Social capital analysis and its relations with the household food security of the coastal community

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Abstract. Food security is still a problem in the coastal community. One of the resources or capital that can be used to develop food security is social capital. This study aims to (1) analyze the social capital of the coastal community, (2) analyze the level of household food security of the coastal community, and (3) analyze the relationship between social capital and the level of household food security of coastal communities. This research was conducted in Barrang Lompo Sub-District, Sangkarrang District, Makassar City, in 2018 using the survey method. The unit of analysis is a fishing household with a total sample of 40 households. Data analysis was performed using descriptive statistics and chi-square tests. The results showed that the elements of social capital, especially trust, networking, and reciprocity of the fisherman community, are in the medium and high level. There are 53.00% of fisherman households that have a high level of social capital. Trust, networking, and reciprocity in the fisherman community help them to maintain the sustainability of food availability at the household level, especially during famine season. Statistically, social capital is related to the level of food security of fishermen households ($\chi^2 = 8.02; C = 0.41$).

1. Introduction

Food security is still a problem in developing countries, including in Indonesia. Santosa explained that the challenge of creating food security that leads to food sovereignty in the future would be severe if the food in Indonesia is not taken seriously. Conditions of food security can be achieved through four components, including adequate food availability, the stability of food availability without fluctuations, accessibility or affordability of food, and food quality or safety [1].

On the other hand, Sinaga and Rudiyanto revealed that food security could be created through social capital, namely in the form of independent business and collective solidarity in dealing with the problems of poverty and weak food security faced by the community [2]. Related to social capital, empirical experience shows that people who have high social capital have a tendency for faster development compared to people who have low social capital [3]. Badaruddin's research results on the fishermen community found that one of the factors causing traditional fishermen and labor fishermen to get out of poverty traps is the low or not developing social capital in the community [4].

Social capital can increase individual awareness about the many opportunities that can be developed for the benefit of society [5]. At present, social capital is needed to realize food security.
The utilization of social capital is done through the use of trust, networking, and reciprocity to maintain the component of food security. Through trust, networking, and reciprocity, coastal communities can use this to fulfill their food needs.

In connection with the description, the aims of this study are (1) analyze the level of social capital of coastal communities, (2) analyze the level of food security of coastal community households and (3) analyze the relationship of social capital with the level of food security of coastal community households.

2. Research methods
This research was conducted in Barrang Lompo Sub-District, Sangkarrang District, Makassar City, in 2018 using the survey method. The unit of analysis is the fishermen households, which are part of the coastal community. The number of samples consisted of 40 households calculated based on the Slovin formula. Data on social capital and household food consumption were collected by direct interviews with members of fishermen households (Head of the Household and Housewife). A food consumption survey was conducted using the food recall method two times 24 hours [6,7].

The level of social capital was analyzed by the liker scale approach, while the level of food security was analyzed by the Food Consumption Score (SKP) approach, according to Hardinsyah et al. based on adult male consumers units [8]. Households are said to be food secure if SKP reaches ≥ 6, and households are said to be food insecure if SKP is achieved <6. The relationship between social capital and the level of food security of coastal households is analyzed by Chi-square [9].

3. Results and discussion

3.1. Social capital
Coleman defines social capital as the ability of people to work together to achieve common goals within groups and organizations [10]. Social capital is one component in moving togetherness, ideas, mutual trust, and mutual benefit to achieve mutual progress. According to Bourdeu and Wacquant, social capital is the amount of actual or virtual resources gathered in an individual or group because it has a long-lasting network of reciprocal introductions and acknowledgments, which is more or less institutionalized [11].

The core dimension of social capital lies in how the community’s ability to work together to build a network to achieve common goals [12]. This collaboration is characterized by a pattern of mutual relations and mutual benefit and is built on trust supported by positive and strong social norms and values. This strength will be maximized if it is supported by a proactive spirit of making relationships between the principles of participatory attitude, an attitude that cares for each other, gives and receives, trusts trust. The elements of social capital of Fishermen in the Barrang Lompo Sub-District observed in the field research are trust, social networks, and reciprocity.

3.1.1. Trust. Trust is defined as the relationship between two or more parties that contain expectations that benefit one party or both parties through social interaction. Belief is meant that other people give confidence to us to help solve their problems, and they need us to be involved in it [13].

The element of coastal community trust in the Barrang Lompo Sub-district is measured through (a) the trust of fishermen towards other fishermen, (b) the trust of fishermen towards neighbors, (c) the trust of fishermen in the village and (d) the trust of fishermen in the government.

In Table 1, it can be seen that the level of trust of fishermen is, on average, classified as medium level. The number of respondents who had a medium level of trust was 37 people (92.50%), and those who had a high level of trust were three people (7.50%). In general, the mutual trust of fishermen in the Barrang Lompo sub-district occurred because they were very familiar with each other, and some of them also had a family relationship.
Table 1. Distribution of respondents by the level of trust, network, and reciprocity

| No | Trust   | (%)   | Networking | (%)   | Reciprocity | (%)   |
|----|---------|-------|------------|-------|-------------|-------|
| 1  | Low     | 0.00  | Low        | 0.00  | Low         | 0.00  |
| 2  | Medium  | 92.50 | Medium     | 82.50 | Medium      | 42.50 |
| 3  | High    | 7.50  | High       | 17.50 | High        | 57.50 |
|    | Total   | 100.00| Total      | 100.00| Total       | 100.00|

The fishermen's trust in other communities in the coastal area can be seen in their fish storage and drying activities. The majority of fishermen are not afraid to save their catch in the icebox that is placed outside the house. Fish drying activities are usually carried out in front of the house without being monitored. This shows that the level of fishermen's trust in the surrounding community is still high because they do not need to spend time just watching fish that are sun-dried or stored outside the house because they believe that their catch will not be lost. This condition shows that trust is a tool to build relationships that can reduce transaction costs, namely, costs that arise in the exchange process and costs for contact, contract, and control. Fukuyama revealed that as long as there is a sense of trust in family behavior and relationships, the principles of reciprocity and exchange will develop [14].

The fishermen's trust in Sub-District officials is also quite high, especially in the distribution of Raskin. They believe that the distribution of Raskin is considered right on target and helps the community in meeting their food needs. But on the other hand, some fishermen are still very disappointed with the government because they are not given assistance in fishing. They complained a lot because they did not get help from ships and engines from the government even though it was very often recorded and promised to be given assistance. Based on the respondent's description, fishermen who get help are fishermen who have previously received assistance. This makes some fishermen still lack trust in the government.

The trust of the fishing community towards the government, according to what was expressed by Ali that in the radius of trust, each community has a different stock of social capital such as honesty, solidarity, the fulfillment of obligations, and a sense of justice. Mutual trust can be built but can also be destroyed. Continuous trust is built up from repeated personal interactions, knowledge of the population, and incentives that are obtained and cannot be built without showing the truth [15].

3.1.2. Network. Basically, social networks are formed because of a sense of mutual knowing, mutual information, mutual reminding, and mutual assistance in implementing or overcoming something. Lawang revealed that social networks are a source of knowledge that is the main basis in forming trust [13].

The concept of social networks explained by Sunandang is a social network in the community that is shown through kinship (interaction) community ranging from getting to know each other from work, family to everyday activities that are often done [16]. This condition occurs in coastal communities in Baranglombo.

Table 1 showed that the social network of the fishing communities in Barrang Lombo is at a medium level. As many as 33 fishermen (82.50%) have a medium networking level and as many as seven fishermen (17.50%), which has a relatively high level. In general, the results of this study can be said that the social network of fishing communities in Barrang Lombo is still well maintained because fishermen in the area still have a sense of closeness and wide reach to the people around them, both inside and outside Barrang Lombo Sub-District.

The proximity between fishermen is considered quite high; it can be seen every afternoon after their return from fishing, fishermen usually gather in front of their house to drink coffee and talk about the catch they get from fishing. Fishermen who have received a lot of catch will provide information on where they caught them so that other fishermen generally prepare to catch fish in the area. They
also hope to get a large amount of catch in the area. As a general rule, other fishermen learn about each other's marine area considered rich in fish, which allows them to catch much fish. This social network is an information function that allows all network stakeholders to find information on problems, opportunities, and business activities. The information function can be considered as a function of the lubricant, an opportunity function, and a catalyst function, as well as a function of access to the success of a productive enterprise that cannot be separated from each other. In this case, the productive activity is a fishing effort made by the fishing community.

Fishermen of Barrang Lompo also tend to choose to communicate directly with the surrounding community. This form of verbal communication is established whenever they see each other. Sometimes, fishing communities prefer to communicate directly with the telephone call. This is because fishermen always feel that they can always touch other people and that by communicating directly, they can express clearly what they want to convey without having to rush. In addition, they also ensure that others can understand what they are conveying.

Because of the good level of proximity, fishermen can easily access information via a small part of the community network. Fishermen always assume that they are an important part of their environment. Therefore, they are always ready to help those around them. This proves that the contribution of one citizen to another is very important. In addition, fishermen also learn more about the state of the surrounding community and ensure that it is in good condition, especially if there is a family relationship between them.

3.1.3. Reciprocity.

In simple terms, reciprocity means a reciprocal exchange between individuals or between groups that still exist at all levels of society, both between individuals and between the group. Social capital is always characterized by mutual reciprocity between individuals within a group or between groups of a society. In society and the formed social groups that have a weight of important reciprocity will give birth to a society with a high level of social capital. The reciprocity of the fishermen in Barrang Lompo Sub-District is measured by unity, the ability to give and receive help from others.

Table 1 shows that 17 fishermen (42.50%) had a medium reciprocity category and a high category of reciprocity of up to 23 people (57.50%). In general, the results of this study make it possible to affirm that the reciprocity element of the pesisis community of Barrang Lompo sub-district is considered as high because of the plenitude of the fishermen interviewed help each other in the exercise of their job. They reciprocally also in case of difficulties.

The reciprocity of the coastal community of Barrang Lompo is still quite high. This is especially true when fishermen encounter problems at sea. When the engine is broken at sea, fishermen usually give a code by lifting the paddle and shaking it. When the nearest fisherman sees the code, the closest fisherman will stop fishing and immediately approach the fisherman who has had engine failure. The fishermen will try to help start the engine, and if that does not work, they will be brought back to the island while pulling the boat whose engine is damaged. In gratitude to the fishermen who have been helped, he has also done the same thing or in other ways, like giving himself food or lending money. Reciprocity is also reflected when neighbors organize the event without being called to it. Nearby neighbors gather and help each other to prepare.

Various activities are carried out in the Barrang Lompo sub-district, which certainly aims to develop the area in the interest of the residents. Enthusiastic citizens who have a lot of help - this is an important success factor of each activity performed. Although the activity benefits only the others, the inhabitants of the Barrang Lompo sub-district also do not hesitate to help as much as possible so that the activity can take place.

If the elements of social capital (trust, network, and reciprocity) are generally perceived, the social capital of the fishermen community of Barrang Lompo is ranked as high, as shown in table 2 below.
Table 2. Social capital level of fisherman community

| No | Social Capital | Respondent |
|----|----------------|------------|
| 1  | Low            | 0          | 0.00 |
| 2  | Medium         | 19         | 47.00 |
| 3  | High           | 21         | 53.00 |
|    | Total          | 40         | 100.00 |

3.2. Food security of fishermen households.

The concept of food security within the meaning of Law No. 18 of the Republic of Indonesia is the condition of food satisfaction in the state up to the individual, which results in the availability in quantity and quality of adequate, safe, diversified, nutritious, equitable and diversified foods. Affordable and not contrary to the religion, beliefs, and culture of the community, to be able to live healthy, active, and productive in a sustainable manner [17]. Household food security in this study was analyzed using the SKP approach, which includes five food groups, namely: staple foods, side dishes, vegetables, fruits, and milk.

Rice is the staple food consumed by all responding fishing households. Although it is not produced on the island of Barrang Lompo, rice can be found and sold in stalls scattered on the island of Barang Lompo. Judging by the consumption of rice, the average household of fishermen consumes 487 g per capita and per day. This number is still missing from the norm [7]. For this type of side dish, households consume fish from the rest of the catch, and some are bought from fish sellers who pass by their homes. In addition to fish, the side dishes eaten include tempeh, tofu, shrimp, and chicken sold by vegetable vendors. The average side dish consumed by households is 213 g per person per day. This amount exceeded the standard consumption of 200 g of accompaniments.

For vegetables, the average household consumption is 140.75 g per day. The types of vegetables eaten are Moringa leaves, which usually grow in the yard of the house. In addition, vegetable requirements are also obtained from vegetable vendors on Barrang Lompo Island. In the case of fruits, we can say that their consumption is limited. The average fruit consumption is 137 g. Fruits often eaten are langsat or rambutan, which is consumed in season. While bananas are obtained from vegetable sellers. The average consumption of milk is 152 ml per day. The milk is consumed only by the children of the fishermen interviewed who are still young.

Household food security of respondents varies due to differences in households’ ability to access food. Although the level of trust, as part of social capital, is still maintained and ready to lend, there are still households that do not dare to use it because they fear they will not be able to pay their debts. Table 3 below shows the distribution of households according to the SKP.

Table 3. Household distribution based on food consumption score

| No | SKP | Category          | Total of households |
|----|-----|-------------------|---------------------|
|    |     |                   | n       | %     |
| 1  | 4   | Food insecure     | 12      | 30.00 |
| 2  | 5   | Food insecure     | 6       | 15.00 |
| 3  | 6   | Food Secure       | 19      | 47.50 |
| 4  | 7   | Food Secure       | 3       | 7.50  |
|    |     | Total             | 40      | 100.00 |

In table 3, we can see that the food consumption score is distributed on a score of 3 to 7, and the highest percentage is in the score of 6, which is 45.00%. Based on the food consumption score above, the number of households with a secure food category is 55.00%, and food-insecure households are
45.00%. This shows that the food security of fishing households in Barrang Lompo is classified as food secure. This is because fishermen’s income is sufficient to cover their daily food needs. In addition, social capital contributes indirectly to the level of income or financial capital through information networks, both information on fishing grounds and fish prices. This condition is supported by the accessibility of the market. Although they live on the island, access to the market is relatively easy to reach due to the ease of transport if you want to go to Makassar or vice versa.

In addition to income and market access, the food security of fishing households is also linked to the provision of food from donations or parental help. Sustainability of food availability during lean periods can also be achieved by using food stalls or neighbors. This shows that other elements of social capital, such as trust and reciprocity, contribute to the provision of household food, so as to ensure the sustainability of food consumption.

In general, households classified as resistant to food consumed at least three types of food, namely rice, side dishes, and vegetables, that exceed the required standards. Households in the food insecurity category consume food ingredients that are below standard.

3.3. Relationship between social capital and food security of fishermen households.

The elements of social capital that are the focus of attention in this research, as explained above, are trust, networking, and reciprocity. A community needs trust to deal with other communities. High trust can foster social networks and high reciprocity, which are then used by fishing communities to maintain the sustainability of the fishery and process their products like salted fish and sell their catch. This can contribute to an income that is then used to buy various types of food for household purposes. The relationship between fishermen’s social capital and the level of household food security is presented in table 4 below.

| Social Capital | Food Secure | Food Insecure | Total |
|---------------|-------------|---------------|-------|
|               | n   | %    | n   | %    | n   | %    |
| Medium        | 6   | 15.00| 13  | 32.50| 19  | 47.00|
| High          | 16  | 40.00| 5   | 12.50| 21  | 53.00|
| Total         | 22  | 55.00| 18  | 45.00| 40  | 100.00|

The chi-square test results show that the social capital of Barrang Lompo Sub-district fishermen have a significant relationship with their household food security. It can be seen that the value of the calculated $h^2$ is greater than 8.02 at the $\chi^2$ table of 3.84. The proximity value (C) obtained from the calculation of 0.41, which means that the relationship between social capital and household food security in the Barrang Lompo Sub-district is at a medium level.

The community needs trust to deal with other communities. This trust grows by itself in the community through interaction. Access to household food in Barrang Lompo is relatively easy. Although geographically located on the island, but because of mutual trust and social networks and the availability of kiosks around the house, it is easy for them to provide for their daily needs, including during the famine.

In addition to rice, stands or stalls on the island also provide other dietary needs such as noodles, oil, eggs, and side dishes. Itinerant traders also exist in Barrang Lompo and sell their goods to the local population. In addition to booths, some housewives also visit Makassar markets to meet their daily food needs. People with high incomes generally go to the market. They usually go to the Makassar city markets because there is access to transportation that can be reached at a rate of Rp. 10,000.

People with medium and low incomes, they prefer to shop at the nearest stall to meet their food needs. Some households said they prefer to go to stall because they can owe some food needs. There are also those who say they do not go to the market in Makassar because using public transportation requires fees.
When fishermen have no income or are underfunded to meet their food needs, they still have access to food, that is, with the help of others. Assistance provided in the form of loan assistance from relatives, debts towards stands or street vendors. This can be said as a way of keeping food in their households. They borrow money or buy food and pay for it later when they have fishing income. However, a number of fishing households are trying to make ends meet for fear of going into debt. They are afraid of going into debt because they are afraid of not being able to pay the debt. They want to limit the consumption of household food. The satisfaction of food needs also comes from government assistance. The central government, in this case, has a program called the Family of Hope program and also the Raskin program.

Lending or borrowing fishermen's food reciprocity is inseparable from the existence of a relationship of trust and a network maintained between fishing communities. This condition was also found in the findings of the Endarwati et al. Study on the agricultural community. They found that when there were many farmer-owned networks, the food security of their households would also be better [18].

The above description shows the importance of social capital in a fishing community or community group. As Lesser explains, social capital is very important to the community because: (1) it allows community members to easily access information, (2) becomes a "power-sharing" medium or distribution of power in the community, (3) by developing solidarity (4) allow mutual realization, (5) allow the mobility of community resources and (6) form behavior of solidarity and organization of the community [19].

4. Conclusions
The elements of social capital (trust, networks, and reciprocity) are still well preserved in the coastal communities of Barrang Lompo Sub-District. 53.00% of fishermen households have high social capital. This number is still lacking, and efforts are still needed to improve the level of trust and social networks in local government. Mutual trust, social networking, and reciprocity in the fisherman community help them maintain the sustainability of food availability at the household level, especially during famine season. The number of fishermen households classified as food secure is 55.00%. This number must also be improved to reach a minimum of 75.00%. Statistically, social capital is related to the level of food security of fishermen households ($2 = 8.02, C = 0.41$). This means that the better the social capital of the fishing community, the higher the level of household food security. Therefore, increasing or strengthening social capital is very important for increasing the financial capital of fishers and increasing the quantity and quality of household food consumption in the coastal region.

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