



Analysis of Consumer Behavior in Freshwater Fish Purchase Decisions (A Case Study at the Sabilulungan Modern Fish Market, Bandung Regency, West Java, Indonesia)

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Authors' contributions

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

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ABSTRACT

This study aims to analyze the behavior of freshwater fish consumers in the Sabilulungan Modern Fish Market, Bandung Regency and to analyze the factors that encourage consumers to buy freshwater fish at PIM Sabilulungan. The method used in this research is a case study with research subjects, namely freshwater fish consumers at PIM Sabilulungan, using a rating scale analysis and rank spearman. The sampling technique used was accidental random sampling with a total of 40 respondents. The consumer purchasing decision process consists of five stages, namely the introduction of needs, information search, evaluation of alternatives, the purchase process and evaluation of post-purchase results. The results showed that at the introduction stage the need for motivation to purchase freshwater fish because fish have good nutrition, at the information search stage the source of information obtained by respondents was print / electronic media. In the alternative evaluation stage, the reason consumers buy freshwater fish at PIM Sabilulungan is because of the various types of fish. At the purchasing stage, respondents buy

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1.1kg-3kg freshwater fish with a frequency of buying it twice a month. In the post-purchase evaluation stage, respondents are satisfied with the freshwater fish products being sold and the marketed prices are affordable. To see the factors that influence purchase motivation, the rank spearman test is used. The test results show that the product price and service quality are the factors that most influence the purchase decision of freshwater fish at the Sabilulungan Modern Fish Market with t count values of 16.245 and 16.228.

Keywords: Modern fish market sabilulungan; consumer behavior; purchase decision.

1. INTRODUCTION

The number of fish production in West Java in 2018 was 1.4 million tonnes, consisting of aquaculture production producing 1,160,747 tonnes and capture fisheries producing 274,465 tonnes. The level of fish consumption in West Java only has an average of 29 kg / cap / year, while the national target that must be achieved is 50.65 kg / cap / year [1]. Freshwater fish production in West Java is quite abundant but the level of consumption is low. One of the factors that affects the low level of consumption, namely access to fish markets with the community and the limited factors in how to process the fish [2].

The low level of fish consumption in West Java on the supply side, among others, is due to the unequal supply of quality fish, the lack of sales infrastructure and hygienic fish distribution. Factors that play a role on the demand side with low fish consumption are the availability of fresh fish on the market, low variety of fish types, diversified products of processed fishery products, minimal mastery of technology and access to fish markets with the community [3].

One of the efforts to add fish marketing services is by providing a Modern Fish Market (PIM). PIM Sabilulungan is the second modern fish market to be built in Indonesia after the Muara Baru Jakarta Modern Fish Market. Based on the Director General for Strengthening the Competitiveness of Marine and Fisheries Products, this Modern Fish Market is equipped with supporting facilities, including loading / unloading areas, chilling rooms, ice flake machine rooms, slaughtering areas laboratories, health clinics, toilets, IPALs. (Wastewater Treatment Plant), power house, power pump, packing, security office, parking lot, guard post and warehouse [4].

2. METHODOLOGY

The research method used is a case study. A case study is a form of in-depth research on an

aspect of the social environment including humans in it. The purpose of using case study research [is to explain how the case happened and why [5].

2.1 Place and Time of Research

The research was carried out at the Sabilulungan Modern Fish Market (PIM), Bandung Regency, West Java, Indonesia. The research location was determined purposively. This research aims to obtain data from visitors who buy freshwater consumption fish products. The place was chosen because it is the first modern fish market in Bandung Regency. The research was carried out from December 2020 to January 2021.

2.2 Source of Data

The types of data used are primary data and secondary data. Primary data is data obtained through direct observation in the field, direct interviews and filling out questionnaires by respondents, namely consumers in the Modern Fish Market, Bandung Regency. The secondary data needed in this research are data and information from various agencies related to the level of fish production in West Java which can be obtained from the West Java Central Statistics Agency and previous consumer behavior research which can be obtained at the library.

2.3 Sampling Method

Data collection was carried out by sampling. The sampling technique used was purposive sampling technique. This technique is used to certain consideration by selecting who is at the research location who is buying fresh water fresh fish products at the Modern Fish Market, Bandung Regency, West Java, Indonesia. Respondents needed for data collection are 40 people.

2.4 Data Analysis Method

The data analysis method used in this research is quantitative and qualitative data. Qualitative data analysis was used to describe the general description of the research location, the characteristics of consumers in the Sabilulungan Modern Fish Market in Bandung Regency, West Java, Indonesia and consumer behavior in the decision to purchase freshwater fish in the form of data tabulation. Quantitative data analysis was presented in table and diagrams or graphs are then analyzed descriptively. Descriptive analysis is a statistical analysis used to describe or analyze the result of research. Consumer behavior was analyzed using descriptive methods to find out the factors that influence consumers are analyzed using qualitative data correlation analysis. Data processing and analysis in this research was carried out with the help of computers using the Microsoft Excel 2016 Software program and Version 23 of Statistical Products and Solution Services (SPSS). SPSS is a special program for handling statistical data which functions to distribute the results of data processing and is used to calculate how many percent influence of the variables studied on decisions and calculating the most influential variables.

2.4.1 Rating scale

The measurement scale or rating scale is used to analyze what factors influence the purchasing decision process [6]. The measurement scale or rating scale used in research uses the Guttman scale and the Likert scale.

2.4.1.1 Guttman scale

The Guttman scale generates a binary score (0-1) and is used to obtain firm and consistent answers such as yes or no and never or never [7].

2.4.1.2 Likert scale

Likert scale is used to measure respondents' attitudes and opinions with answers such as strongly agree, agree, disagree, disagree and strongly disagree or disagree, like, dislike, dislike and really dislike [8].

2.4.2 Spearman test rank

The correlation test aims to test the relationship between two variables that do not show a

functional relationship (related does not mean it is caused) [9]. The first step to testing the Spearman correlation is to determine the hypothesis. Determining the hypothesis aims to determine whether or not there is a relationship between the level of income, price, quality, sales service, and family influence with the motivation to buy fish consumption. The hypothesis used in this research is:

- H0:** There is no relationship between Y (motivation) and X (income, price, quality, sales service, family)
H1: There is a relationship between Y (motivation) and X (income, price, quality, sales service, family)

The next step is to calculate the Spearman Rank correlation using the following formula:

$$r_s = 1 + \frac{6 \sum d_i^2}{n^3 - n}$$

Explanation:

r_s : coefficient correlation of Spearman Rank
 d_i^2 : scores between two variables
 n : the numbers of data pairs
 The basis for decision making is based on hypothesis testing is:
 H0 is accepted if $t_{count} < t_{table}$ at 95% confidence interval
 H1 is accepted if $t_{count} > t_{table}$ at 95% confidence interval

3. RESULTS AND DISCUSSION

3.1 Respondents Characteristics

The characteristics of respondents in the research conducted at the Sabilulungan Modern Fish Market consisted of 34 female respondents and 6 male respondents. The age of the respondents who bought freshwater fish at PIM Sabilulungan was between 40-49 years, which were dominated by housewives. As many as 37 respondents were married. The last education of the respondents was dominated by Senior High School (SMA). Respondents' income is dominated by less than Rp. 3,100,000. A total of 25 respondents residing in the vicinity of Bandung Regency and 15 respondents residing outside Bandung Regency. A total of 29 respondents came from the Sundanese Tribe and 11 respondents consisted of the Javanese and the Betawi Tribe.

3.2 The Process of Freshwater Fish Purchasing Decision

3.2.1 The introduction to the needs stage

At this stage consumers begin to realize the need and desire to consume freshwater fish in Sabilulungan Modern Fish Market. To know the needs of consumers can be seen from the level of their passion. The level of respondents favorite consuming freshwater fish in Sabilulungan Modern Fish Market is presented in the Table 1.

Table 1. Respondents favorite level of fish consumption

Favorite Level	Respondent (Person)	Percentage(%)
Very Like	15	37.5
Like	20	50
Not Too Fond	4	10
Dislikes	1	2.5
Really Dislikes	-	-
Amount	40	100

Based on the data on the motivation of respondents in buying freshwater fish that presented in the Table 2 it was found that 40% of respondents were motivated in buying freshwater fish because there was good nutrition. This is because the freshwater fish consumers at PIM Sabilulungan know enough about the nutritional content of freshwater fish.

Table 2. Motivation of respondents to consume fish in Sabilulungan Modern Fish Market

Motivation	Respondent (Person)	Percentage (%)
There is better nutrition	16	40
Family influence	12	30
Practical presentation	2	5
Price	10	25
Amount	40	100

The results of the calculation of respondents who answered that they needed freshwater fish as a consumption is presented in Table 3. The

majority of respondents who stated their really needed freshwater fish for consumption is as many as 19 respondents or 47,5%. The results expressed quality and prices becomes the reason why freshwater fish that really needed for respondents.

Table 3. Level of consumer needs of freshwater fish

Level	Respondent (Person)	Percentage(%)
Really need	19	47.5
Need	17	42.5
Not really need	3	7.5
Did not need	1	2.5
Really did not need	-	-
Amount	40	100

3.2.2 Information Retrieval Stage

Based on Table 4 the majority of respondents is as many as 19 respondents or 47,5% not sure about the nutritional content in freshwater fish, this is because respondents only know that fish is a healthy food, without knowing what nutritional content is contained in freshwater fish.

Table 4. Respondents knowledge of nutritional content of freshwater fish

Knowledge Level	Respondent (Person)	Percentage(%)
Very know	4	10
Know	12	30
Not sure	19	47.5
Don't know	5	12.5
Amount	40	100

Sources of information regarding the nutritional content of fish obtained from respondents were dominated by print / electronic media with 34 respondents and a percentage of 85% because nowadays it is very easy to find information using electronic media. The tabulation of data is presented in Table 5.

The results of information sources regarding the Sabilulungan Modern Fish Market were dominated by the respondents' own experiences. Based on Table 6 as many as 19 people with a percentage of 47.5%. This shows the influence of themselves and the influence of the environment,

especially the family in the information search process so that they decided to do purchase of freshwater fish at PIM Sabilulungan.

Table 5. Respondents source of information regarding the content in freshwater fish

Resources	Respondent (Person)	Percentage (%)
Government counselling	-	0
Friends	-	0
Electronic media	34	85
Others	6	15
Amount	40	100

Table 6. Respondents source of information regarding Sabilulungan Modern Fish Market

Sources	Respondent (Person)	Percentage (%)
Respondent experience	19	47.5
Family	17	42.5
Electronic media	4	10
Amount	40	100

3.2.3 Evaluation alternative

The reason respondents prefer to buy freshwater fish in Sabilulungan Modern Fish Market presented in Table 7. Based on the results of this research, it shows that 21 respondents with a percentage of 52.5% prefer to bought fish at the Sabilulungan Modern Fish Market because the fish products sold were varied as the main reason beside price and location. This shows that the Sabilulungan Modern Fish Market is the largest fish market in Bandung Regency.

Table 7. Reasons for choosing Sabilulungan Modern Fish Market as a place to purchase freshwater fish

Reason	Respondent (Person)	Percentage (%)
Various fish products	21	52.5
Price cheaper	16	40
Location	3	7.5
Amount	40	100

Table 8 shows the majority of respondents in Sabilulungan Modern Fish Market consumed carp as a favorite of freshwater fish with 13 respondents and a percentage of 35%, in the second place with 11 respondents and a percentage of 22.5% is goldfish. According to respondents, this is because carp and goldfish can be processed in more ways.

Table 8. Types of freshwater fish more commonly consumed

Types of fish	Respondent (Person)	Percentage (%)
Goldfish	11	22.5
Carp	13	35
Pomfret	3	7.5
Catfish	2	10
Parrot fish	5	12.5
Snapper	6	12.5
Amount	40	100

As many as 22 respondents with a percentage of 55% chose traditional markets as an alternative to buying freshwater fish beside Sabilulungan Modern Fish Market due to the affordable prices of fish in traditional markets. The data tabulation expressed in Table 9.

Table 9. Respondents alternative choice to buying freshwater fish beside Sabilulungan Modern Fish Market

Alternative	Respondent (Person)	Percentage (%)
Traditional market	22	55
Itinerant greengrocers	13	32.5
Supermarket	5	12.5
Amount	40	100

3.2.4 Purchases

The number of freshwater fish purchases by respondents expressed in Table 10. As many as 21 respondents or 52.5% bought 1.1kg-3kg of freshwater fish in one purchase. This can be seen from the number of family members of respondents in the Sabilulungan Modern Fish Market, which consists of 3-5 people, amounting to 52.5%. The amount of freshwater fish purchases of more than 3 kg is 32.5% because respondents with > 5 family members are parents

who already have married children or other family members such as siblings. It can be concluded that the number of fish purchased by respondents is directly proportional to the number of family members.

Table 10. Amount of freshwater fish purchased in a single purchase

Purchase amount	Respondent (Person)	Percentage (%)
<1kg	6	15
1,1kg-3kg	21	52.5
>3kg	13	32.5
Amount	40	100

The frequency of fish purchases shows that 22 respondents or 55% make freshwater fish purchases in Sabilulungan Modern Fish Market every twice a week. This is because the location of the Sabilulungan Modern Fish Market is located in a strategic area in Bandung Regency. The purchase frequency based on Table 11.

Table 11. Frequency of freshwater fish purchase in a week in Sabilulungan Modern Fish Market

Purchase frequency	Respondent (Person)	Percentage (%)
1x	10	25
2x	22	55
3x	5	12.5
>3	3	7.5
Amount	40	100

3.2.5 Results (Post-Price Evaluation)

After consuming a product or service, consumers will feel satisfaction or dissatisfaction with the product or service they consume. (Maharani). This is the final stage in the decision making process for purchasing freshwater fish in Sabilulungan Modern Fish Market.

Based on the Table 12, as many as 28 respondents with a percentage of 70% expressed satisfied after purchases in Sabilulungan Modern Fish Market. Majority respondents stated that the price of fish marketed was affordable, the quality of freshwater fish are good and still fresh because the fish are imported directly from the districts of Bandung City, Sumedang and Subang, West Java, Indonesia. The level of cleanliness becomes influence consumers to purchases in Sabilulungan Modern Fish Market because the

market well maintained and the freshwater fish sold has a good level of freshness that it affects the satisfied level of respondents.

Table 12. Respondents satisfied level while purchased in Sabilulungan Modern Fish Market

Satisfied Level	Respondent (Person)	Percentage(%)
Very satisfied	11	27.5
Satisfied	28	70
Not really satisfied	1	2.5
Dis-satisfied	0	0
Amount	40	100

3.3 The Relation between Income, Price, Quality, Service and Family Effect with Motivation in Freshwater Fish Purchasing Decision

Factors that influence fish purchasing decisions are seen from the relationship between level of fish quality, influence of freshwater fish price, respondents income, service quality and family influence. Based on Table 13 obtained correlation value (rs) for level of fish quality (X1) of 0,840 belongs to very strong category [10], tcount of 8,526 and ttable 2,032. From this value, it appears that level of fish quality has a relationship to the motivation to consume freshwater fish because tcount>ttable and means the H0 hypothesis is accepted. The results are in line with [11] research saying that good product quality will influence respondent satisfaction in motivating the purchase.

Respondents income (X3) has an important role in purchasing decision [12]. Table 13 shows the correlation value (rs) of respondents income is 0,866 falls in to very strong category with a value of tcount is 12,572 and ttable 2,032 means H0 hypothesis is accepted because the value of tcount>ttable. Income level affects on what consumer can afford and perspective towards money and affects what consumers can afford and the perspective towards money.

The service quality (X4) in Sabilulungan Modern Fish Market has an influence on the purchasing motivation because the value of tcount 16,228 > ttable 2,032 means the h0 hypothesis is accepted. The correlation value (rs) between the

motivation and quality service of 0,897 belongs to very strong category. The results of Conny research [13] show that the existence of quality service will encourage purchasing decision.

Based on Table 13 the correlation value (rs) between family influence (X5) and motivation purchase is 0,449 means has a moderate category. The tcount value is 3,178 > ttable 2,032 means the H0 hypothesis is accepted. Suggestions and information from family member are a major reference for consumer in choosing a product and family are factors that can influence consumer decision in buying process [14]. Family has an important roles in influencing consumer behavior [15]. Stages of the roles of family member in decision making are initiated by initiators, influencers, decision making, information filters and purchases [16].

Table 13. The relation between income, price, quality, service and family effect with motivation in freshwater fish purchasing decision

Variable	Correlation value (rs)	Value tcount	Value table
Motivation and product quality	0,840	8.526	2,032 (Sig.)
Motivation and price	0,908	16.245	
Motivation and income	0,866	12.572	
Motivation and service quality	0,897	16.228	
Motivation and family	0,449	3.178	

4. CONCLUSION

The decision-making process for consumers to buy freshwater fish because it has good nutritional content. Most of the information regarding the Sabilulungan Modern Fish Market was obtained by respondents based on personal experience. The purchase of freshwater fish at Pim Sabilulungan is due to the varied types of fish being marketed. The number of purchases is as much as 1.1kg-3kg for 2 times a month and fish purchases are dominated by carp because it has a more savory taste of meat.

The relationship between product quality, price and sales service with purchase motivation has a significant influence because it directly affects

the level of customer satisfaction and loyalty at PIM Sabilulungan. The relationship between the level of income and purchase motivation affects consumer responses to purchasing decisions and the determination of other alternatives chosen by consumers. Family can influence purchase motivation because advice and information from family is the main reference for consumers in buying freshwater fish at PIM Sabilulungan.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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