SOCIAL CAPITAL BASED HEALTH PROMOTION FOR ELIMINATING DENGUE MOSQUITO BREEDING PLACES IN BANTUL DISTRICT YOGYAKARTA

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Abstract

Programs aimed to eliminate mosquito breeding places were considered as inadequate due to the absence of community participation effort in vector control. Current program to modify behavior change disposed by counseling and to eliminate the mosquito breeding places were developed without paying attention to social capital of the society, which cause some program are unsustainable. Social capital is a key factor for sustaining any health programs implemented in the society. To analyze the effectiveness of social capital in eliminating dengue mosquito breeding places in Bantul District. Study design was cross sectional. Population of the study was local community in Bantul District. Samples were 600 households divided into two categories: endemic and potential areas. Data were collected by interviews and observation method. Data were analyzed using the person correlation, confirmatory analysis and pathway analysis. Social capital was significant in affecting community participation in eliminating dengue mosquito breeding places (t = 10.86) followed by the perception of people in eliminating dengue mosquito breeding places (t = 9.86). Counseling was more significant to affect community participation in the elimination of dengue mosquito breeding places in households (t = 8.50) than participation in the elimination of dengue mosquito breeding places dengue fever in environment (t = 1.20). Health promotion model in the elimination of mosquito breeding places was more effective to decrease CI with reinforcement social capital by family and environment participation in Bantul District.

Keywords: social capital, health promotion, elimination of mosquito breeding places, dengue hemorrhagic fever.

Presenting Author's biography

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INTRODUCTION

Indonesian government has made several efforts to control dengue mosquitoes, including the program of spraying, larvaciding, and eradicating dengue mosquitoes breeding place, even though the results are still not as expected [1]. The success of the program for eliminating mosquito breeding places was still low since there was no public participation effort in vector control. Therefore, reducing dengue fever by community participation was one of the government's concerns.

Despite the fact the dengue control programs established by Indonesian government have been related to community as vector control with promotion aspects, none of the promotion programs involve the community participation. Therefore, the community was less interested to participate in the programs even though they have the main role on health program, especially in dengue program. Public participation was a key factor for the programs to be successful and sustainable among community process [2]. Previous study concluded that low public participation made one particular program was not sustainable. Participation of the public was the main key in community mobilization for dengue control program [3].

More strategies, approaches and other programs for controlling dengue were implemented, but they were difficult to be applied due to the low community participation. Social capital can be built through the various levels, namely at the level of micro, mezzo and macro. Previous study was stated that social capital becomes one of the alternatives to solve health, poverty, and economic problems [4,5].

Various efforts to increase community participation through increased social capital have been done but the programs cannot last longer. Community interest in the application of social capital was expected to be more effective in solving various problems in society, especially in the prevention of dengue fever [6]. Social capital of the community was a key factor for sustaining any health programs implemented into the community.

Some health promotion concepts have not been focused on social capital model aspect that was real underlying the elimination of dengue hemorrhagic fever. In Indonesia, the concepts have been developed to modify behavior change in the society through counseling and program to eliminate dengue mosquito breeding places without paying attention to social model that had been had by society. It then causes some programs become unsustainable. This condition causes the program was impeded when the program finished and the society could not continue it. This study aimed to analyze the planning of health promotion to effectively eliminate dengue mosquito breeding places in every district based on the status of endemicity.

METHOD

This research was across sectional study. The population study was 254,149 households in Bantul District. Samples were 600 households selected using cluster sampling technique. These household were divided into two categories: endemic areas and potential areas. A total of 420 households were selected from the endemic area and 180 households were selected from the potential.

Data was collected by interviewing and observing each household in accordance to the questionnaire. The questionnaire was divided into sections of social capital, family perception, program perception, disease perception, household participation, environment participation, and dengue density (container index/CI). These instruments were tested for their

validity and reliability before they were applied in the field. Validity and reliability was performed on 225 subjects. Data were presented in tables, figures and narration. Data were analyzed using the person correlation, confirmatory analysis and pathway analysis (95% CI).

RESULT

The analysis on the relationship among the variables was based on the conceptual theory. They were the effect variable (exogenous), capital social variable, counseling of elimination for mosquito breeding places of dengue hemorrhagic fever, and elimination for mosquito breeding places of dengue hemorrhagic fever program. Influenced variables (endogenous) were the perception of elimination for mosquito breeding places of dengue hemorrhagic fever, perception of dengue hemorrhagic fever disease, participation of elimination for mosquito breeding places of dengue hemorrhagic fever elimination for mosquito breeding places of dengue hemorrhagic fever in family, participation of elimination for mosquito breeding places of dengue hemorrhagic fever elimination for mosquito breeding places of dengue hemorrhagic fever in environment by larva density or index container (CI).

Table 1. The relationship of social capital, counseling, program of elimination for mosquito breeding places of dengue hemorrhagic fever (elimination of dengue mosquito breeding places) with perception of dengue hemorrhagic fever disease, participation in family, participation in environment with CI

No	Variable	Social Capital (X1)		Counseling (X2)		Programs (X3)	
		R	p	r	P	r	p
1	Perception of elimination of dengue mosquito breeding places DBD (X4)	0.805	p<0.0001	0.808	p<0.0001	0.246	p<0.0001
2	Perception of dengue hemorrhagic fever disease (X5)	0.443	p<0.0001	0.413	p<0.0001	0.159	p<0.0001
3	Participation in family (X6)	0.698	p<0.0001	0.691	p<0.0001	0.189	p<0.0001
4	Participation in environment (X7)	0.789	p<0.0001	0.691	p<0.0001	0.325	p<0.0001
5	CI	-0.768	p<0.0001	-0.826	p<0.0001	-0.210	p<0.0001

Table 1 shows that in both endemic and potential areas, there was a significant relation between social capital and perceptions of elimination of dengue mosquito breeding places of dengue fever, perceptions of dengue fever, participation on elimination of dengue mosquito breeding places of dengue fever in households, and participation of elimination of dengue mosquito breeding places of dengue fever in the environment by CI $p < 0.01$. Based on counseling results, there was significant relationship between perceptions of elimination of dengue mosquito breeding places of dengue fever, perceptions of disease, participation elimination of dengue mosquito breeding places of dengue fever in households, participation of elimination of dengue mosquito breeding places of dengue fever in the container index of the environment ($p<0.01$).

Based on the elimination of dengue mosquito breeding places of dengue fever program, there was a significant relationship between perspective on dengue fever, the perception on disease, participation in eliminating dengue mosquito breeding places at households, participation in eliminating dengue mosquito breeding places at the environment and CI $p < 0.01$.

An examination on the relationship between variables indicators of social capital including the elimination of dengue mosquito breeding places of dengue fever program, perceptions of elimination of dengue mosquito breeding places, participation of eliminating dengue mosquito breeding places at the households, participation of eliminating dengue mosquito breeding places at the environment, larvae density, was carried out. It showed that there was a relationship between social capital in role compliance indicators, the role of community figures, mutual trust, relation mutual and participation ($p \leq 0.001$). Indicators with most powerful relationship in trust indicators of ($r = 0.741$). There was a significant relationship between social capital and perceptions on dengue fever ($p \leq 0.001$). Indicators with most powerful relationship in rules indicators of ($r = 0.355$).

Table 2. The relationship between social capital social indicators and perception to eliminate dengue mosquito breeding places, perceptions of dengue fever, participation of elimination of dengue mosquito breeding places at households, participation of elimination of dengue mosquito breeding places at environment, and CI of endemic and potential area.

No	Variable	Social Capital (X1)									
		MS1		MS2		MS3		MS4		MS5	
		r	p	r	p	r	P	r	p	r	P
1	Perception on the elimination of dengue mosquito breeding places (X4)	0.714	0.000	0.254	0.000	0.741	0.000	0.699	0.000	0.675	0.000
2	Perception on dengue fever (X5)	0.355	0.000	0.342	0.000	0.313	0.000	0.289	0.000	0.330	0.000
3	Family Participation (X6)										
	3 M	0.570	0.000	0.147	0.000	0.754	0.000	0.664	0.000	0.593	0.000
	Abate	0.380	0.000	0.496	0.000	0.164	0.000	0.125	0.002	-0.015	0.709
	Cared for fish	0.000	1.000	-0.067	-0.103	0.064	0.119	0.063	0.120	0.152	0.000
	Garbage	0.614	0.000	0.305	0.000	0.665	0.000	0.647	0.000	0.423	0.000
4	Environmental participation (X7)	0.811	0.000	0.548	0.000	0.643	0.000	0.485	0.000	0.440	0.000
5	Larva density Container index	-0.703	0.000	-0.355	0.000	-0.689	0.000	-0.659	0.000	0.502	0.000

Description:
MS1 : Role Compliance
MS2 : Community figure
MS3 : Mutual trust
MS4 : Mutual relation
MS5 : Participation level (social structural modal)

There was a significant relation between social capital and participation on depleting, burying and throwing (*3M: Menguras Mengubur dan Membuang*) ($p < 0.001$), the most powerful relations in trust indicators ($r = 0.754$). On the participation in abate, there was a significant relation between social capital compliance rules, the role of community figure, mutual trust, and relation ($p < 0.05$). On the contrary, there was no significant relation between social capital and abate indicators ($p = 0.709$). In raising fish indicator, significant indicator was participation level indicator ($p = 0.000$).

There was a significant relation between social capital and participation of waste disposal. The strongest relation to participate waste management in trust indicators ($r = 0.665$). There was a significant relation between social capital in compliance rules indicators, the role of community figure, mutual trust, mutual relation and participation level by participation of elimination of dengue mosquito breeding places at environment $p \leq 0.001$. The stronger value was related to participation of elimination of dengue mosquito breeding places in environment compliance rules ($r = 0.811$). Based on larva density variable on social capital in rules compliance indicators, the role of community figure, mutual trust, mutual relation and participation significant relating to container index $p \leq 0.05$. The highest was in the compliance rules indicator ($r = -0.703$).

The results of the analysis was done with both regions in the potential and endemic areas to the factors that affect the scope of container index as social capital, perception to these services of elimination of dengue mosquito breeding places, perception of elimination of dengue mosquito breeding places program, perceptions of dengue fever, participation of elimination of dengue mosquito breeding places in households, participation of elimination of dengue mosquito breeding places in environment. The results of the analysis can be seen in the figure below:

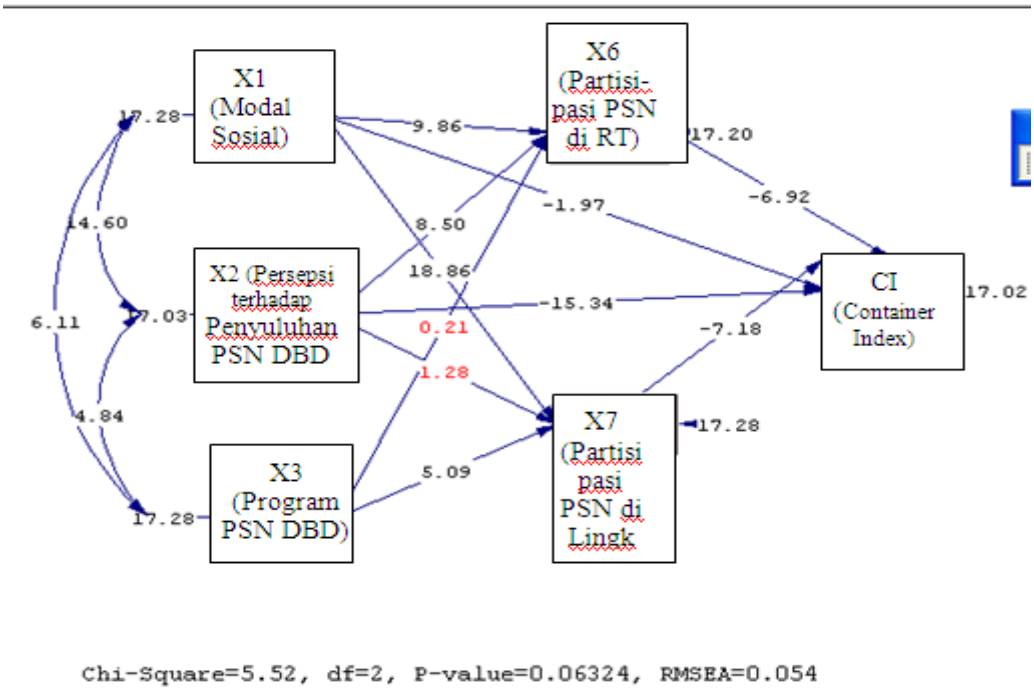

Figure 1. The result of track model of social capital model, counseling and program.

Based on the results of the analysis, it can be concluded that social capital was more significant to affect participation of elimination of dengue mosquito breeding places in

environment (t = 10.86) than perceptions of elimination of dengue mosquito breeding places of dengue fever (t = 9.86). Counseling provided significant effect on the community participation in the elimination of dengue mosquito breeding places in households (t = 8.50) than participation of elimination of dengue mosquito breeding places in environment (t = 1.20). the elimination of dengue mosquito breeding places program was more significant to affect participation of elimination of dengue mosquito breeding places in environment (t = 5.09) than participation of elimination of dengue mosquito breeding places in households (t = 0.21). Based on the analysis, it can be concluded that social capital was more effective to reduce CI through participation of elimination of dengue mosquito breeding places in environment. Perception to these services of eliminating dengue mosquito breeding places was more effective to reduce CI through participation of elimination of dengue mosquito breeding places in households and the elimination of dengue mosquito breeding places program was more effective to reduce CI through participation of elimination of dengue mosquito breeding places in environment.

DISCUSSION

The analysis showed that the social capital and dengue fever programs were effective to reduce CI in the environment. The situation was causing social capital was highly significant to affect participation level through the environment for public awareness. Environmental participation can affect the environment free from mosquito larvae rate because of participation in the environment active as healthy environment will break the chain of the development of dengue fever vector namely Aedes aegypti. A disease has not developed well because the mosquito cannot growth and develops themselves. It was caused there was no mosquito bleeding place. The principal of prevention and the spread of dengue fever can be done with management environmental based. A factor of the most influential in the spread of dengue fever was a human environment, environment vector and the environment fever patients.

Based on model can be concluded that social capital was more effective to reduce container index through environment participation than with family perception, disease perception and individual perception. This situation can be caused by the transmission models of dengue hemorrhagic fever that always be affected by vector (a bearer) dengue virus, to more precautions effective by environment participation than family perception, disease perception and individual perception. Family perception, disease perception and individual perception prefer pattern disease eradication that was individual and likely to the community who have had experience affected by dengue fever. The state of this was a causing environment fundamental participation has an important role in an effort to break the chain of transmission of dengue fever.

Good neighborhood participation help various government programs related to dengue fever control. Government programs without support from participation were meaningless since parents do not have involvement in eradication disease so the program was less effective. The program tend was to be more sustainable if people involved having the role and involved in it. This situation requires an approach to the community as subject and object. Approaching to the community can through the role of community leaders, religious leaders, or institutions who in the communities.

This situation can be concluded that the public participation tends to be successfully through a method of social capital in bridging and linking. Social capital in bridging involves

the role of community figures. Social capital in linking involves the role of institutions both formal institutions and non-formal in society. To decrease container index will be more effective if involving various sectors and cross program. This was in line with the Ericsson, which states that control program approach dengue fever need clear and integrated with strong community involvement [6]. The community leaders was a channel whose effective to disease news and educate people and encourage innovations at the household level for change in a broader spectrum of people.

Based on model got that social capital more effective to reduce CI through environment participation than family perception, disease perception and individual perception. This can result of declining container index seen of existing and where about of larva in the environment existence of larva in the mosquito development. Aegypti was an indicator potential of the transmission of dengue fever. The state of this was a causing good environment participation that can be lowered CI in the area through the movement of the community by using tissue that was in the community.

Social capital, viewed as individual characteristics, will contribute in health promotion sector by adding new knowledge about how the best intervention social networking possible designed to meet the needs of the target group [7] and social capital as resources for contributing to individuals and public welfare. There are 4 model approach that was used in solving problems the capital economics, human capital, capital nature and social capital [8].

Social capital was more capable to decrease the value of CI through community participation. This situation can be caused social capital has implications on the involvement of the environment than individual participation and family. Social capital was more likely to according to the problems associated with the general than the problems are individuals. This was apparent from the research shows that social capital was more likely to affect the participation of the environment and social capital a community owned against CI implications.

The decline in CI was more oriented towards in the individual and the family because the indicators used CI among other places breeding place that was at environment individuals and family. This was in line with Erikson which states that efforts relating to the state of the environment, approach more just in social cohesion while the efforts relating to individual and the family, approach more precise with social network. On social cohesion the movement of the community resting on the role and community leaders involved through network was in environment while social network more resting on the role of individual and the family in an effort to the movement of the community. The state of this was a causing social capital more likely to have an impact on CI [9].

Based on the study theoretical related to environmental factor we can conclude that social capital elimination of dengue mosquito breeding places programs and dengue fever through the environment to reduce container index. The health theory belief model related to environmental factors was the factor enabling. Enabling factor occupies a strategic position in influencing environmental factor. Enabling factor involving cultural factors of society itself. Efforts to promote health need to tap the agent of change associated with culture of the people. The local culture that we can be propelling or an impediment to the application of health.

Cultural factors of the local community cannot be separated from the social network in a society itself to intervention in the area endemic and potentially important involved a number of elements that carries on change culture of society. Culture elements or norm that forms a

society cannot be separated from the network the development of itself. A network of social to simplify the promotion of health provided to the public from the government. Social network or the agent of change behavior was to simplify the occurrence of a change behavior in the community. The a favorable reception provider by the community made a trust and this situation caused behavior in the community.

In the area endemic and potential individual participation as 3M, abate, pet fish and waste management to be the main road in lowering CI with the socialization program. The socialization program was more effective to decrease CI through individual participation. On the social capital and the elimination of dengue mosquito breeding places program dengue fever was more effective through participation in lowering CI environment. From the comparison between endemic regions and the potential can be described associated with the effort to in nest eradication of dengue mosquitoes as in the figure 2 below:

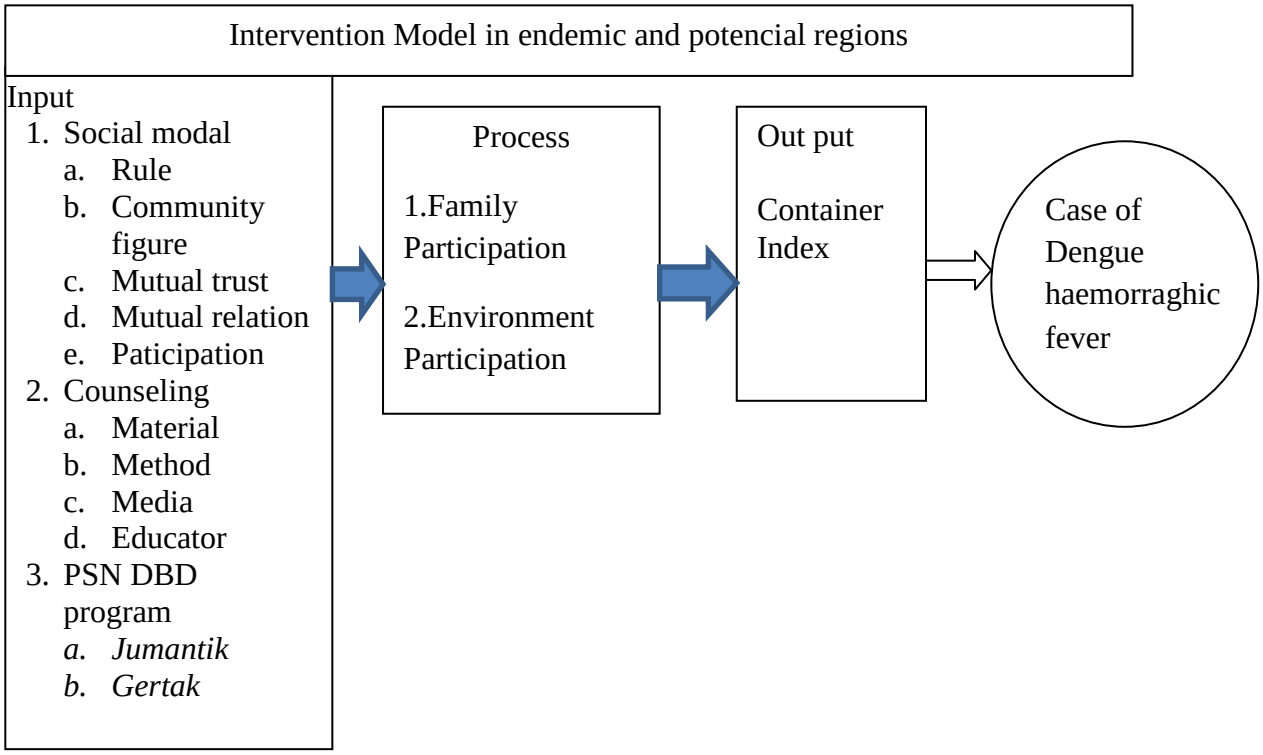

Figure 2. Concept of reinforcing in endemic and potencial region through prevention effort based on intervention.

Based on the evaluation of social capital in the community, it got that program can work out if there was involving public and individual participation actively, both the family and social. Strengthening social capital program can work out through some indicators, such as 1) A program linked (linking) to the objective that will involve society, individual and the family, 2) Formulate participation of the community to involved (community involvement) and public participation was not only in the short term but also long-term, 3) Strengthening community ability, 4) Program integrated by family and community participation, 5) Program connected with wide social environment, 6) it was involved organization in the community [10]. Strengthening good social capital can form a value in a society because the capital social was an element of the form culture of society. The values change, norms and rules in the form of culture made several programs are done on people that are more sustainable concurrent a community owned in accordance with programs [6].

Culture of society formed from the value, a norm and customs in the neighborhood that became legal based on tradition. In culture of society are related two things important that are culture construction and the culture context in the community. Culture was form of culture and the context of culture are the contents of the cultural [11] cultural change needs long time. Cultural change can pass conditions of the community social that will eventually become the culture of society [12] there are two vital parts that are affecting health status of the society structure from the social itself and factors among the social. Factor a social structure was covering the social economic context, political and social position community. Factor a social structure among others a health system in a society.

The transition of transitional culture could was conducted with various from the situation and conditions of the community that looked at every condition appears in the community. Cultural change/ transition culture can be described as into three, there are macro level, meso level and micro level. Management transition culture involved a number of the level of the policy among others macro level, meso level and micro level. At the macro level was a global and regional condition by situation the culture of society. At the meso level was a social community condition and at the micro level was the culture and transition culture [13]. Change at the level of macro could be done through stakeholders policy interventions at the central level, provincial and district. Change at the level of meso can be done by the community figures as religious and traditional figures. Change at the level of micro can be done at the level of families (the family head and family members).

Strengthening the program was particularly in the endemic area. Strengthening health program involving the various input as human resources, budget, facilities and social capital in a society. The theory behavior changes based on the social environment of the community based on 4 activity life. Activities include the environmental policy activity, access and people characteristics, the environment and interpersonal. The development of domain was covering recreation domain, household activity domain, work activity and facilities activity [14].

Corresponding intervention to participate in PSN dengue fever of social capital strengthening like those rules, the role of the community figures and the strengthening relation among the societies. Intervention ofdengue fever program through health program was more effective in lowering counter index.The state of this was in line with the state of being happens to programs given by the health office such as the formation of team bully by local governments of various cross-sectors and the formation of *jumantik* that will involve society and students in the fight against larva. Environmental factors underlying efforts for disease control, intervention that was more related environment will be given priority for the program of health problems especially dengue fever program [15].

Government programs are such as the formation of bully team and *jumantik* in the endemic area caused the tendencies of society the area having social capital low to involving the role of community figures and regulations related side has not run well. The community was an object in this program and the government as a stakeholder. Cooperation between community and the government that was in a factor amplifier the sustainable government programs especially programs related to dengue fever.

Based on the results of a model on the whole of the aspect of environmental was the important role in efforts to prevent disease of dengue fever. On the circumstances without seeing the potential or endemicarea that makes modification intervention of a more proper done to the environment. The state of it was caused by a model of the transmission of disease through a vector so that interventions efforts with environmental based be a source of success

in achieving its objectives the eradication of dengue fever. Efforts have been carried out which are related to a modification of the environment. A modification of the environment can be achieved if the community was involved and play an active role in the fight against the disease. On the situation, this kind of community social capital strengthening especially on aspects of cognitive far more efficient in order to increase a power source in the community.

The theory behavioral change of The Ecology Model of Health Behavior was emphasized on the behavior changes influenced by the situations of the environment. The approach of behavior changes was carried out by the students to change the behavior of parents and community. Information or a message received from the study was expected to be accepted by parents and the community. A message or information can be belief and perception of a truth so it was expected these behavior changes perform among the elderly or the society [16].

The results of the study illustrate that social capital strengthens the sustainability of various health programs, especially dengue fever programs. It can be viewed from the results of the analysis which indicated that social capital was more effective in lowering CI through community participation in the environment through appropriate intervention in the endemic area and the potential in strengthening the social capital. The program sustainability was supported by the community. Resources in the form of communities are important resources for the sustainability of the problem solving faced by the community.

CONCLUSION

Social modal was effective to decrease CI (Countainer Index) both in carried out through environment participation (t = 0.86) and household participation (t = 9.86). Counseling of elimination of dengue mosquito breeding places was more effective to decrease CI (Countainer Index) through household participation (t = 8.50) than environment participation (t = 1.20). Elimination of dengue mosquito breeding places program was more effective to decrease CI (Countainer Index) through environment participation (t = 5.09) than household participation (t = 0.21).

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