



Role of Family and Community Health Center Employees in Controlling Dengue Fever in Puskesmas Antang Makassar

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Abstract: The problem of dengue fever until now is still a problem which cannot be removed. The medicine of this disease is still not found to prevent transmission of dengue fever. The way to control dengue fever was by controlling the vector of transmission at the stage of the adult of egg phase, larvae, and pupae. It also included controlling mosquito adult phase. So that, in solving the problem, this research had purpose to find out and analyze the role of family and community health center employees in controlling dengue fever in Puskesmas Antang, Makassar. The method which was used in this research was observation by using case - control planning with descriptive analysis with quantitative and qualitative approach. It was done by giving the questionnaire to health center employees and public figures that involved that knew about dengue fever in this research. The result showed that 13.5% of informants had enough category in controlling this disease 86.5% of the informants were in less category. Having Lack of knowledge and action to prevent this disease could increase dengue fever to the health people. This research also can be used as the references for the next researchers.

Keywords: Dengue Fever; Health Center Employees; Role Of Family

Introduction

In the rainy season, many diseases appear. One of them is dengue fever (DBD) (Halstead, 2017; Halstead & Cohen, 2015; Hasan et al., 2016). This disease is caused by *Aedes aegypti* mosquito bite (Arora & Patil, 2016; Nakase et al., 2023; Wei Xiang et al., 2022). This disease is a problem which cannot be removed until now. We do not only get infect in rainy season but in other season too (Bostan et al., 2017; Buonomo & Della Marca, 2018; Rochadi & Chahaya, 2009).

Based on the data from kemko PM 2023, it was got many cases of dengue fever (DBD) in 2021 in Indonesia was 73.518 cases, and for death rate was 705 people. It also increased in 2022. It became 131.265 cases and the death rate was 1.183 people. Then, on January - July 2023

was 42.690 and people died 317 (Mullo et al., 2019; Supanji & H., 2023). Health office (Dinkes) in Makassar reported that dengue fever increasing drastic in 2020 - 2021. There were 175 cases in 2020 and in 2021 was 583 cases (Muin, 2022).

Dengue fever is a disease which caused by capillary blood vessels and interference. The interference of this is caused by dengue virus in the human blood clotting system (Halstead, 2017; Vervaeke et al., 2015). This virus is easy to be found in tropical and sub - tropical climate (Bhargava et al., 2018; Dehghani & Kassiri, 2021; Liu et al., 2021). For these areas, they have high risk in dengue transmission (DBD). It is also related in increasing of the temperature (Lee et al., 2017; Li et al., 2018).

This disease can be said the disease which does not have clear symptoms which is caused a mistake in

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analyzing it. It is often same with flu or typhus (Nasawida & Sari, 2022; Sulistyawati et al., 2020; Yudhastuti, 2020). This disease also can increase because of vector density, dense population, development of residential areas, uncontrolled urbanization, increasing of transportation, the behaviour of unware society with cleanliness, and climate change (Amelinda et al., 2022; Rejeki et al., 2021).

Eradiation of dengue fever is arranged by decision of minister of health number 581/MENKES/SK/VII/1992. Mosquito mostly lives in clear and flooded water. Then for mosquito eggs can live long - lasting until months with 2°C - 42°C temperature (Agusri, 2021). The eggs will hatch in 4 days and if temperature of humadity is too low, it can be until 9 days to be adult mosquito. If the adult mosquito sucks blood for 3 days, it can lay 100 eggs. Until now, the medicine of this desease is still not found to prevent transmission of dengue fever. The way to control dengue fever was by controlling the vector of transmission at the stage of the adult of egg phase, larvae, and pupae (Hendayani, 2022).

In preventing vector transmission of dengue virus needs teamwork of health worker to prevent it maximum. In this case, the role of family is very important to keep the house cleanliness. In controlling this virus, must do counseling how to make sanitation clean environment.

In Makassar, the highest case happened in Puskesmas Antang in 2018 - 2019. Dengue fever (DBD) case increased from 12 until 41 cases of DBD. Based on the data, the researcher was interested in doing the research entitled "Role of family and community health center employees in controlling dengue fever (DBD) in puskesmas Antang Makassar".

Method

The method which was used for this research was observation with case control planning by using descriptive analysis in quantitative and qualitative approach (Respati et al., 2018).

This data of the research was done by interview and questionnaire that should be answered by the informants about dangue fever. Then, the information was processed by doing univariate test. The informants of this research were community health center employees of puskesmas Antang and public figure which knew about this research. This research was also done in puskesmas Antang, Makassar.

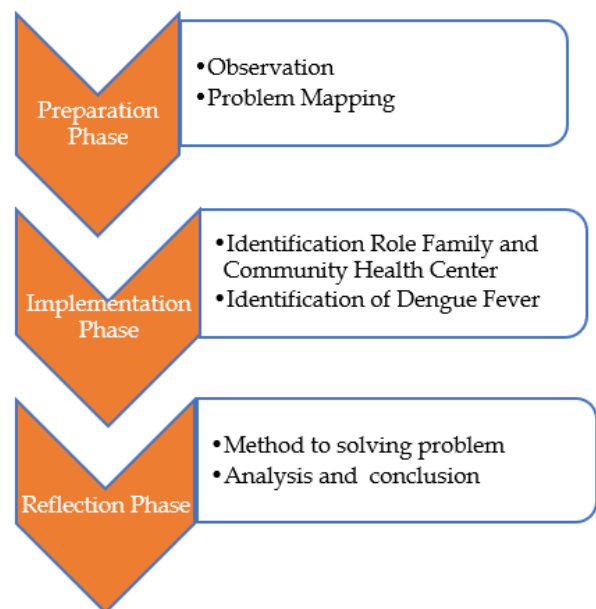


Figure 1. The flowchart of research

Result and Discussion

The characteristics of informants

The informants of this research were health workers and public figure around the area of Puskesmas Antang, Makassar that knew about control of dengue fever (DBD). There were the characteristics of the informants that were needed to be researched. They were about age, gender, job, and informant status. The characteristic about age was showed in Table 1.

Table 1. Informants' characteristic based on age

Age	Frequency	Percentage
25-35	17	33%
36-45	11	21%
46-55	11	21%
56-70	13	25%
Amount	52	100%

Table 1 showed the avarage of informants' age. There were 33% aged 25 - 35 years old, 21% for 36 - 45 years old, 21% for 46 - 55 years old, and 25% for 56 - 70 years old. Next, the characteristic based on the gender in table 2. Age could impact their understanding and thinking about health problem. It was hoped that it would be developed as they got older including how the informants acted to prevent dangue fever transmission in their family (Pranata et al., 2012).

Table 2. Informants' characteristic based on gender

Gender	Frequency	Percentage (%)
Male	27	51.9
Female	25	48.1
Amount	52	100%

Table 2 showed the amount of informants based on the gender. It was got male informants were 51.9% and female informants were 48.1%. Then, informants' characteristic based on the job in Table 3.

Table 3. Informants' characteristic based on the job

Job	Frequency	Percentage (%)
Labor/ Farmer	5	9.6
Teacher	12	23.1
Housewife	7	13.5
Civil servant	17	32.7
Private employee	11	21.2
Amount	52	100

Table 3 showed the average of informants as civil servant was 32.7%, teacher was 23.1%, labor/ farmer was 9.6%, housewife was 13.5% and private employee was 21.2%. Next, Informants' characteristic based on job in Table 4.

Table 4. Informants' characteristic based on public figures

Job	Frequency	Percentage (%)
Health worker	16	30.8
Public figure	36	69.2
Amount	52	100

Table 4 showed that most of the informants were public figures and community health center employees. They were 69.2% and 30.8%.

Role of Family in Controlling Dengue Fever

In minimize preventing dengue fever needed role of family in every house. Based on 9 questions in questionnaire which were given to the informants, the result was informants which draining the bathtub or water reservoir in one a week were 14 (26.9%). The data could be seen in Table 5.

Table 5. Informants who draining the bathtub or water reservoir

Explanation	Frequency	Percentage (%)
Always	8	15.4
Often	14	26.9
Sometimes	10	19.2
Seldom	8	15.4
Never	12	23.1
Amount	52	100

Water reservoir became a place for the mosquito to breed. It was because it bred in puddle which did not in contact with the ground directly. It was called Aedes mosquito. So that, in preventing it water reservoir needed to be drained periodically. If it did not clean, it could increase dengue fever a number of 3,870 times (Winarsih, 2014).

Next, there were 38 people (73.1%) which never closed the water reservoir outside of the house tightly, and 4 people (7.7%) who closed it. The purpose of this was to make the place did not become a place for mosquito bred. The result was showed in Table 6.

Table 6. The informants who closed water reservoir outside of the house tightly

Explanation	Frequency	Percentage (%)
Always	4	7.7
Often	1	1.9
Sometimes	3	5.8
Seldom	6	11.5
Never	38	73.1
Amount	52	100

The table above showed the result of the data that haa been got to preventing dengue fever. Next, the informants never sprinkled abate in the water reservoir were 32 people (61.5%), meanwhile 3 people did it (5.8%). The result was in Table 7.

Table 7. Informants who always sprinkled abate

Explanation	Frequency	Percentage (%)
Always	3	5.8
Sometimes	4	7.7
Seldom	13	25.0
Never	32	61.5
Amount	52	100

Springkling of abate was needed to decrease spreading of dengue fever mosquito. Based on the research that has been conducted by Winarsih (2014), she stated that by sprinkling abate could avoid from DBD 6,234 times. So, it was really needed in doing it.

Next, the informants sometimes burried plastic waste were 18 people (34.6%), meanwhile 2 people (3.8%) who always burried it. As we know that, mosquito liked dirty place. Burying and burning (3-M) and trash or used cans could be a nest of mosquito larvae (Masthura et al., 2022). They stated that if we did not bury or burn it, it would increase risk of infection 4,747 times. The result of the data showed in Table 8.

Table 8. Informants who burried the plastic waste

Explanation	Frequency	Percentage (%)
Always	2	3.8
Often	6	11.5
Sometimes	18	34.6
Seldom	13	25.0
Never	13	25.0
Amount	52	100

Informants who always used mosquito repellent (lotion, spray, and mosquito coils) while sleeping were 22 people (42.3%). Wahyono & Oktarinda (2016) stated that

the most effective mosquito repellent was lotion. Miko (2012) stated that using it could be effective in treating dengue fever.

Table 9. Using mosquito repellent while sleeping

Explanation	Frequency	Percentage (%)
Always	2	3.8
Often	8	15.4
Sometimes	10	19.2
Seldom	22	42.3
Never	10	19.2
Amount	52	100

Next, informants sometimes planted mosquito repellent plant were 18 people (34.6%), while 2 people (3.8%) always planted it around the house yard. Nowadays, anti - mosquito lotion was made from plants such as lavender, geranium, zodia, and lemongrass. The function of insects sensoric could be influenced by citronellol, geraniol, and geranium. They were also good as decorative plants. Education about aedes mosquito biology was done in increasing the knowledge and awareness of the environment (Zen et al., 2022).

Table 10. Informants who planted mosquito repellent plant

Explanation	Frequency	Percentage (%)
Always	2	3.8
Often	8	15.4
Sometimes	10	19.2
Seldom	22	42.3
Never	10	19.2
Amount	52	100

The informants who always hung the clothes in bedroom were 25 people (48.1%). It could be nest for *Aedes Aegypti* mosquito, and it could be active biting the people in that room (Istiqomah & Syahrul, 2017). The data was in Table 11.

Table 11. Informants who hung the clothes in bedroom

Explanation	Frequency	Percentage (%)
Always	25	48.1
Often	5	9.6
Sometimes	7	13.5
Seldom	7	13.5
Never	8	15.4
Amount	52	100

Informants who always cleaned rubbish bin around the house were 17 people (32.7%). Then, they also cleaned bathtub, gutter, and other place to prevent dangue fever. It was cause to prevent the mosquito bred.

Table 12. Informants who always cleaned gutter

Explanation	Frequency	Percentage (%)
Always	17	32.7
Often	7	13.5
Sometimes	10	19.2
Seldom	10	19.2
Never	8	15.4
Amount	52	100

Informants often coordinated to related agencies in doing fogging. It was 14 (26.9%). The function of fogging was to prevent spreading of dangue fever.

Table 13. Informants coordinated to related agencies

Explanation	Frequency	Percentage(%)
Always	13	25.0
Often	14	26.9
Sometimes	9	17.3
Seldom	5	9.6
Never	11	21.2
Amount	52	100

Sometimes the using of fogging was done by public health office was distributed in the right place. So that, dengue fever was still in that area. It was really important for them to know the right place in doing fogging. One of the ways that could be done by public health office was by using GIS application. This application has purpose to know the place which suffered from dengue fever. This application was hoped to maximize programme of controlling dengue fever.

The result was got 13.5% of informants had enough category in controlling of dengue fever at home 86.5% of the informants had less category in doing it. The result was in Table 14.

Table 14. Frequency of controlling dengue fever

Category	Frequency	Percentage (%)
Less action	45	86.5
Enough action	7	13.5
Amount	52	100

Based on the interview with the people about water storage at home and garbage dump in preventing dengue fever, it was:

"... it was done at home. There was no puddle. The rubbish was collected. After it was full, we threw it to garbage dump ..." (1) "...we did not put the water in the pail. In my house, the water was in bathtub and it closed tightly..."(2) "...at home, we did it. We threw the rubbish in the rubbish bin and there was no puddle. The water was only in the bathtub but there was still mosquito ..." (3)

Based on the interview that has been done about water storage and garbage dump around them was already got the result. Most of them kept the water in bathtub, but they did not close it. For the garbage dump,

the people prepare the rubbish bin and after it was full they threw to the garbage dump.

It was got the interview with community health center employees (puskesmas) and people about wasting the rubbish around the house in preventing dengue fever;

"... the rubbish outside of the house threw to the garbage dump directly. Even there were some of rubbish in the yard such as snack waste, tissue, and rubbish in the gutter. At home, the rubbish was collected but it was not closed..."(1) "...we did not burry the rubbish because our house's yard was small. We just collected and we divided it which could be sold or not. The things could be sold such as; cans. For the other rubbish, we collected it and threw it to the garbage dump..."(2) "...there were many leaves on the yard. At home, we collected all of the rubbish and after that we threw it to the garbage dump. In the garbage dump, it was not closed. It made flies flied everywhere and be smell ..." (3) "...there was much rubbish around our environment we lived. There were also many puddles after raining..."(4)

Based on interview result, it was got most of household threw the rubbish by collecting it first. After it was full, they threw it to the garbage dump. Most of the rubbish was not closed so that there was smell. Then, flies came. Family also had important role in controlling dengue fever to make the environment healthy. Because of that, each person had their own responsibility in controlling it.

The Role of Community Health Center Employees in Controlling Dengue Fever

In improving people's knowledge in preventing DBD, they were activities such as; counseling, seminar, and training which related to dengue fever that has been done by health center employees (Kusumawardani et al., 2012; Nurhayati & Apriliyanti, 2015). There was the interview with the people about dengue fever;

"...for counseling activity was seldom to be done. It also has been done in long time. ..." (4) "...it happened but it was seldom. It could happen if there were high case. Then, the health center employees came and explained how to prevent it..."(5)

Based on the interview with by health center employees about controlling dengue fever;

"...for the activity, it needed a programme. Meanwhile in doing the programme, public health office involved public health center (puskesmas). But the main organization was public health office. we wanted many activities in the environment directly. It also made the pople understand it easily in preventing dengue fever." (1) "...in controlling DBD, there was a way to avoid the bite of Aedes Aegypti mosquito. There were the activities, such as; draining, burrying, closing, giving abate powder, spraying baygon yo kill the mosquito..." (2) "... there was distributing of abate powder to the pople. The abate powder should be poured to the

bathtub. Then, we also asked the people to clean the environment together and giving them counseling about DBD..."(3) "...when there was a programme, we directly came to the people in controlling and preventing dengue fever. We also gave information about burrying, draining, and closing..."(4)

Based on the interview, it could be concluded that public health center had programme which related to preventing DBD. It was done by doing conseling, giving abate powder, and cleaning the environment together. But in reality, the preventing did not done by the people regularly. They just did it when there was programme in preventing dengue fever.

Discussion

Role of Family in Controlling Dengue Fever

Based on the research that has been done, there were many factors which were caused dengue fever (DBD). One of the factors was how the cleanliness in the household where we lived (Handa Yani, 2022; Onasis, 2024; Pujiyanti et al., 2020). The cleanliness meant that the cleanliness of each room, such as; bedroom, bathtub, rubbish bin, and water storage (Dawe et al., 2020). Environment sanitation which did not full fil the requirement could caused mosquito which brought dengue fever. Because of that, it was suggested that health center employees came to give the counseling about DBD (Anggraini & Sidi, 2017). The role of family had important role in controlling dengue fever. It could prevent extraordinary event happened. The activities could be done such as; burrying, using lotion for mosquito, draining, and closing. All of the activities could be done if the people had self - awareness in preventing and keeping the cleanliness of the environment.

Community Health Center Employees in Controlling Dengue Fever

In the environment, Community Health center employees should be appreciated, respected, and listened what they were said and be easy to be accepted. They also had important role and were needed by the people. They should influence the people to keep cleanliness of their environment in preventing dengue fever. In reaching this goal, the people needed supporting from health center employees. This supporting could be seen by explaining, asking, giving sympathy, and having healthy life.

This research was same with the research that has been conducted by Kaeng et al. (2020). They stated that the role of community health center employees had impact in preventing DBD. It could be effective if they gave counseling regularly to the people in controlling dengue fever.

Conclusion

Based on the result of people's attitudes in preventing dengue fever, it involved 52 informants. 13,5% of informants had enough category in preventing dengue fever (DBD), and 86,5% of informants were as less category. This disease happened because of people's lack of knowledge in preventing and protecting the environment. It was hoped that puskesmas Antang Makassar could do evaluation programme in giving counseling about 3M Plus to the people. Then, it also helped them to understand and do the activity to create healthy environment.

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Author Contributions

The authors listed in this article contributed to the development of the article, and have read, approved the published manuscript.

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Conflicts of Interest

In writing this article, the authors do not have any conflict of interest.

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