfall is low and there is rarely standing water. In South Maluku, it is also rare except around the city of Ambon. I think the incidence rate is around 0.003."

WT: "Papua is one of the areas with the lowest prevalence of DHF cases in Indonesia. As a healthcare worker, I am not too worried about DHF cases there, even though there are very few DHF cases. In addition, public health programs have been organized and are very specific concerning DHF."

DD: "West Java was just hit by an earthquake. Plus the rainy season and flooding in some areas. West Java is also one of the areas with high DHF cases. We healthcare workers are always ready for DHF cases and must be prepared to anticipate the spread of cases. Regardless of the high incidence rate, we are always on standby with the support of various parties, both from the Ministry of Health, local government, and community participation."

Theme 2: the trend of DHF cases during the rainy season

Rain that falls with high rainfall, but of short duration causes puddles. Rain that falls suddenly and then subsides accompanied by heat is the most preferred thing for mosquitoes to lay eggs (Dewi & Sudaryanto, 2020). Those stagnant waters are breeding grounds for mosquitoes and the growth of mosquitoes tends to be large.

HD: "Several villages in our working area are prone to waterlogging. The trend of DHF in our area is not much different from other places in East Java, Central Java, and West Java. Even though there is no outbreak, DHF cases are always there and as healthcare workers, we are always on high alert."

HS: "For two years I worked in a remote area, one in an area where it seldom rains, the other in a mountainous area, the DHF trend is very low. Most of the cases we encountered were digestive tract diseases such as diarrhea and skin diseases due to poor sanitation. Apart from that, we encounter many road traffic accidents in Flores, even though it is not an urban area."

WT: "Before my study assignment three years ago, as far as I know, there were several cases of dengue fever in our place, including my two children who were treated with suspected dengue. This proves that our caution during the rainy season is very important, because of the tendency to increase the number of DHF cases. Even though we know that in Papua there are only a small number of cases, it can happen to anyone."

DD: "Right now we are entering the climate change. Many stagnant waters are breeding grounds for mosquito larvae. This must be cleaned so that it does not spread dengue. Our environment, it is relatively densely populated. We also socialize the importance of implementing a clean and healthy lifestyle (PHBS). During the current DHF season,

we will also work on eradicating mosquito nests (PSN) as well as 3M plus."

ZK: "Aceh Tamiang is one of the areas in Aceh that was just hit by a flood in early November 2022. The DHF trend at our place has decreased since 2018 from around 180 to only 15 cases. But we don't know for sure how it will be after this flood. Nationally, the percentage in our place is very small."

Theme 3: Workload of health workers related to the DHF program

Dengue fever is one of the toughest challenges for the Government of Indonesia, a public health burden that also threatens health. Amid the pandemic, cases of dengue hemorrhagic fever (DHF) in Indonesia have increased (Kemenkes, 2021).

HD: "We are used to many tasks and workloads. Puskesmas programs always exist and change from time to time, which is a policy dynamic. Because of cases and health problems also keep on changing. Our burden has piled up during the Covid-19 pandemic from 2020 to mid-2022 because we are required to always be vigilant against the occurrence and spread of cases, not just for dengue....."

HS: "Health workers usually appeal to the community, especially families whose land are water stagnates, to maintain sanitation. Not only preventing the spread of DHF, but also other diseases. For us, the aspect of health education, counseling has become an integral package in our daily tasks both at work and when going to the field."

WT: "My advice as a health worker is for individuals as health workers to always be updated with the latest issues in handling diseases according to SOPs, and always provide promotive and preventive efforts to the community. Of course, this has to start from the environment itself, the family itself, and then apply it to the community."

DD: "I work in a hospital. DHF cases usually appear when the weather changes. We get used to the workload. Maybe this is what differentiates them from fellow healthcare workers at the Puskesmas who work directly in the community. Our task is more curative. Even so, we always emphasize on the promotive and prevention aspects for our patients."

Theme 4: The level of anxiety of healthcare workers regarding DHF cases during the rainy season.

The workload of health workers during the pandemic has increased, especially in areas where there has been an increase in DHF cases (Lin et al., 2021). At least from the

aspect of counseling and control. Research proves the effect of health education on the level of knowledge, attitudes, and community practices in preventing dengue fever. The counseling step made many health workers focus more on the aspect of promotion in dealing with DHF which increased their level of anxiety.

HD: "Anxiety that occurs in health workers is normal for us. every time there is a change in policy and health problems. Which was striking during the pandemic in early 2020. During the rainy season, the burden increases due to the risk of emergence and spread of DHF."

HS: "My worry during the rainy season in Maluku is the difficulty in referring patients to the hospital because I have to use a speedboat. This is a tough challenge and of course adds to the mental and physical burden, because the facilities and infrastructure to handle cases at our Puskesmas are very limited."

WT: "Related to the anxiety of health workers, I think there must be because DHF cases are not uncommon in the Papua region because Papua is an endemic area with malaria, but preventive and curative efforts are carried out following DHF handling procedures in general in the area. another, because we are updated with health information...preventive efforts such as 3M plus fogging are often carried out by the District Health Office."

DD: "West Java is a province with a large and dense population. A large number of DHF cases during the rainy season is understandable, especially in areas such as Bandung, Bogor, and Cirebon. Not only the health center, but the hospital is also busy. The intensity of counseling activities, spraying, and cleaning of places where water stagnates has also increased. Automatically if it accumulates it can cause anxiety for officers even though it doesn't require medical intervention."

ZK: "During the November 2022 floods, we didn't just focus on DHF management and prevention. Even healthcare workers' assistance to society is comprehensive including moral, social, psychological, and economic support because many economically weak people need help. The workload has increased due to the flood and its aftermath...."

Analysis

The following is an analysis of the Analysing stage of the Phenomenology method based on the results of interviews with five healthcare workers in five different regions.

Table 1
Healthcare workers' anxiety experience during the rainy season

potential causes	Healthcare Workers and Place of Work					Σ	%
	ZK aceh	dd West Java	HD East Java	HS Flores and South Maluku	WT Papuan		
Climate changes	x	x	x	-	-	3	18.75
Rules and regulations	x	x	x	x	x	5	31.25
Workloads	x	x	x	x	x	5	31.25
work locations	-	x	x	x	-	3	18.75
			Σ			16	100

The table above shows that healthcare workers experience anxiety that occurs due to changing seasons, especially during the rainy season (18.75%), the dynamics of government regulations against DHF (31.25%), increased workload especially during the Covid-19 pandemic (31.25%),

and location. workplace (18.75%). The summary table is the final stage of describing the four processes in the phenomenological study method.

Discussion

This research sought to explore the experiences of healthcare workers' anxiety about DHD cases during the rainy season. Our findings show that healthcare workers' experience of anxiety during the rainy season is changing due to several potential causes, namely the dynamics of government regulations against DHF, increased workload especially during the Covid-19 pandemic, and the location of the workplace.

As it is known that to anticipate an increase in DHF cases at the end of 2018 and early 2019, the Government through a circular letter from the Minister of Health of the Republic of Indonesia number PV.02.01/Menkes/721/2018 dated 22 November 2018 regarding Preparedness for an Increase in DHF Cases urges local governments to increase efforts to mobilize the community in eradicating mosquito nests (PSN) through draining, closing and reusing used goods, plus preventing mosquito bites (3M plus), by implementing the Jumantik 1 House 1 Movement (G1R1J) (Armaita et al., 2021; Harahap & Tarigan, 2021; Putri et al., 2022). The next activity is case surveillance and risk factor surveillance for dengue hemorrhagic fever, including periodic larva monitoring (PJB) activities and activating larva monitoring staff (*Jumantik*) (Harapan et al., 2019). Besides that, officers are expected to support the Operational Working Group for DHF prevention (*Pokjanal* DHF) at various levels of RT/RW, village, sub-district, district/city, and province, as well as increasing the capacity of DHF prevention and control resources (Reni Ranteallo et al., 2021). This strategy as a policy is always changing, especially if there is an extraordinary DHF outbreak that has occurred several times in Indonesia, namely in 1973, 1977, 1978, 1983, 1988, 1966, 1998, 2007, and 2009 (Srimulasiyah et al., 2019). Therefore the standard needs to be revised regularly.

Changes in the dynamics of government regulation of DHF cases certainly affect the workload of healthcare workers. Every time when there is a change in regulations, it takes time, energy, and thoughts to socialize programs and training. Especially during the Covid-19 pandemic (Telaumbanua, 2020; Unicef, 2021). Ministry of Health Circular No. HK. 02.02/IV/2360/2020 concerning the Implementation of DHF Prevention and Control in the Covid-19 Pandemic Situation, is strong evidence that the burden of healthcare workers is increasing (Kusumawati, 2020). At least related to government restrictions to frequently wash hands, maintain distance and wear masks. Directly or not, these rules will add anxiety among healthcare workers.

Various studies state that prevention efforts that can be carried out at this time are to break the chain of transmission by eradicating the contagion and its larvae. the use of a vaccine to prevent DHF is still at the evaluation stage, while an effective drug against the virus does not yet exist (Sutriyawan & Akbar, 2022). There are two ways of prevention, namely: eradicating adult mosquitoes and fogging using insecticides (Sutriyawan & Akbar, 2022). The fumigation is very effective and quickly breaks the chain of transmission because mosquitoes will soon die if they come into contact with insecticide particles (Rau et al., 2019). Eradicating larvae, eliminating their breeding, and eradicating mosquito nests can be done by draining water storage areas, such as baths/WCs. Tightly closing water storage/reservoirs so that mosquitoes cannot enter and lay their eggs, cleaning the yard/yard, then burying/burning/disposing of used items that can be waterlogged, and sprinkling abate powder into stagnant water which is impossible, or difficult to drain, to kill mosquito larvae are these activities that need to be ensured

in the form of a checklist by healthcare workers who are different from one work location to another (Reni Ranteallo et al., 2021; K. R. Y. Sari, 2021). The experience of DD in West Java which is prone to DHF is different from ZK in Aceh and WT in Papua where cases of DHF are rare. Healthcare workers in vulnerable areas need to receive direction, training, and provision of special programs related to handling DHF (Susianti, 2019). To kill mosquito larvae, those activities need to be ensured in the form of a checklist by healthcare workers that differ from one work location to another.

STUDY LIMITATIONS

The three weaknesses of the phenomenological study in this study include subjectivity, in which health workers as informants have a tendency to be subjective. Both biases, namely the opinions and conclusions of researchers can influence research results. Third. presentation of results where the results of this research may actually prove to be highly qualitative, which makes it difficult to present the findings in a way that practitioners find useful. Moreover, it is represented by only five healthcare workers representing six broad provinces. Therefore further research is needed to support the results of this study.

CONCLUSION AND SUGGESTIONS

The anxiety experiences among healthcare workers in handling DHF in the rainy season are different because experience can be subjective. Research using this phenomenological method has proven that there is agreement among healthcare workers about differences in anxiety levels based on location, incidence rate, and workload. The weakness of this study is the lack of informants compared to the huge area of Indonesia, even though they come from five provinces on different islands. However, DHF which is still a big problem in this country needs serious attention. The description of the concerns of healthcare workers in dealing with DHF contained in this study can be used as material for related research in the future. Apart from that, it is also a consideration for DHF officials and DHF management policyholders.

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