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Research Paper

# The Social Capital Approach to Improve the Community Sustainability Awareness in Prevention of Dengue Hemorrhagic Fever

Health Science

**KEYWORDS :** Dengue Hemorrhagic Fever prevention, social capital, sustainability awareness

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## ABSTRACT

*The aim of this study was to analyze the social capital's effect toward community sustainability awareness in order to prevent Dengue Hemorrhagic Fever in Sidoarjo District. Cross sectional study was performed. Family members in Tanggulangin's (5.097 households) and Buduran's (5.279 households) Primary Health Care were the unit analyses. 296 households who live in the working areas of Tanggulangin's and Buduran's Primary Health Care were participated in this study. Multistage random sampling was used. Twelve social capital's sub-variables and sustainability awareness variable were measured. The instruments were self-developments questionnaires based on the Spellerberg's (1997) and Suharto's (2005) theories. The questionnaire's validity and reliability were achieved. Mann-Whitney, Regression Logistic, and SEM were used as analysis test. There was no difference in the social capital in both areas (p-value 0,911). There was difference in the sustainability awareness (p-value 0,000). Eight social capital's sub-variables were influenced sustainability awareness (values (0,0001), sense of identity (0,0001), norm (0,0001), trust systems (0,0001), cooperation (0,0001), attitude (0,0001), perception (0,0001), and expectation (0,0001). In sum, social capital is community sustainability awareness activator in order to prevent and eradicate the incident of Dengue Hemorrhagic Fever. Therefore, strengthening eight social capital's sub-variables due to increasing community sustainability awareness in the endemic Dengue Hemorrhagic Fever areas is needed.*

## INTRODUCTION

Eradicating the incident of Dengue Hemorrhagic Fever (DHF) in Indonesia has not been successful yet in the all of areas. It is because of the government policy regarding DHF eradication tend to focus on cases as well as curative. Necessarily, DHF eradication should be done earlier and continuously.1 In hence, the application of social capital approach in enhance the community sustainability awareness is important to prevent the escalating of DHF's incident.

Social capital approach is social organizations that accommodate coordination and cooperation for mutually beneficial.[5] There are several indicators of social capital including values, sense of identity, norm, trust systems, cooperation, participation, fear, attitude, perception, opinion, satisfaction, expectation.[6, 7] Therefore, the purpose of this study was to analyses the influence of social capital on community sustainability awareness in the prevention of DHF.

## METHODS

The analytic observational cross sectional design was used. The first step in this study was identified and analyzed social capital factors in the community. The second step was comparing the social capital's indicators in the DHF endemic area and non-endemic area. The last step was analyzed the influence of social capital on community sustainability awareness in the prevention of DHF in Sidoarjo district, East java, Indonesia. There were 296 eligible samples that live in the working areas of Tanggulangin's and Buduran's Primary Health Care. Tanggulangin was endemic DHF area and Buduran was non-endemic DHF area in the Sidoarjo District. The inclusion criteria was head of households which had family members experience infected by DHF and at least 1 year stayed in that area. Multistage random sampling was performed. Questionnaires, observation and structured interview were performed. Self-development questionnaires based on the Spellerber's and Suharto's theories were used.[6, 7] The validity and reliability were achieved. Mann-Whitney, Regression Logistic, and SEM were used as analysis test

## RESULTS

There were 296 eligible samples who willing to participated in this study. The majority sample was 40 – 44 years old (34.8%), senior high school education (58.1%) and employee (38.9%). In Tanggulangin sub-district, there were 148 samples who walling to participated. The majority sample was 40 – 44 year olds (30.4%), senior high school education (60.8%), and employee (64.2%). Thus, in Buduran sub-district, there were 148 samples who walling to participated. The majority sample was 40 – 44 year olds (39.2%), senior high school education (55.4%), and others (50.6%) (Table 1).

There were differences in social capital indicators between endemic (Tanggulangin sub-district) and non-endemic (Buduran sub-district) areas including sense of identity (p-value 0.006), trust systems (*p-value* 0.000), participation (*p-value* 0.023), and attitude (*p-value* 0.000) (Table 2). In general, the social capital in both areas was similar. In the other hand, the sustainability awareness in both areas showed differentiation (*p-value* 0,000) (Table 2).

Simple regression test was performed to analyze the effect of social capital indicators to sustainability awareness in those areas. In Tanggulangin sub-district, value influenced the sustainability awareness (*p-value* 0,002). People who have poor level of value had probability good level of sustainability awareness (OR 6.1; 95% CI; 2.04-18.3). In Buduran sub-district, value influenced the sustainability awareness (*p-value* 0,001). People who have poor level of value had probability good level of sustainability awareness (OR 0.03; 95% CI: 0.009-0.12) comparing with people who have good level of value. Furthermore, People who have fair level of value had probability having good level of sustainability awareness (0.21) comparing with people who have poor level of value (Table 3).

Another indicator which influenced sustainability awareness in Tanggulangin sub-district was cooperation (*p-value* 0,000). People who have poor level of cooperation had probability 0.25 times having good sustainability awareness (OR 0.25; 95% CI; 0.8-0.78) comparing with people who have good level of cooperation. Further, people who have fair level of cooperation had probability 1.53 times having good level of sustainability awareness comparing with people who had poor level of cooperation. Likewise, in Buduran sub-district, cooperation was a factor which influenced sustainability awareness (*p-value* 0,012). People which have poor level of cooperation had probability 7.75 times having good level of sustainability awareness (OR 7.75; 95% CI;

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2.45-24.5) comparing with people who have good level of cooperation. Further, people who have fair level of cooperation had probability 3.0 times having good level of sustainability awareness comparing with people who had poor level of cooperation (Table 3).

One of social capital indicator was satisfaction. Satisfaction was influenced the sustainability awareness in Tanggulangin Subdistrict (*p-value* 0,003). People who have poor level of satisfaction had probability 0.83 times have good level of sustainability awareness comparing people who have good level of satisfaction. People who have fair level of satisfaction had probability 0.12 times having good sustainability awareness comparing with people who have poor level of satisfaction. Similarly, in Buduran sub-district, satisfaction was one of factor which influenced sustainability awareness (p-value 0.011) (Table 3).

In this study, there were twelve variables which expected influencing sustainability awareness involving values, sense of identity, norm, trust systems, cooperation, participation, fear, attitude, perception, opines, satisfaction, and expectation. Henceforth, the results showed there were eight

**Tabel 1 Characteristics of sample in Tanggulangin and Buduran sub-districts**

| Characteristics | Sub-districts | | | | Total | % |
|---|---|---|---|---|---|---|
| | Tanggulangin | | Buduran | | | |
| | Frecuency | % | Frecuency | % | | |
| Ages: | | | | | | |
| 25 – 29 year olds | 4 | 2,7 | 2 | 1,3 | 6 | 2.0 |
| 30 – 34 year olds | 18 | 12,2 | 17 | 11,5 | 35 | 11.8 |
| 35 – 39 year olds | 37 | 25 | 26 | 17,6 | 63 | 21.3 |
| 40 – 44 year olds | 45 | 30,4 | 58 | 39,2 | 103 | 34.8 |
| 45 – 49 year olds | 32 | 21,6 | 16 | 10,8 | 48 | 16.2 |
| 50 – 54 year olds | 4 | 2,7 | 16 | 10,8 | 20 | 6.8 |
| 55 – 59 year olds | 6 | 4 | 8 | 5,4 | 14 | 4.7 |
| 65 – 69 year olds | 2 | 1,4 | 5 | 3.,4 | 7 | 2.4 |
| **Education background:** | | | | | | |
| Elementary school | 4 | 2,7 | 14 | 9,5 | 18 | 6.1 |
| Junior High School | 28 | 18,9 | 42 | 28,4 | 70 | 23.6 |
| Senior High School | 90 | 60,8 | 82 | 55,4 | 172 | 58.1 |
| Bachelor Degree | 26 | 17,6 | 10 | 6,7 | 36 | 12.2 |
| **Occupation:** | | | | | | |
| Government employee | 4 | 2,7 | 10 | 6,7 | 14 | 4.7 |
| village officials | 4 | 2,7 | 12 | 8,1 | 16 | 5.4 |
| employee | 95 | 64,2 | 30 | 20,3 | 115 | 38.9 |
| Household | 7 | 4,3 | 20 | 13,5 | 27 | 9.1 |
| others | 42 | 26 | 72 | 50,6 | 114 | 38.5 |

**Table 2 The differences of DHF indicators between endemic and non-endemic areas**

| indicators | Sub-districts | | | | Total | % | p-value |
|---|---|---|---|---|---|---|---|
| | Tanggulangin | | Buduran | | | | |
| | Frequency | % | Frequency | % | | | |
| **Value** | | | | | | | 0.055 |
| good | 37 | 25 | 27 | 18,2 | 64 | 21.6 | |
| Fair | 77 | 52 | 74 | 50 | 151 | 51.0 | |
| Poor | 34 | 23 | 47 | 31,8 | 81 | 27.4 | |
| **Sense of identity** | | | | | | | 0.006* |
| good | 44 | 29,7 | 37 | 25 | 81 | 27.4 | |
| Fair | 84 | 56,8 | 64 | 43,2 | 148 | 50.0 | |
| Poor | 20 | 13,5 | 47 | 31,8 | 67 | 22.6 | |
| **Norm** | | | | | | | 0,337 |
| good | 42 | 28,4 | 51 | 34,5 | 93 | 31.4 | |
| Fair | 69 | 46,6 | 63 | 42,5 | 132 | 44.6 | |
| Poor | 37 | 25 | 34 | 23 | 71 | 24.0 | |
| **Trust systems** | | | | | | | 0,000 ** |
| good | 68 | 45,9 | 30 | 20,3 | 98 | 33.1 | |
| Fair | 47 | 31,8 | 70 | 47,3 | 117 | 39.5 | |
| Poor | 33 | 22,3 | 48 | 32,4 | 81 | 27.4 | |
| **Cooperation** | | | | | | | 0,750 |
| good | 40 | 27 | 39 | 26,4 | 79 | 26.7 | |
| Fair | 79 | 53,4 | 85 | 57,4 | 164 | 55.4 | |
| Poor | 29 | 19,6 | 24 | 16,2 | 53 | 17.9 | |
| Participation | | | | | | | 0,023 * |
| good | 52 | 35,1 | 41 | 27,7 | 93 | 31.4 | |
| Fair | 78 | 52,7 | 72 | 48,7 | 150 | 50.7 | |
| Poor | 18 | 12,2 | 35 | 23,6 | 51 | 17.2 | |
| **Fear** | | | | | | 0.0 | 0,583 |
| good | 40 | 27 | 36 | 24,3 | 76 | 25.7 | |
| Fair | 77 | 52,1 | 92 | 62,2 | 169 | 57.1 | |
| Poor | 31 | 20,9 | 20 | 13,5 | 51 | 17.2 | |
| **Attitude** | | | | | | | 0,000** |
| **Indicators** | **Sub-districts** | | | | **Total** | **%** | **p-value** |
| | **Tanggulangin** | | **Buduran** | | | | |
| | **Frequency** | **%** | **Frequency** | **%** | | | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| good | 65 | 43,9 | 36 | 24,3 | 100 | 33.8 | |
| Fair | 63 | 42,6 | 73 | 49,3 | 136 | 45.9 | |
| Poor | 20 | 13,5 | 39 | 26,4 | 59 | 19.9 | |
| **Perception** | | | | | | | 0,165 |
| good | 41 | 27,7 | 43 | 29,1 | 84 | 28.4 | |
| Fair | 78 | 52,7 | 56 | 37,8 | 134 | 45.3 | |
| Poor | 29 | 19,6 | 49 | 33,1 | 78 | 26.4 | |
| **Opini** | | | | | | | 0,294 |
| good | 56 | 37,8 | 50 | 33,8 | 106 | 35.8 | |
| Fair | 62 | 41,9 | 60 | 40,5 | 122 | 41.2 | |
| Poor | 30 | 20,3 | 38 | 25,7 | 68 | 23.0 | |
| **Satisfaction** | | | | | | | 0,297 |
| good | 41 | 27,7 | 40 | 27 | 81 | 27.4 | |
| Fair | 73 | 49,3 | 88 | 59,5 | 161 | 54.4 | |
| Poor | 34 | 23 | 20 | 13,5 | 54 | 18.2 | |
| **Expectation** | | | | | | | 0,344 |
| good | 44 | 29,7 | 40 | 27 | 84 | 28.4 | |
| Fair | 71 | 48 | 67 | 45,3 | 138 | 46.6 | |
| Poor | 33 | 22,3 | 41 | 27,7 | 74 | 25.0 | |
| **Social capital** | | | | | | | 0,911 |
| good | 38 | 25,7 | 43 | 29,1 | 81 | 27.4 | |
| Fair | 80 | 54,1 | 71 | 48 | 151 | 51.0 | |
| Poor | 30 | 20,3 | 34 | 23 | 64 | 21.6 | |
| **Sustainability Awareness** | | | | | | | 0,000** |
| Good | 58 | 39,2 | 89 | 60,1 | 147 | 49.7 | |
| Poor | 90 | 60,8 | 59 | 39,9 | 149 | 50.3 | |

*Significant p-value < 0.05**;** **Significant p-value < 0.01

**Tabel 3 Effect of Social Capital for Sustainability Awareness in Tanggulangin and Buduran Sub-Districts**

| Sub-districts | Social Capital | Sustainability Awareness | | Total | p-value | OR (95% CI) |
|---|---|---|---|---|---|---|
| | | Good | Poor | | | |
| Tanggulangin | Good | 8 (13,8%) | 26 (28,9%) | 34 | 0,173 | 2,22 (0,83-5,99) |
| | Fair | 28 (48,3%) | 43 (47,8%) | 71 | | 1,14 (0,47-2,76) |
| | Poor | 22 (37,9%) | 21 (23,3%) | 43 | | 1 |
| | Total | 58 (100%) | 90 (100%) | 148 | | |
| Buduran | Good | 20 (22,5%) | 10 (16,9%) | 30 | 0,043* | 0,79 (0,11-0,79) |
| | Fair | 51 (51,3%) | 29 (49,2%) | 80 | | 0,47 (0,19-1,19) |
| | Poor | 18 (20,2%) | 20 (33,9%) | 38 | | 1 |
| | Total | 89 (100%) | 59 (100%) | 148 | | |

*Significant p-value < 0.05

**Table 4 Social Capital Indicators for Sustainability Awareness in Tanggulangin and Buduran Sub-Districts**

| Variabels | Log-Likelihood | G | p value |
|---|---|---|---|
| Values | 161,857 | 36,341 | 0,0001** |
| Sense of identity | 185,130 | 13,068 | 0,0001** |
| Norm | 193,727 | 4,471 | 0,034* |
| Trust systems | 185,367 | 12,831 | 0,0001** |
| Cooperation | 184,586 | 13,612 | 0,0001** |
| Participation | 197,891 | 0,306 | 0,580 |
| Fear | 197,118 | 1,080 | 0,299 |
| Attitude | 159,089 | 39,089 | 0,0001** |
| Perception | 182,351 | 15,847 | 0,0001** |
| Opini | 198,174 | 0,024 | 0,877 |
| Satisfaction | 198,196 | 0,002 | 0,965 |
| Expectation | 179,945 | 18,253 | 0,0001** |

*Significant p-value < 0.05**;** **Significant p-value < 0.01

variables which influenced sustainability awareness which were sustainability awareness (0,0001), sense of identity (0,0001), norm (0,0001), trust systems (0,0001), cooperation (0,0001), attitude (0,0001), perception (0,0001), and expectation (0,0001)) (Table 4).

**DISCUSSION**

In general, the social capital in both areas was similar. The population in both areas showed the indicators of social capital which stick in societies including togetherness, solidarity, enthusiasm for cooperation, and the ability to empathize. Subsequences, disappearance of social capital indicators are threating the unity of community, nation and country. In case, collective problems will difficult to solve. Togetherness is useful in lighten the load and sharing the thoughts, therefore reinforce the social capital. Moreover, enhance resistance, power struggle, and the quality of life of the community. The absence of the social capital, it is impacting in the susceptibility of the community from outsider interventions.

Social capital is important for the community.[4] Assessing information, power sharing media, developing solidarity, mobilization of community resources, achieving togetherness, and forming togetherness behavior, as well as organizing the communities is benefits which can reach through the social capital. Social capital is a commitment from individual to share, trust, and giving responsibility to pointed people to role as their job description. Feeling of togetherness, solidarity, and responsibility are the results from the social capital.

There were three indicators of social capital, which are trust, norm, and network. Norms are consisted of comprehension understanding in value, hope, and believe which run together by a group of people.[8] The sources of norm are religion, moral guideline, as well as secular standard such as professional code etic. Norm was formed and developed based on the histories of

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cooperation and applied to support cooperation atmosphere.[3, 5] In sum, norm is constituted pre-condition and production from social trust as well.

The characteristics of sustainability awareness in both areas identified based on the geographies and demographist views. Based on the geographical location, the overage areas in both areas are 3,500 ha. Average rainfall is 150 mm/ year or as much as 8 days a month. Based on the demographics view, the population average is about 47,299 people. However, there was difference in the number of DHF incidence in both areas. Since 2010, Buduran Sub-district has been declared as area which free from DHF from Sidoarjo's Government. Accordingly, there were several factors which influenced differences conditions related to the number of DHF incident were discovered through this study.

**STATEMENTS OF ETHICAL APPROVAL**

Ethical approval received from Ethical Review Board Public Health Faculty in Universitas Airlangga. There were three steps to collect inform consent sheets. Firstly, researcher invited health volunteers in those areas, explained about research and asked a help to make a meeting schedule with eligible sample. Secondly, health volunteers invited eligible respondent in a meeting and researcher explained about research. Lastly, inform consent sheets were collected by researcher from respondent who willing to participated in this study.

## REFERENCE

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