Analysis of Society's Fish Consumption in Cilaku Cianjur District Area

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Authors' contributions

This work was carried out in collaboration among all authors. Author NM designed the study, performed the statistical analysis, wrote the protocol and wrote the first draft of the manuscript. Authors AR and DS managed the analyses of the study. Author AAHS managed the literature searches. All authors read and approved the final manuscript.

Original Research Article

ABSTRACT

This study aimed to analyze the characteristics of fish consumers, analyze the level of favorite and types of fish that were often consumed by the people, and analyze the factors that affect fish consumption which the research was conducted in Cilaku Subdistrict on September – December 2020. The research used a case study method with used primary and secondary data. The resulted of primary data were from interviewed with 100 respondents using purposive sampling method as a research sample. Secondary data was obtained from relevant agencies. The analysis used descriptive and rank spearman test method to analyze the motivational influence for fish price, family influence, and fish quality. The results showed that consumers who buy and consume fish in Cilaku subdistrict were generally women who has a family in aged < 43 years with a high school education level and work as employee. Buyers and fish eaters in Cilaku Subdistrict had an income of Rp 2,100,000 - Rp 3,000,000. Totally, the 57% of respondents in Cilaku Subdistrict like fish to be consumed. The type of fish which usually they consume were 58% of freshwater fish, 27% of seawater fish, and 15% of processed fish. The factors that most influence fish purchasing decisions according to spearman rank tests were the influence of culture, fish prices, consumer family influences, and fish quality.

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1. INTRODUCTION

Fish consumption in Indonesia is considered low and uneven between regions so that the government since the era of President Megawati continues to conduct various programs to increase fish consumption [1]. The Ministry of Marine Affairs and Fisheries Indonesia in 2018 stated that the national fish consumption rate has always increased over the last five years. Although the increase in fish consumption in Indonesia is still relatively low when compared to the level of fish consumption in other countries that can reach 120 kg/capita/year, while Indonesia in 2018 only 50 kg/capita/year [2].

The low level of fish consumption in Indonesia is caused by several things such as the habitual or pleasure of eating fish that is still lacking, uneven distribution of fishery products, as well as the low supply of fish locally [3]. In addition, some people are reluctant to cook fish because they have to clean their stomachs, remove scales and thorns, thus giving the impression that cooking fish is very troublesome [4].

Cianjur is one of the regencies in West Java. The development of freshwater and marine fisheries business in Cianjur Regency is quite potential. Some of the supporting factors are the relatively large population and the availability of freshwater fish and sea fish cultivation land. Cianjur one of the regencies in West Java whose total fish production is fairly large reaches 134,206,480 kg. The source of sea fish production comes from Cidaun Subdistrict, while the source of freshwater fish is dominated from Cirata.

Cilaku is a Subdistrict in Cianjur regency directly adjacent to the northern part with the center of Cianjur city government, namely Cianjur Subdistrict. Cilaku Subdistrict is the center of the traditional market in Cianjur Regency, so this potential is interesting to be studied the influence of consumer behaviour on the level of fish consumption in Cilaku Subdistric.

Consumer behavior can be seen from the decision-making process, where in the decision-making process is influenced by external factors and internal factors in the input stage of the process. Through this research is expected to provide a clear picture of the decision-making process of fish purchases through the stage of recognition of needs, information search, alternative evaluation, purchasing decisions and post-buyer behavior towards fish consumption in Cilaku Subdistrict. It can also be considered to establish the next marketing strategy for fishmongers around Cilaku Subdistrict.

2. MATERIALS AND METHODS

2.1 Time and Place

This research was conducted in Cilaku Subdistrict, Cianjur Regency, Jawabarat Province, Indonesia. Implemented in September – December 2020.

2.2 Types and Data Soursec

The methods used in this study are primary data and secondary data. Primary data is based on direct observations and interviews with questionnaire fillouts by respondents. Questionnaire is a data collection technique that is done by giving a set of questions or written statements to respondents for answering [5]. Secondary data obtained from literature, documents and information from various relevant agencies such as the Cianjur Marine and Fisheries Service, Cilaku Subdistrict, as well as literature of previous researches.

2.3 Sampling Techniques

The sampling technique used in this study is purpossive sampling technique. Purposive sampling is a sampling technique with certain considerations [6]. Respondents in this study as many as 100 fish consumers.

2.4 Data Analysis Methods

Data processing and analysis is carried out with the help of Microsoft Excel 2019 Software program and Statistical Products and Solution Services (SPSS) Version 22.

Rating scale techniques are used to determine what factors are most influential in the decision-making process of purchasing fish. The formulas used in this technique are:

$$\{(F1 \times 1) + (F2 \times 2) + (F3 \times 3) + (F4 \times 4)\} : 4 = CV$$

Description:

F1 : Frequency does not affect
F2 : Frequency does not affect
F3 : Frequency affects

F4 : Frequency greatly affects
CV: Scale Value

Spearman rank correlation tests are used to find relationships or to test the signification of associative hypotheses when each of the connected variables is ordinal, and the data sources between variables do not have to be the same. Spearman rank correlation calculation using formula [7]:

$$r_s = 1 - 6 \frac{\sum_{i=1}^{n} d_i^2}{N^3 - N}$$

Description:

rs : Spearman rank coefficient
in : The difference between the two rankings
N : Number of data pairs

The statistical hypotheses tested were:

H_o : There is a relationship between motivation and culture, fish price, family, and fish quality in the purchasing decision process.
H_1 : there is no relationship between motivation and culture, fish price, family, and fish quality in the purchasing decision process.

Statistical tests used to test hypotheses are with the following formulas [7] :

$$t = rs \sqrt{\frac{n-2}{1-r_s^2}}$$

Description:

t : t_{count}
rs : spearman rank coefficient
n : number of samples
Testing criteria:
1. If $t_{count} > t_{table}$ then H_0 is accepted
2. If $t_{count} < t_{table}$ then H_0 is rejected

3. RESULTS AND DISCUSSION

Consumers of fish in this study are people in Cilaku Subdistrict. Questionnaires shared with 100 respondents explained the general characteristics of consumers including gender, marital status, age, education level, occupation, and income.

3.1 General Characteristics of Consumers

The general characteristics of fish consumers in Cilaku Subdistrict are generally female as many as 64 people or 64% there is a tendency of high female role in the process of household decision making related to daily food needs.

The marital status of 68% of respondents is married, the status of a person's marriage is one of the characteristics that can influence judgment in decision making.

Between 17-43 years old who have been included in the adult category as much as 71%. Mature age and tend to have certain considerations in making decisions on the purchase of fish.

The level of education among respondents in this study was high school as much as 46%. This shows that fish consumers in Cilaku Subdistrict have a high level of education as evidenced by the results of research, most of whom have already stepped on high school. Education is a personal factor that influences the interest in buying, education will affect one's way of thinking in dealing with a problem [8].

As many as 30% of fish consumers work as employees, this is because the Cianjur area consists of several factories so that people mostly choose to work as employees.

The average respondent has an income of Rp. 2,100,000 – Rp. 3,000,000 as much as 33 people or 33%. Respondents' income is fairly low because the respondents are mostly employees who receive salaries in accordance with or even less than the minimum wage Cianjur.

3.2 Fish Purchase Decision Making Process

Consumer decisions made in buying fish do not appear just like that but through certain stages [9] namely:

3.2.1 Introduction to needs

Consumers will make a purchase when they know their needs. At this stage consumers begin to realize the need and desire to consume fish in Cilaku Subdistrict. To know the needs of consumers can be seen from the level of their passion. The level of respondents' favorite in consuming fish in Cilaku Subdistrict is presented

in Table 1. the majority of respondents expressed like in consuming fish.

The motivation of respondents to consume fish in Cilaku Subdistrict is presented in Table 2. The majority of respondents stated that there is better nutrition in fish as the most considered motivation when buying fish. The respondents who bought fish because there is better nutrition is as many as 37 respondents or 37%. Nutritional content in fish becomes the main consideration of consumers in deciding whether to buy fish or not. This proves that consumers are now very selective in choosing the fish to buy.

3.2.2 Information retrieval

At this stage the consumer will look for information about the fish that he will buy which can be done by internal search or external search [10] in this case is information about the nutritional content in the fish.

Table 3. shows that respondents obtained a source of information about the content in the majority of fish from electronic media, the media has a big influence in the process of information retrieval. It is undeniable that the media has a great influence in the life of a person, someone who initially did not know can become aware of the existence of the media.

That the majority of respondents know the nutritional content in fish, because some of the people of Cilaku Subdistrict have passed the high school education. The level of education is one of the benchmarks or positive correlations to intelligence, thinking power, and the level of criticality in each individual. The knowledge of reseponden is presented in Table 4.

Table 1. Respondents' favorite level of fish consumption

Favorite level	Respondent (person)	Percentage (%)
Very like	17	17
Like	57	57
Not too fond	24	24
Dislikes	2	2
Amount	100	100

Table 2. Motivation of respondents to consume fish in cilaku subdistrict

Motivation	Respondent (person)	Percentage (%)
There is better nutrition	37	37
Easy to get	27	27
Priced	20	20
Good taste	16	16
Amount	100	100

Table 3. Respondent's source of information regarding the content in fish

Respondent Information	Respondent (person)	Percentage (%)
Electronic media	37	37
Other	30	30
Friends	17	17
Government counseling	16	16
Amount	100	100

Table 4. Respondents knowledge of nutritional content in fish

Gynecological Knowledge	Respondent (person)	Percentage (%)
Very know	11	11
Know	44	44
Not sure	22	22
Don't know	12	12
Amount	100	100

3.2.3 Alternative evaluation

Alternative evaluation is the process of evaluating options and selecting them as desired. At this stage consumers begin to choose and determine the type of fish they often buy for consumption.

Majority of respondents in Cilaku Subdistrict consume freshwater fish as many as 58 respondents or 58%. Especially respondents prefer goldfish because goldfish are very popular with the public and easy to get by respondents. The reason respondents prefer the type of freshwater fish presented in Table 6. that the main reason respondents choose freshwater fish is because it is easy to get as many as 34 respondents or 34%, the easier an item is found, the more likely it is to sell the item.

3.2.4 Purchases

The act of purchase is an important stage in the decision-making process [11]. This stage is the stage we can see the frequency of consumers in buying fish for one week.

The frequency of fish purchases shows that 28 respondents or 28% make fish purchases in Cilaku Subdistrict every 1x in one week, this is due to the tastes of consumers who always change every day.

Presented in Fig. 1. that majority of fish consumers cilaku district wants a good quality of fish to be purchased that will be consumed later, it provides evidence that consumers are increasingly selective in choosing fish. The characteristics of fish with fresh qualities include clear eyes, clear corneas, black pupils, convex eyes and fresh red gills [12].

The number of fish purchases by respondents in one month respondents answered 30% of people making purchases in Cilaku Subdistrict as much as 2,1 kg - 3 kg in one month, this shows that the people of Cilaku Subdistrict fall into the category of like to consume fish.

3.2.5 Results (post-price evaluation)

The last stage of the purchasing decision process is the results stage. This stage consumers will assess the conformity between the desired expectations before buying fish and after the consumer buys fish so that consumers will experience a level of satisfaction or dissatisfaction. This stage is analyzed through the question of respondents' attitude towards rising fish prices can indicate the extent of price influence on fish purchase decisions presented in Table 9.

Table 5. Types of fish more commonly consumed

Types of fish	Respondent (person)	Percentage (%)
Freshwater fish	58	58
Seawater fish	27	27
Processed fish	15	15
Amount	100	100

Table 6. Reasons for choosing freshwater fish, seawater fish, and processed fish

Alasan	Respondent (person)	Freshwater fish	Seawater fish	Processed fish
AlPrice cheaper	20	16	1	3
Easy to process	10	1	4	5
Easy to get	49	34	9	6
It tastes better	21	7	14	0

Table 7. Frequency of fish purchases in 1 week in Cilaku Subdistrict

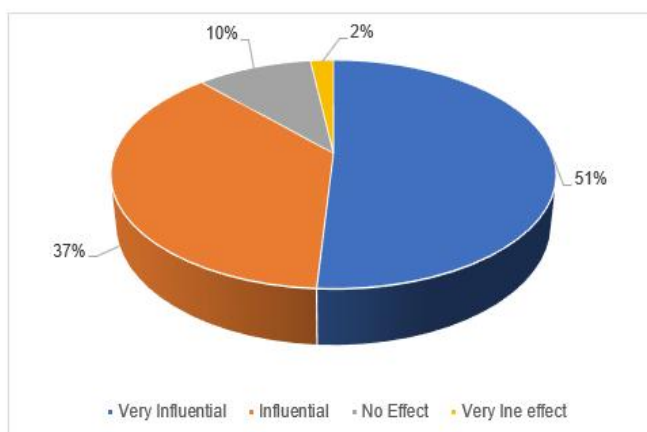| Purchase Frequency	Respondent (person)	Percentage (%)
1x	28	28
2x	22	22
3x	13	13
4x	11	11
Other	26	26
Amount	100	100

Fig. 1. The Effect of Fish Quality on Fish Purchases

Table 8. Number of fish purchases in 1 month

Purchase Amount	Respondent (person)	Percentage (%)
¼ kg – 1 kg	15	15
1,1 kg – 2 kg	27	27
2,1 kg – 3 kg	30	30
3,1 kg – 4 kg	15	15
Amount	13	13
Amount	100	100

Table 9. Respondents' attitude towards rising fish prices

Attitude	Respondent (person)	Percentage (%)
Keep buying	66	68
Not buying	34	32
Amount	100	100

Table 10. spearman rank analysis of the relationship between several variables and motivation to consume fish in Cilaku subdistrict

Variable	Correlation value rs	Value t_{count}	Values t_{tabel}	Description
Relationship between Y and X_1	0,624	7,893		There is relationship
Relationship between Y and X_2	0,420	4,581		There is relationship
Relationship between Y and X_3	0,355	3,759		There is relationship
Relationship between Y and X_4	0,632	8,073	19,84	There is relationship

Note : Y : motivation to consume fish, X1:family influence, X2: prince influence, X3: family influence, X4:fish quality

The majority of respondents stated that they still buy fish despite the price increase because respondents are more loyal to the fish sold because of the good quality of fish so that respondents tend to keep buying despite the increase in the price of fish. The majority of respondents stated that they still buy fish despite the price increase because the respondents are more loyal to the fish sold because of the good quality of fish so that respondents tend to keep

buying despite the increase in the price of fish [13].

3.3 Factors Influencing Fish Purchasing Decisions

Factors that influence fish purchasing decisions are seen from the relationship between cultural influence, influence of fish price, family influence, and level of fish quality with the motivation of consuming fish.

Based on Table 10 obtained correlation value (rs) for cultural influence (X_1) of 0,624 belongs to the strong category [6], t_{count} of 7,893 and t_{table} 1,984. From this value, it appears that culture has a relationship to the motivation to consume fish, because $t_{count} > t_{table}$ means the H_0 hypothesis is accepted [7]. The results are in line with Suharto research [14] saying that cultural factors are one of the consumer behaviors inherent in the community order. This habit must be understood and known by marketers to enable the role played by culture. Culture is a way of life that is developed and shared by a group of people and passed down from generation to generation [15].

The price of fish (X2) has an influence on the motivation of the people of Cilaku Subdistrict to consume fish with a value t_{count} 4,581 > t_{table} 1,984 and rs 0,420 in the moderate category. Every consumer will definitely consider the price in the purchase decision, if the fish experiences a reasonable price increase it will not affect the consumer's purchase. Price is something that consumers pay attention to when making a purchase, some consumers even identify prices with a value of [16].

Family influence (X_3) has an important role in influencing consumer behavior [17], Table 10 shows the same thing, that there is a relationship between the family and the motivation of consuming fish, it is based on the data produced with a value of t_{count} 3,759 and t_{table} 1,984 so that the result of H_1 is rejected and H_0 is accepted, because $t_{count} > t_{table}$. The rs value of 0,355 falls into the moderate category. Several stages of the role of family members in decision making are initiated by initiators, influencers, decision-making, information filters, purchases [18].

The quality of fish (X_4) has an influence on the motivation of consuming fish in the community of Cilaku Subdistrict, because t_{count} 0,632 > t_{table} 1,984 means the H_0 hypothesis is accepted. The rs value of 0,632 according to Sugiyono [6] means it falls into the strong category. The results are in line with the findings made by Bayu Alfat Nur [19] that the quality of the product has a significant effect on purchasing decisions. Product quality is defined as the ability of a product to meet the customer's wishes. Customers' wishes include durability of a product, ease of use, reliability of products and other valuable attributes free from shortages and damage. The higher the consumer perception of product quality, the stronger it will be to encourage consumers to make purchasing decisions [20]. Therefore, fish eaters around Cilaku Subdistrict must improve the quality of their products so that consumers will be more interested in making purchases.

4. CONCLUSION

Fish consumers in Cilaku Subdistrict are generally married women, aged < 43 years old with a high school education level and an employee profession. Buyers and consumption of fish in Cilaku Subdistrict have an income of Rp. 2,100,000 – Rp. 3,000,000. A total of 57% in Cilaku Subdistrict like to consume fish. The usual type of fish is fresh air fish by 58%. The factors that most influence fish purchasing decisions according to spearman rank tests are the influence of culture, fish prices, consumer family influences, and fish quality.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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