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The Social Capital of Health Cadres and Community Figures in Overcoming DHF at Endemic Areas

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ABSTRACT Dengue Haemorrhagic Fever is the disease which rapidly spreads and causes death. Research to determine the success of controlling and preventing the disease in the community needs to be carried out. The research objective is to analyze the Social Capital of Health Cadres and the Community Figures, as well as their roles in DHF prevention and control in urban and suburban endemic areas of Semarang City. This research adopted a mix method technique, with quantitative and qualitative descriptive approaches. The data collection was carried out by filling out a questionnaire via google form. The social capital of the community figures greatly influenced the role of cadres, and their activeness in overcoming the disease. Therefore, caring, mutual trust, and good social relationship between cadres and the community, contributed to DHF control sustainability. Involvement of all parties in the prevention of DHF at the village level is also supported by the motivation and role model of stakeholders.

INTRODUCTION

Dengue Hemorrhagic Fever (DHF) is an infectious disease in developing countries (Harapan et al. 2020). Furthermore, government efforts to control its vector have been implemented in several countries since the past six decades, however, the cases are always on the increase (Sayono et al. 2019). Also, efforts to control DHF in Indonesia have been carried out using various methods (Sulistyawati et al. 2019). The success of the community-based control program depends on their participation (Mitchell-Foster et al. 2015), through implementing empowerment programs to increase community knowledge, attitudes, awareness, and practices in the DHF prevention and control (Asri et al. 2017).

The data from the Semarang City Health Office also shows that, there has been a dengue case increase since 2015-2018. In 2015, there were 1,729 DHF cases with a death rate of 20, while IR (Incidence Rate) and CFR (Case Fatality Rate) were 92.1 and 1.7 percent, respectively. This shows that the DHF cases in Semarang City has increased from 2014 to 2015, while the IR and CFR have also not been achieved, where the national IR target is 51 per 100,000 population and the CFR national standard is <1 percent. Gunungpati and Genuk are subdistricts with high DHF incidence and endemic areas for the disease. In the working area of Sekaran Public Health Center, people with DHF are always found every year, therefore, making it an area with great potential for the disease vectors' development. Gunungpati and Genuk subdistricts are growing very rapidly, where the population mobility is very high, and the behaviour towards mosquito nests eradication (*PSN*) is less, causing an increase in the DHF transmission. It is known that the Larva Free Rate (*ABJ*) coverage in Semarang City is still below 95 percent, which means that DHF transmission through vector is possible.

The success of controlling the disease is inseparable from the participation of the government and related sectors, strengthened by the community, cadres and existing health workers' efforts in the mosquito nests eradication (Sare et al. 2018; Sommerfeld and Kroeger 2012). The community participation is strongly influenced by their existing social capital (Asri et al. 2017). Therefore, the public efforts in the prevention and control of the disease greatly affect the distribution and density of the vector causing dengue (Kumaran et al. 2018). Moreover, larval density is closely related to the vulnerability of a community to be infected with the disease (Suwanbamrung et al. 2021). Therefore, the higher the vector density, the greater the tendency of DHF outbreaks (Xu et al. 2019; Zellweger et al. 2017; Wong et al. 2014).

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One of the determinants that influenced DHF control success is social factor (Agampodi et al. 2015; Kokubun and Yamakawa 2021; Zellweger et al. 2017). The community determinant, facilitating individuals and groups to carry out various activities is the social capital, which makes citizens interact with one another (Marcos-Marcos et al. 2018). The network between them is being promoted continuously in the form of trust and social relationships, as well as agreed norms between citizens in carrying out their roles (Makridis and Wu 2021; Villalonga-Olivesa et al. 2018). The social capital has been shown to be positively associated with various health impacts. In line with Caprara et al.'s (2015), Asri et al.'s (2017), and Alvarado-Castro et al.'s (2019) research, which examined the impact of entomology, community participation, and the capital in controlling dengue fever found that, there is a significant difference between social capital in groups and the success of dengue control. Also, there is a positive and consistent relationship between the capital and the support from individuals and groups in controlling dengue (Caprara et al. 2015). The low social capital of health cadres and figures reduce the PSN behaviour in the community (Marcos-Marcos et al. 2018).

Based on the importance of social capital in controlling dengue fever, this study aims to explore the role of community capital in controlling dengue fever. Therefore, the role of the capital on DHF in urban and suburban endemic areas needs attention. This is because DHF control is strongly influenced by the community participation in carrying out their role, in order to reduce larva density in the environment. Meanwhile, the social capital analysis is used as an indicator in determining whether the DHF control program is sustainable and successful. The purpose of this study is to analyze the Social Capital of Health Cadres and the Community Figures in urban and suburban areas of DHF Endemic at Semarang City, and also their roles in the prevention and control of the disease.

Research Objective

The research objective is to analyze the Social Capital of Health Cadres and the Community Figures, as well as their roles in DHF prevention and control at urban and suburban endemic areas of Semarang City.

MATERIAL AND METHODS

An observational research using a mix method, which included quantitative and qualitative descriptive approach. And was conducted from March to June 2020 (4 months) in two DHF endemic areas of Semarang City with urban and suburban characteristics, namely Pakintelan and Genuk. Purposive sampling technique was used in selecting respondents, which consisted of community Figures and cadres. There were 60 respondents in urban and 60 in suburban areas, which were representatives of health cadres, and community Figures (Wife of Neighborhood Head, and Village Elders).

This research commenced with coordination from the Head of Neighborhood 01, Pakintelan Village, followed by socialization, which was carried out in order to convey the research purpose and objectives to the community Figures and cadres. The data collection was conducted by distributing online questionnaires made with Google Form through WhatsApp group application in the relevant Neighborhood, due to the Covid-19 pandemic. The questionnaire contained closed and open questions to collect qualitative data on social capital, as well as DHF prevention and control.

The data obtained was based on DHF, community behaviours and practices towards the prevention and control. This data was related to the causes of dengue, vector life cycle, breeding sites, and methods of eradication. The behavioural data was based on creating environmental conditions that was incompatible with mosquito breeding. The practical data was related to the management and practice of DHF prevention by cadres, their families, and community. The descriptive analysis was carried out by determining the distribution value, frequency, and percentage.

The qualitative data obtained included the role of health cadres' social capital in controlling dengue fever, consisting of cognitive, relational and structural dimensions. 1) The cognitive dimension included care, mutual trust, and a sense of belonging among family members, community, cadres, and health workers. 2) The relational dimension included cooperation and communication based on shared values. 3) The structural dimension included social networks, associations, and community. The data on the leadership role of community Figures in controlling DHF included providing motivation, role models / examples, inspiration, a

place to ask questions and consultations, hold regular meetings, improve staff capacity, managing activities, and raising donations. The data about DHF control included covering larva monitoring larva activities by cadres, providing information related to this to the community, invitation to participate in the eradication of mosquito nests, and the elimination practices.

The data analysis was carried out using qualitative and quantitative approaches, the results were presented in percentage distribution and in the form of tables, graphs, and narratives for respondent characteristics, larvae density, knowledge, behaviours and practices of DHF prevention, distribution of monitoring officers, the role of cadres, and community figures.

The interview data were analyzed with qualitative data analysis based on Flick (2013), is a method of qualitative data analysis which is the practical steps of analyzing and representing interview data. Data analysis started with (1) reducing the data to determine and examine interesting phenomena. In this phase, the interview was transcribed, then read and re-read. The next phase included (2) rearranging, classifying, and categorizing the data. The final stage involved (3) interpreting and writing the findings. In this phase, the statements and propositions were observed based on previous research to develop arguments. Then stories were developed to convey the main ideas and present quotations to support statements. The stories were sorted to check the existence of community social capital in the DHF prevention and control, and were grouped based on theoretical framework. This research received a letter of ethics approval from the Health Research Ethics Commission (KEPK) of Semarang State University No. 095/KEPK/EC/2020.

RESULTS AND DISCUSSION

Description of Research Site

Pakintelan Village is one of the dengue endemic areas of Gunungpati subdistrict, Semarang City with a high number of DHF cases. Its geographic location makes it a suitable place for the Aedes aegypti mosquito to inhabit. Furthermore, this area also have high mobility close to the densely populated urban areas.

This research commenced in March 2020 with the coordination of the study team, and was licensed by the leadership in Pakintelan Village. After being granted approval, the team coordinated the activities with the Heads of Neighborhoods and their wifes. Then observations and interviews were conducted with the wives and community figures. All coordinations were carried out through an online system, because of the COVID-19 pandemic. After determining a schedule that was adjusted to the cadres' free time, the research team shared a link that needed to be fill in and conducted interviews with the wife of the Neighborhood Head and several cadres regarding the obstacles and efforts made in overcoming dengue disease.

The interviews and observations with community figures and village cadres concluded that the DHF prevention and control has been successful. The coordination of eradicating mosquito nests from the public health center to the village office was then carried out in each neighborhood assisted by health cadres. The residents' houses with large bathtubs were difficult to drain and required frequent monitoring atleast once a week. Many residents have started raising fish, therefore, eating mosquito larvae, while some have manipulated the bathroom by using a tub from a bucket. However, some did not care about the surrounding environment, still throwing trash, used cans or pots / washbasins into the garden, therefore, it become a place of rainwater reservoir.

Genuk subdistrict is a suburban area with a more heterogeneous population than Pakintelan village. Genuk is a densely populated area and geographically located in a coastal area which often experiences tidal flooding. The number of industries, offices, public places, boarding houses makes the DHF prevention and control programs to be difficult in this area. The cadres, community figures and members often face challenges related to community social capital in overcoming DHF. Table 1 shows research respondent characteristics. Most of the respondents were female (95% in urban areas, and 83.3 % in suburban areas). Most of the respondents were aged 26-35 years old (66.7 % in urban, 58.3 % in suburban). Most of the family members of respondents were 1-5 people. Most of the respondents' occupations were private employees and entrepreneurs. The last education was mostly junior/senior high school.

Table 1: Characteristics of research respondents

S.No.	Characteristics	Category	Urban		Suburban	
			Frequency	%	Frequency	%
1	*Gender*	Male	3	5.0	10	16.7
		Female	57	95.0	50	83.3
2	*Age*	16-25	12	20.0	10	16.7
		26-35	40	66.7	35	58.3
		36-45	6	10.0	10	16.7
		46-55	2	3.3	5	8.3
3	*Family Members*	1-5 people	54	90.0	52	86.7
		≥6	6	10.0	8	13.3
4	*Job*	Civil Servants/ teacher	13	21.6	6	10.0
		Others (private, self-employed)	27	45.0	30	50.0
		Housewife	20	33.3	24	40.0
5	*Last Education*	D3/D4/S1/S2	15	25.0	18	30.0
		Junior/ Senior High School	40	66.7	36	60.0
		Elementary School/ equivalent	5	8.3	6	10.0
6	*Position in the Village*	Ordinary citizens	41	68.3	46	76.7
		Cadre	15	25.0	10	16.7
		Public figure	4	6.7	4	6.6

Source: Primary Data, 2020

Table 2 showed that the areas with the highest House Index (HI) and Container Index (CI) number were in the Genuk Village and ABJ of the two study locations, and was less than 95 percent, meaning that the dengue incidence in these places had great transmission potential. Based on the HI and CI indices, Sekaran and Genuk villages had a density figure (DF) between 2-5 (moderate), meaning that the degree of disease transmission by larvae was moderate.

Table 3 showed that the community did not have the knowledge about mosquito breeding sites, and also how to reduce their density. Therefore, the information provided to the community need-

Table 2: Larva density in the endemic subdistrict of Semarang City 2020

Village	House		Container		Larva Index		
	N	Larva (+)	N	Larva (+)	ABJ (%)	HI (%)	CI (%)
Pakintelan	60	10	139	14	83.3	16.7	10.1
Genuk	60	15	168	31	75.0	25.0	18.5

Description:
n= number of sample

Table 3: Community knowledge about DHF

S.No.	Indicator	Urban		Suburban	
		True (%)	False (%)	True (%)	False (%)
1	Causes of DHF	88.3	11.7	63.3	36.7
2	DHF vectors / transmitters	100	0	66.7	33.3
3	Mosquito life cycle	61.7	38.3	53.3	46.7
4	Mosquito breeding grounds	46.7	53.3	38.3	61.7
5	Direct method for reducing mosquito larvae density	63.3	36.7	55.0	45.0

Source: Primary Data, 2020

ed to be evaluated and improved both in urban and the suburban areas of DHF endemic at Semarang City. Also, this increases larvae free rates and reduces the vector density of Aedes aegypti mosquitoes in the household environment. Moreover, those with a better knowledge proportion, have higher DHF prevention behaviour, therefore, reducing vector density in the community. The community knowledge about DHF in urban is higher than in suburban. The average of community knowledge about DHF in urban was 72.0 percent, and in suburban was 55.3 percent. The highest knowledge value in urban and suburban is knowledge about DHF vectors/ transmitters.

The attitude towards DHF prevention in urban and suburban areas was not much different, with a higher tendency in urban areas (Table 4). Table 4 showed that agreeing to closing water reservoirs is one method of preventing DHF spread (100% in both of them) and providing an example of how to perform 3M (draining, burying and closing water reservoirs in Indonesia called 3M) for family members, should be carried out, because it is a shared responsibility (100% in urban, 91.7 % in suburban) has the highest score in urban and suburban.

This was greatly influenced by community knowledge, regarding how to reproduce and prevent DHF. People tend not to understand the important points in DHF prevention, such as the need to bury used goods, without having to wait until it disturbs the environment, no need to close water reservoirs when drained regularly and using of larvicides appropriately. This attitudes need to be developed by improving the community behaviour in controlling dengue fever (Tana et al. 2012).

Generally, the practice of controlling dengue fever in urban communities was higher than in suburban areas (Table 5). Table 5 shows that in urban area, keeping the bathtub clean (98.3%), maintaining cleanliness of water reservoirs (98.3%), and using lotion / coils / mosquito repellent spray when necessary (95%) were the highest behaviors in controlling DHF. In the suburban, the highest behaviors in controlling DHF were keeping the bathtub clean (86.7%), managing used tires/ bottles in the environment around the house and changing the water in a vase of flowers/ bird drinking water regularly, at least once a week (75%), and using lotion / coils / mosquito repellent spray when necessary (90%).

This was strongly influenced by the social capital of health cadres and the figures that promoted and motivated the community to always be active in preventing DHF. The cadres and the big figures in urban areas were generally very close to the community, therefore, providing information and support directly through regular meetings of the Mothers Group (*PKK*) or *dasa wisma (a group of mothers from 10 households (heads of families) who are neighbors to facilitate the running of a program and called dawis*. They also utilized Whatsapp communication media for outreach and announcing of activities related to DHF control.

Table 4: Community attitudes in controlling DHF

S.*No.*	*Indicator*	*Urban*				*Suburban*			
		Agree		*Disagree*		*Agree*		*Disagree*	
		N	*%*	*n*	*%*	*n*	*%*	*n*	*%*
1	Burying used items is carried out, to determine whether it is very disturbing to the environment	27	45.0	33	55	34	56.7	26	43.3
2	Closing water reservoirs is one method of preventing DHF spread	60	100	0	0.0	60	100	0	0.0
3	Providing an example of how to perform 3M for family members, should be carried out, because it is a shared responsibility	60	100	0	0	55	91.7	5	8.3
4	Even though it is drained every week, the tub needs to be closed with a lid to prevent larvae?	56	93.3	4	6.7	50	83.3	10	16.7
5	Larvicide is only given to water reservoirs that are difficult to drain/clean	47	78.3	13	21.7	40	66.7	20	33.3

Table 5: Community practices in DHF control

S.*No*	*Behaviour*	*Implementation*							
		Urban				*Suburban*			
		Yes		*No*		*Yes*		*No*	
		n	*%*	*n*	*%*	*n*	*%*	*n*	*%*
1.	Managing waste	52	86.7	8	13.3	41	68.3	19	31.7
2.	Keeping the bathtub clean	59	98.3	1	1.7	52	86.7	8	13.3
3.	Draining the bath once a week	56	93.3	4	6.7	38	63.3	22	36.7
4.	Closing the water reservoir	51	85	9	15	38	63.3	22	36.7
5.	Maintaining cleanliness of water reservoirs	59	98.3	1	1.7	41	68.3	19	31.7
6.	Manage rainwater, making it not stagnant	52	86.7	8	13.3	24	40.0	36	60
7.	Managing used tires/ bottles in the environment around the house	50	83.3	10	16.7	45	75.0	25	25
8.	Changing the water in a vase of flowers/ bird drinking water regularly, at least once a week	52	86.7	8	13.3	45	75.0	25	25
9.	Raising fish to eat mosquito larvae in ponds that are difficult to clean	38	63.3	22	36.7	36	60.0	24	40
10.	Do not hang clothes	41	68.3	19	31.7	27	45.0	33	55
11.	Wearing a mosquito net while sleeping in the morning - evening	27	45	33	55	34	56.7	26	43.3
12.	Using lotion / coils / mosquito repellent spray when necessary	57	95	3	5	54	90.0	6	10
13.	Checking for the presence of mosquito larvae once a week at home	52	86.7	8	13.3	38	63.3	22	36.7

Meanwhile, in suburban areas, it tends to be difficult to reach people with very heterogeneous characteristics, such as the large number of immigrants that were on boarding / contracting, because of their workplace, the public places, for example restaurants, facilities, offices, factories that were difficult to reach, as well as the geographical location of the area close to the coast, therefore, tidal flooding often occurs. This made controlling of DHF in suburban areas more difficult (Alvarado-Castro et al. 2019; Asri et al. 2017; Sayono et al. 2019; Stewart Ibarra et al. 2014).

The results showed at those monitoring mosquito larvae in community's homes (Table 6), both in urban and suburban areas, were mostly cadres, followed by *dasa wisma*, and health surveillance officers (Gasurkes). In urban, the highest implementation of larva monitoring was the cadre (45.5%) and Dasa wiswa (41.7 %), while in the suburban the highest was carried out by the cadre (55.0%).

The role of health cadres in urban was higher than in suburban areas, which was shown in Table 7. The highest role of cadres in larva monitoring at urban areas of DHF Endemic were whether there are larvae in the house, do cadres provide guidance / counseling to eradicate mosquito nests and cadres inform the community to cultivate prevention behaviour in order to avoid DHF (91.7 %). The highest role of cadres in larva monitoring at suburban areas of DHF endemic was cadres detect and inform the presence of Aedes aegypti larvae in the house (66.3%) and whether there are larvae in the house, do cadres provide guidance/ counseling to eradicate mosquito nests (66.7%). The high social capital of health cadres played a role in their activeness to carry out regular and correct larva monitoring (Villalonga-Olivesa et al. 2018).

Table 6: Distribution of larva monitoring officers in urban and suburban areas of DHF Endemic at Semarang City in 2020

Larva monitoring officer	*Urban*		*Suburban*	
	n	*%*	*n*	*%*
Cadre	27	45.0	33	55.0
Dasa wisma mothers	25	41.7	17	28.3
Gasurkes / Public Health Center Officer	7	11.7	10	16.7

The role of community figures in urban was higher than in suburban areas, as shown in Table 8. The highest role of community figures in overcoming DHF in urban and sub urban was providing an example / role model in preventing DHF (91.7% in urban, 66.7% in suburban).

The high social capital of community figures played a role among the cadres and the monitoring of larvae regularly and correctly (Villalonga-Olivesa et al. 2018). Furthermore, the big figures were role models for their community in overcoming dengue (Asri et al. 2017).

1. The Role of Health Cadre Social Capital in DHF Control

1) Cognitive Dimension

a. The care given by the health cadres in preventing and controlling DHF in the environment is demonstrated by their practice in providing motivation, education, and outreach to the community. Furthermore, they always maintain the cleanliness of the places that are breeding places for Aedes aegypti mosquitoes, providing important information regarding dengue fever, and are invited regularly to monitor larvae once a week. Also, the care given in suburban areas is good, however, they are constrained by their busy work. Their concerns are found in the following respondents' answers:

"Cadres always control and give suggestions to the community about the importance of preventing dengue, therefore, creating mutual confidence among members of the community"

"Implementing and entrusting the activity of draining the bathtub once a week to residents, because, it is one of the easiest task to perform and is a routine activity to maintain cleanliness"

"By encouraging mutual cooperation / community service to clean the environment around the house"

b. The role of health cadres in fostering mutual trust to prevent DHF

Table 7: Role of cadres in larva monitoring at urban and suburban areas of DHF endemic at Semarang City in 2020

The role of cadres in overcoming DHF	*Urban*				*Suburban*			
	Yes		*No*		*Yes*		*No*	
	n	*%*	*n*	*%*	*n*	*%*	*n*	*%*
Cadres/ health workers regularly monitor mosquito larvae, atleast once a week	46	76.7	14	23.3	22	36.7	38	63.3
Cadres detect and inform the presence og Aedes aegypti larvae in the house	47	78.3	13	21.7	38	63.3	22	36.7
Whether there are larvae in the house, do cadres provide guidance / counseling to eradicate mosquito nests	55	91.7	5	8.3	40	66.7	20	33.3
Cadres inform the community to cultivate prevention behaviour in order to avoid DHF	55	91.7	5	8.3	36	60.0	24	40.0

Table 8: Role of community figures in overcoming DHF

The role of community figures	*Urban*				*Suburban*			
	Yes		*No*		*Yes*		*No*	
	n	*%*	*n*	*%*	*n*	*%*	*n*	*%*
Taking an active role in eradicating mosquito nests	43	71.7	17	28.3	33	55.0	17	28.3
Providing motivation in preventing DHF	47	78.3	13	21.7	36	60.0	24	40.0
Providing an example / role model in preventing DHF	55	91.7	5	8.3	40	66.7	20	33.3
Providing inspiration in preventing DHF	45	75.0	15	25.0	36	60.0	24	40.0
Answering questions related to DHF	42	70.0	18	30.0	33	55.0	17	28.3

Mutual trust in preventing and controlling DHF in urban areas is shown by the cadres' attitudes and practices in providing motivation, education, and socialization for the community to always maintain cleanliness in places that are breeding places for Aedes aegypti mosquito. Also, they routinely carry out regular larva monitoring at residents' homes. Meanwhile, in suburban areas, the cadres' mutual trust is hampered by the diverse conditions and the difficulty of the community in obtaining clean water. The cadres' mutual trust in the community is shown in the following respondents' answers:

"Cadres always control and give advice to the community about the importance of preventing dengue fever. Therefore, mutual confidence is created between members of the community"

"Implementing and entrusting the activity of draining the bathtub once a week to residents, because, it is one of the easiest task to perform and is a routine activity to maintain cleanliness"

"By encouraging mutual cooperation / community service to clean the environment around the house"

c. Health cadres show a sense of belonging among members, other workers, and community figures in preventing DHF

They have a sense of belonging in both urban and suburban areas.

Their sense of belonging to the community is shown in the following respondents' answers:

"Ensuring that the control and prevention of dengue is a shared responsibility"

"Cadres always provide counseling and advice, therefore, there is an awareness in the community about the importance of preventing DHF"

Cadres foster a sense of belonging among community members by participating in various activities, being involved in controlling, monitoring, and also, providing advice and input in carrying out *PSN*.

2) Relational Dimension

a. Cooperation of health cadres and the community in preventing DHF

Cadre cooperation is owned in both urban and suburban areas. However, the sense of mutual cooperation is higher in urban areas, because they routinely hold meeting activities, such as Mother Groups/ *PKK* (Family Welfare Empowerment), recitation, Integrated Healthcare Center, *dasa wisma* , and community service once a month. The cooperation of cadres with the community is shown in the following respondents' answers:

"Cadres and the community work together to eradicate mosquitoes as an effort of preventing dengue fever effectively"

"monitoring of mosquito larvae"

"They routinely / periodically carry out PJN to residents, therefore, their conditions and the problems are known and quickly resolved "

Cadres always monitor larvae with the community through *dawis* groups and provide information on the results through the *PKK* WhatsApp page.

b. Communication of health cadres and the community in preventing DHF

Cadres in urban and suburban areas have been selected according to their ability to communicate and also have a good education level. However, cadres in suburban areas experience communication problems with residents, due to the limited means of communication. Some families did not have cell phones for receiving dengue prevention messages. Then, direct communication has been carried out in a friendly manner in accordance with directions from the Public Health Center or Village office. The communication of cadres to the community is shown in the following respondents' answers:

"Friendly and non-patronizing"

"Through an individual or group approach, cadres carry out checks on the community at least once a week."

"Communication is carried out according to the flow through the village, and then conveyed to each Neighborhood both to the chairman of the Neighborhood / Hamlet, as well as to Dawis's mothers"

"Direct coordination for socialization was carried out through WA, because of the pandemic"

Cadre communication with the community is very good, where there are residents' houses with larvae, therefore, they remind and give suggestions to immediate draining in a friendly and non-patronizing manner. While communication is carried out according to the flow, namely through the village and delivered to each Neighborhood and to the *Dasa wisma* group to carry out DHF prevention.

3) Structural Dimensions

a. Social relations between health cadres and community members in preventing DHF

The social relations forged by cadres in both urban and suburban areas are good.

"It relates well socially, because once a month, an Integrated Healthcare Center is definitely held and counseling is provided".

"Involved in activities, such as Mother Groups, recitation, visiting the sick, and helping each other when there is a celebration at the residents' homes.

Involving in social activities, helping out when a neighbor has a celebration, mourning and ta'ziah, as well as helping when a neighbor dies, recitation, Mother Groups, and Dawis"

"I think it's pretty good, because when the public health center officers or cadres check the houses, the residents easily accept them and when the community ask questions, they provide corresponding answers"

The social relationship between cadres, the big figures, and the community are very good. Therefore, the residents participate well when asked to carry out PSN independently and happily, and also when cadres visit their house to monitor larvae once a week.

b. An association conducted by health cadres with community members in preventing DHF

Associations related to dengue have been carried out, however, the intensity in its delivery to the community is higher in urban areas, because meetings are routinely held specifically for dengue fever or in conjunction with other meetings.

"There are regular meetings in conjunction with the Integrated Healthcare Center / dasa wisma about counseling and follow up"

"There is routine DAWIS or PKK meetings"

"Socialization in PKK and youth organizations"

"The association is held at the Neighbourhood level to prevent and overcome dengue through routine PKK activities and the Dawis group, besides, it is also coupled with Integrated Healthcare Center activities. These PKK and Dawis activities are routinely carried out once a month, and the participants are mostly mothers at the Neighborhood level, around 33 families. Each Dawis (dasa wisma) consists of 10-20 families, with 3 cadres. These cadres are tasked with monitoring larvae in residents' houses and reporting to the Neighbourhood."

2. Role of Community Figures in DHF Control

In urban and suburban areas, village stakeholders (officials, such as the neighborhood, and village heads) take an active role in eradicating mosquito nests. The DHF control activities in urban areas that have been carried out by cadres routinely once a week are larva monitoring activities, burying used goods, and voluntary works. Providing information is also carried out through mosque speakers to the surrounding community regarding how to prevent DHF. In urban areas, community figures participate in the monitoring of mosquito larvae simultaneously once a week, and held by the village office. Furthermore, they are involved in PJR (Routine Larva Monitoring), which is carried out by *dasa wisma* or cadres, and also take turns with community cleaning work, as well as PJR socialization through Neighborhood and WhatsApp Group. Often, there is counseling from the public health center and PJR once a month from FKK (Village Health Forum).

In general, the DHF prevention and control has been successfully carried out by community figures, cadres, and also residents in suburban areas. However, the activity of DHF prevention and control activities depends on the community as an individual. The constraints in suburban areas are higher for cadres and the big figures, because of the community characteristics (Asri et al. 2017).

a. Motivation, role models, and inspiration given by community figures (Mr / Mrs Neighborhood / Village Head) to the members in preventing DHF

Motivation, exemplary, and inspiration have been provided by community figures in both urban and suburban areas. The rate is higher in urban than in suburban areas, because social capital is on the increase. Motivation is given in the form of always reminding, inviting, and giving examples of keeping the environment clean by implementing 3M +, either in the Neighborhood / Hamlet associations or through mosque speakers.

The motivation given is in the form of an action, such as visiting residents' homes. The com-

munity figures provide motivation, role models and inspiration to the members through directions in their meetings, religious activities, PKK at the *dasa wisma* level, and others. The figures always maintain the house and the surrounding environment cleanliness, as well as participate in every community service activity.

Community figures are ready to give answers to questions and related information concernig dengue. Furthermore, they are leaders and role models in carrying out activities in society. It is expected that community figures and cadres open communication, provide information and education to increase knowledge, attitudes and behaviour in order to help people identify and overcome their own problems. Therefore creating awareness and willingness to practice clean and healthy living behaviours through a leadership approach (Advocacy), atmosphere development (Social Support), and community empowerment (Empowerment).

The Dengue Fever incidence, which tends to be difficult to decrease, has resulted in various eradication efforts being carried out. The results of previous studies showed that eradicating mosquito nests is one of the most effective methods of reducing mosquito density. Furthermore, the role of cadres and the figures is similar, such as increasing community participation in monitoring and eradicating mosquito nests regularly, once a week. Without community participation, the role of cadres and the figures are not carried out effectively (Lin et al. 2016; Lloyd, et al. 1994; Sommerfeld and Kroeger 2012).

Health cadres are elected personnel from the community working together voluntarily (Viennet et al. 2016). They are also referred to as elected men or women by the community and trained to deal with public health problems. They have great roles in increasing people's ability to help one another in order to achieve an optimal degree of health. The role of cadres are in the form of energy and material. Furthermore, they also play a role in community development related to the health sector (Echaubard et al. 2020).

The cadre has the function of being a larva observer (*Jumantik*), and they are obliged to make notes or reports to the nearest village or public health center. Besides Jumantik officers, each community is also obliged to carry out larvae surveillance/ monitoring in their area (self Jumantik), through the *dasa wisma* program.

The physical environment greatly influence the dengue vectors. The presence of the A. aegypti mosquito is determined by the specificity of the topography, the suitable climate (rainfall, temperature, humidity, and wind speed), and the level of the community's lifestyle (Arunachalam et al. 2012). In areas with many man-made water reservoirs (drums, jars, baths), there are many A. aegypti. Places with high social community capital have the capacity of protecting their environments from dengue (Elsinga et al. 2018; Elsinga et al. 2017).

The social capital concept is a means of explaining individuals or communities' collaboration. While trust is one of the social capital instruments formed in the society or community. Furthermore, trust grows due to a common destiny and purpose in achieving certain goals, therefore, forcing individuals or communities to cooperate (Kumaran et al. 2018).

Liang et al. (2020) stated that social capital is more of relationships and connections between individuals, than a personal attribute. The key concept is that social capital is not an individual characteristic or personality trait, however, it is a resource located within networks and groups of people which are useful in health production (Cui et al. 2021). Social capital is a set of very important assets in the society or organization occurring as a result of the interaction among community members, and mutual trust to work together with a common goal in solving the problems faced, consciously without coercion from anyone. Furthermore, social capital in the form of norms, trust, and networks is demonstrated through various activities in DHF control, such as routine meetings, the formation of voluntary mosquito larva monitoring groups, efforts to change behaviour, and cross-sectoral collaboration (Asri et al. 2017).

The analysis related to the role of social capital for cadres and figures in handling dengue fever and maintaining environmental hygiene with PSN is carried out both independently and through the *Dasa Wisma* group. This means that social capital is closely related to the PSN and DHF participation of mothers at the household level. The 3M implementation aspect, the use of abate is strongly related to the aspects of trust and mutual relationships. In the aspect of fish rearing in containers, compliance is strongly associated with potential areas, while in endemic places, it is strongly related to the participation level (structural social capi-

tal) (Agampodi et al. 2015; Nguyen-Tien et al. 2019; Sare et al. 2018).

Social capital through networks in the communities have an impact on the health protection quality. Furthermore, it has a positive impact and forms an active forum for the Alert Village in Sorosutan during the dengue outbreak eradication. This is also evident in the research sites, where urban villages that have cadres and big figures with high social capital are able to mobilize the community simultaneously in preventing and overcoming dengue. Furthermore, cadres and the big figures are able to make social communication networks always active, in order to encourage the implementation of IEC activities (communication, information, and education) related to DHF and mosquito nest eradication, both independently and regularly. Therefore, it is suggested that both group jointly work with the community in tackling DHF.

CONCLUSION

The DHF control in endemic areas, both in urban and suburban areas, is highly dependent on the role of health cadres and community leaders. Cadres and community figures have social capital that can support the sustainability of community knowledge, attitudes and behavior in preventing and controlling DHF. Cadres and community figures who have high social capital can increase the community's social capital to combat DHF. The role of social capital for health cadres in fighting dengue is caring, fostering mutual trust, fostering a sense of belonging, cooperation, communication, establishing social relationships, and forming associations. The role of social capital of community figures in fighting dengue fever is to provide motivation, role models, and become inspiration. The role of social capital of community figures has been carried out both in urban and suburban areas. The level of motivation is higher in urban areas than in suburban. Strong social capital in a community will increase synergistic relationships in each part so that each part will provide an optimal role in controlling DHF.

RECOMMENDATIONS

This study was designed to analyze the social capital of health cadres and community figures in overcoming DHF at Endemic Areas. Further studies are needed to develop tools and methods for increasing social capital in communities to improve dengue control by considering urban and suburban areas or based on regional characteristics.

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ETHICS APPROVAL AND CONSENT TO PARTICIPATE

Participants were briefed before providing their agreement through the PSP form (Explanation form), which clearly allows them to refuse when they are not willing to participate or want to stop during an interview. Informed Consent was voluntarily signed by each participant after receiving an explanation, without coercion. The participants were further provided with a souvenir, as a token of appreciation for contributing to the provision of data and time. Also, the Ethics approval of this research was obtained from the Ethics Committee: Ethics Committee of Health, Universitas Negeri Semarang (Project identification code: 095/KEPK/EC/2020). Respondents understood, agreed and signed and informed consent form prior to study start.

COMPETING INTEREST

The author declares that there are no significant competing financial, professional, or personal interests that might have affected the performance or presentation of the work described in this manuscript.

AVAILABILITY OF DATA AND MATERIALS

The data are available upon request to the first author.

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