Food Security Level of Fisherman Household in Bandar Lampung, Indonesia

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Abstract. The condition of fishermen's households that are less food secure can be triggered by poverty. As a developing country, Indonesia still has a fairly high poverty rate of 34.96 million people, of which 63.47% are people living in coastal areas. According to the Food Consumption Survey of Lampung in 2017, 2018, and 2019 conducted by the Food Security Agency of Lampung Province, it is known that the amount and level of energy consumption of fishery households in Bandar Lampung City has decreased from 1,815.1 kcal/cap/day or by 93.1% in 2017 to 1,666.4 kcal/cap/year or 84.0% in 2018, and decreased again to 1,568.0 kcal/cap/day or 75.1% in 2019. This study aims to analyze the level of food security of fishermen's households in and the level of energy and protein adequacy of fishermen's households in Teluk Betung Selatan District. This research was conducted in Teluk Betung Selatan District, Bandar Lampung. The research was conducted on March to July 2021. The sample of fishermen in this study was 50 fishermen from 1,207 fishermen in Teluk Betung Selatan District. Sampling was done by simple random method. The results of this study are (1) the food security of fishermen's households in Teluk Betung Selatan District is mostly in the food security category (78%), while the remaining 22% are in the food insecurity category; (2) the level of energy adequacy of fishermen's households in Teluk Betung Selatan District is mostly in the poor category (52%), but the level of protein adequacy is mostly.

1. Introduction
Food problems are the focus of the SDGs (Sustainable Development Goals) for sustainable development formulated by local governments around the world. Food problems are included in the second SDGs, namely without hunger [1]. This goal ensures that everyone can enjoy safe and nutritious food all year round. Through this goal, it is expected to end hunger so as to improve nutrition and achieve food security. Local governments can play a role in efforts to achieve the SDGs by paying attention to access to quality food, especially for the poor and those in food insecure situations. One of the communities experiencing food insecurity is the fishing community [2]. Research shows that there are 92.78% of labor fishing households that are not food insecure, 7.22% are less food secure and no labor fishing households are included in the food insecure category [3].

The condition of fishermen's households that are less food secure can be triggered by poverty. As a developing country, Indonesia still has a fairly high poverty rate of 34.96 million people, of which 63.47% are people living in coastal and rural areas, including fishermen, taken from BPS data (2008) in
Setyorini (2013) [4]. This needs to be a concern because by eating good food for the health of the body, it means that it will build quality human resources.

Through this condition, social capital has a role in helping to overcome food problems. Social capital in Martianto, et.al (2009) research [5] is able to strengthen food security because it overcomes problems in obtaining food. Community members help each other and trust each other among members in the household to strengthen relationships for the fulfillment of basic needs, namely food.

One of the areas in Lampung Province that has excellent potential for coastal areas is the coastal area of Bandar Lampung City. Where the coastal area of Bandar Lampung City has an area of about 0.5% of the total area of Bandar Lampung City [6]. The rapid development of development in the coastal area will directly affect the condition and condition of the coastal area. If these developments do not pay attention to weak environmental management, it can cause various social problems, such as the emergence of slam areas which can cause food security problems for coastal communities.

According to the Food Consumption Survey of Lampung Province in 2017, 2018, and 2019 conducted by the Food Security Agency of Lampung Province, it is known that the amount and level of energy consumption of fishery households in Bandar Lampung City has decreased from 1,815.1 kcal/cap/day or by 93.1% in 2017 to 1,666.4 kcal/cap/year or 84.0% in 2018, and decreased again to 1,568.0 kcal/cap/day or 75.1% in 2019 [6]. The nutritional status of the community is the result of the outcome of household food security. The nutritional status of each individual is strongly influenced by the intake of food consumed, which is determined by the ability to provide and manage consumption in each household. The high percentage of households that are not yet prosperous, the declining consumption rate from year to year, and the high nutritional status of children under five will allow food insecurity problems to occur at the household level. Based on these problems, the purpose of this study was to analyze the level of food security of fishermen's households in Teluk Betung Selatan District and the level of energy and protein adequacy of fishermen's households in Teluk Betung Selatan District.

2. Methodology
This research was conducted in Teluk Betung Selatan District, Bandar Lampung City. The research was carried out from March to July 2021. The sample of fishermen in this study was 50 fishermen from 1,207 fishermen in Teluk Betung Selatan District. Sampling was done by simple random sampling method [7][8].

The types of data used are primary data and secondary data [9][10][11][12]. Primary data were obtained from respondents through direct interview techniques using a list of questions (questionnaires) [13][14]. Food consumption data was obtained by using the recall method to determine past food consumption (24 hours ago) both in terms of quantity and quality [15]. This recall method was carried out for two days. This recall is not carried out on consecutive days to avoid the magnitude of two types of food consumption being the same in succession [16]. Secondary data were obtained from the Central Statistics Agency of Lampung Province and Bandar Lampung City, Bandar Lampung City Health Office, Lampung Province Food Security Agency, and other agencies related to this research [17].

Data analysis was done descriptively [18]. In order to measure the degree of food security at the fisherman's household level in Teluk Betung Selatan District, Teluk Betung Selatan District, Bandar Lampung City, using the measurements developed by Johnsson and Toole (1991) in Maxwell, et. Al (2000) [19]. This measurement combines two indicators of food security, namely the share of food expenditure and energy consumption. The limit for energy adequacy is 80% of the recommendation (per adult equivalent unit), while the limit for the share of food expenditure is 60% of the total expenditure. The grouping of households using these two indicators can be seen in Table 1. The level of energy and protein adequacy is categorized into four classes, namely: 1) Good: > 80%, 2) Enough: 70-79%, 3) Moderate: 60-69 %, 4) Poor: <60% [20].
Table 1. Measuring the degree of food security at the household level

| Energy Consumption Per Adult Equivalent Unit | Food Expenditure Share |
|---------------------------------------------|------------------------|
| Sufficient (> 80% energy adequacy)           | food resistant         |
| Less (≤ 80% energy sufficiency)              | food vulnerable        |

Source: [19]

3. Result and Discussion

The main job of the head of the household is as a fisherman, either as skipper, head of the engine room, captain, or crew. In addition to having a main job as a fisherman, the head of the household also has a side job, namely as a trader, motorcycle taxi driver, salted fish craftsman, laborer, electronic service, and salted fish processor. Most of the members of fishermen's households in Teluk Betung Selatan sub-district are in the small household criteria (76.00%).

Table 2. Level of food security of fisherman's household in Teluk Betung Selatan Sub District

| Food Security Level | Total (fisherman household) | Percentage (%) |
|---------------------|------------------------------|----------------|
| Food Resistant      | 8                            | 16.00          |
| - Resistant         |                              |                |
| - Vulnerable        | 31                           | 62.00          |
| - Shortage          | 0                            | 0.00           |
| Food Insecurity     | 11                           | 22.00          |
| Total               | 50                           | 100.00         |

Fishermen's household expenditures are divided into two expenditures, namely expenditures to buy food needs and non-food needs. The average expenditure of fishermen's households to meet food needs per month ranges from Rp. 1,767,500 to Rp. 11,785,000 per household. The level of knowledge of nutrition and health of fisherman housewives in Teluk Betung Selatan District, mostly in the low category (66%). The degree of food security of fishermen's households is mostly in the food security level of 58.74%, where most of the fishing households are in the food vulnerable criteria (62%), food resistant (16%), and the remaining 22% are in the food insecurity category. All fishermen who are food insecure are fishermen from the skipper category. This is in line with the research of Yolandika, et.al (2015) where skipper has a higher level of welfare than other group [21]. Meanwhile, the remaining fishermen who are food insecure and food insecure are all fishermen from the skipper, head of machine room, and the crew [22]. This study is in line with research Yuliana, et.al (2013) where most of the fishing households are already in the food security category [23].

Table 3. Energy sufficiency level of fishermen's households in Teluk Betung Selatan Sub District

| Score (%) | Criteria     | Total (Fisherman household) | Percentage (%) |
|-----------|--------------|------------------------------|----------------|
| ≥80.00    | Very Good    | 8                            | 16.00          |
| 70.00-79.99 | Good       | 9                            | 18.00          |
| 60.00-69.99 | Little Good | 7                            | 14.00          |
| < 60.00   | Bad          | 26                           | 52.00          |
| Total     |              | 50                           | 100.00         |
The energy adequacy level of fishermen's households is obtained by comparing the amount of energy consumed with the household energy adequacy rate. The level of energy sufficiency of fishermen's households in Teluk Betung Selatan District can be seen in Table 3.

Based on Table 3, the energy adequacy level of fishermen households in Teluk Betung Selatan District is mostly in the bad category as many as 26 fishing households (52.00%). Based on the results of the study, fishermen households with a poor category level, all came from the skipper, engine room head, and crew members. Respondents who fall into the bad category mean that most of the fishing households are still unable to meet the energy needs of their household members.

Most of the human body consists of water. Protein is also the most abundant nutrient in the body after water. When food energy is sufficient, it can be said that all foods also contain enough protein. However, if not enough protein is consumed to meet the body's needs, this usually means that the food consumed is not enough to provide energy [24].

The level of protein adequacy of fishermen's households is obtained by comparing the amount of protein consumed with the household protein adequacy rate. The distribution of the level of protein adequacy of fishermen's households in Teluk Betung Selatan District can be seen in Table 4.

Table 4. Protein sufficiency level of fishermen's households in Teluk Betung Selatan Sub District

| Score (%) | Criteria     | Total (Fisherman household) | Percentage (%) |
|-----------|--------------|-----------------------------|----------------|
| ≥80.00    | Very Good    | 36                          | 72.00          |
| 70.00-79.99 | Good       | 6                           | 12.00          |
| 60.00-69.99 | Little Good | 5                           | 10.00          |
| < 60.00   | Bad          | 2                           | 4.00           |
| Total     |              | 50                          | 100.00         |

The results showed that the protein adequacy level of most fishing households (72.00%) was in good criteria with an average adequacy level of 93.76%. This indicates that the level of protein adequacy of fishermen's households is good. This condition is presumably because all fishing households consume protein sources of food almost every day, such as tofu, tempeh, eggs, and fish [25]. Given the fact that fishing households have a protein adequacy level higher than the energy adequacy level, it shows that fishing households find it easier to meet protein adequacy rates than energy adequacy rates [26].

4. Conclusion
Based on the results of the discussion, it can be concluded that the level of food security of fishermen's households in Teluk Betung Selatan District is mostly in the food security category (78%), while the remaining 22% is in the food insecurity category. In addition, the energy adequacy level of fishermen households in Teluk Betung Selatan District is mostly in the bad category (52%), but the protein adequacy level of most fishing households (72.00%) is in good criteria with an average level of adequacy of 93.76%.

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