Fisheries Journal, 15(6), 3417-3426 (2025)
http://doi.org/10.29303/jp.v15i6.1931

ANALYSIS FACTORS OF FISH CONSUMPTION LEVELS AMONG TEENAGERS ON DKI JAKARTA

Analisis Faktor-faktor Yang Mempengaruhi Tingkat Konsumsi Ikan Pada Remaja di Wilayah DKI Jakarta

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(Received October 28th 2025; Accepted December 22th 2025)

ABSTRACT

Nutrional needs in adolescents is closely related to the consumption of animal protein, which one of it is fish consumption. The diverse consumption patterns of teenagers mean that their nutrional intake is not optiomal. DKI Jakarta is a densely populated province that has large fisheries resource potentional. As a coastal area who has Kepulauan Seribu and Teluk Jakarta, Jakarta's fisheries potential is obtained through the production of fisheries and aquaculture. In this regard, data regarding the level of fish consumption in one area is very necessary. This research aims to determine the level of fish consumption among teenagers in DKI Jakarta as well as knowledge of fish nutrition and the factors that influence the level of fish consumption among teenagers. The analytical method used is multiple linear regression analysis and descriptive analysis using the SPSS (Social Package of Statistics Software) program. The data obtained came from primary data by distributing questionnaires via Google Form which were distributed via social media. The sampling technique used in this research was cluster random sampling. Respondents totaled 360 respondents, each of whom was divided into 60 respondents in 5 municipalities and 1 district. The four factors, namely childhood eating habits, nutritional knowledge, parental income, and consumer preferences have a significant effect on the level of fish consumption among teenagers in DKI Jakarta.

Keywords: Fish Consumption Level, Adolescents, DKI Jakarta

ABSTRAK

Pemenuhan kebutuhan gizi pada remaja erat kaitannya dengan konsumsi protein hewani, salah satunya adalah konsumsi ikan. Pola konsumsi remaja yang beragam membuat asupan pemenuhan gizi yang tidak maksimal. DKI Jakarta merupakan provinsi padat penduduk yang memiliki potensi sumberdaya perikanan yang besar. Sebagai wilayah pesisir, Kepulauan Seribu dan Teluk Jakarta menjadi wilayah potensi perikanan DKI Jakarta. Namun, tingkat produksi perikanan yang tinggi tidak menjamin masyarakatnya juga memiliki tingkat konsumsi ikan yang tinggi. Sehubung dengan itu, data informasi mengenai tingkat konsumsi ikan di satu wilayah sangat diperlukan. Penelitian ini bertujuan untuk mengetahui faktor-faktor yang

berpengaruh dengan tingkat konsumsi ikan pada remaja. Metode analisis yang digunakan adalah analisis regresi linear berganda dan analisis deskriptif menggunakan program SPSS *(Social Package of Statistics Software)*. Data yang didapatkan bersumber dari data primer dengan penyebaran kuisioner melalui Google Formulir yang disebar melalui media sosial. Teknik pengambilan sampel yang digunakan pada penelitian ini adalah *cluster random sampling*. Responden berjumlah 360 responden yang masing-masing terbagi menjadi 60 responden di 5 kotamadya dan 1 kabupaten. Keempat faktor yaitu kebiasaan makan di masa kanak-kanak, pengetahuan gizi, pendapatan orang tua, dan preferensi konsumen berpengaruh nyata terhadap tingkat konsumsi ikan pada remaja di DKI Jakarta.

Kata kunci: Tingkat Konsumsi Ikan, Remaja, DKI Jakarta

INTRODUCTION

DKI Jakarta is a metropolitan city located on the north coast of Java Island with a land area of 661.52 km2 and a sea area of 6,997.5 km2. DKI Jakarta Province is divided into 5 municipalities and 1 regency administratively, namely Central Jakarta, South Jakarta, West Jakarta, North Jakarta, East Jakarta, and the Seribu Islands. According to the Central Statistics Agency of DKI Jakarta Province, fisheries production in 2022 reached 198,195 tons. Types of fish caught include pomfret, skipjack tuna, striped mackerel, lemuru, stingray, cuttlefish, mackerel, anchovies, skipjack tuna, tuna and so on. Fish consumption figures in DKI Jakarta show the highest fish consumption among other provinces on Java Island. According to statistical data from the Ministry of Maritime Affairs and Fisheries, fish consumption figures in DKI Jakarta increase every year.

Adolescence is a period of development in mindset and body shape experienced by every human being. According to the Population and Family Planning Agency (BKKBN), adolescents are those aged 10-24 years and unmarried. Consumption patterns in adolescents are influenced by the environment, peers, food preferences, prices, parental teachings, social and cultural life, self-confidence, body image, beliefs, and activities outside the home (Brown, 2011; Insani, 2019). Adolescent consumption patterns are generally harmonious and less varied, resulting in less than optimal energy intake. According to research by Sanjaya & Rahmawati (2022), adolescent consumption patterns of fishery products show that fishery products are widely consumed by adolescents aged 16-20 years.

Fish consumption among adolescents is still relatively low, considering their consumption patterns, which tend to consume protein sources from fast food. Adolescent consumption patterns are strongly influenced by their environment, nutritional knowledge, and food preparation methods. The environment significantly influences adolescent consumption, as adolescents are still dependent on their parents and peers. This study aims to identify and analyze factors influencing fish consumption levels among adolescents in Jakarta.

METHODS

Data Types and Sources

This study used two types of data collection: primary and secondary data. Primary data was obtained through a questionnaire distributed in the form of a Google Form through social media to adolescents aged 10-24 years residing in Jakarta. The questionnaire focused on the characteristics of adolescent fish consumption, including childhood eating habits, nutritional knowledge, parental income, preferences, and processing and serving methods. Secondary data, in the form of provincial fish consumption figures, were obtained from statistical data from the Ministry of Maritime Affairs and Fisheries, Jakarta community expenditure data from the Central Statistics Agency (BPS), guidelines for adequate nutrition for adolescents from Ministry of Health regulations, and literature reviews of previous studies.

Sampling Technique

The sampling technique used was cluster random sampling, a regional sampling technique used to determine samples when the sample to be studied or the data source is very large, for example, the population of a country, province, or city (Sugiyono, 2018). The sample size was 360.

Data Analysis Method

The method used to examine fish consumption levels among adolescents in Jakarta was descriptive qualitative analysis. Descriptive statistical tests and multiple linear regression analysis were used to determine nutritional knowledge and factors influencing fish consumption levels among adolescents in Jakarta.

1. Multiple Linear Regression Analysis
   The multiple linear regression analysis was conducted using SPSS 2015 software. The required data were the independent variables of childhood eating habits, nutritional knowledge, parental income, and consumer preferences. The multiple linear regression model can be shown as follows: $Y = \alpha + \beta\_1 X\_1 + \beta\_2 X\_2 + \beta\_3 X\_3 + \beta\_4 X\_4 + \mu$, where Y = Fish consumption levels among adolescents in Jakarta; α = Constant; β = Regression coefficient; μ = Error term; X1 = Childhood eating habits; X2 = Nutrition knowledge; X3 = Parental income; X4 = Consumer preferences. The research variable indicators can be seen in Table 1.

Table 1. Variable Indicators

No	Research Variables	Indicator
1.	Childhood Eating Habits	• How often did you consume fish during childhood? • How much fish was prepared by your father/mother.
2.	Income Preferences	• Monthly income. • Income according to the DKI Jakarta minimum wage (UMK), which is IDR 4,700,000. • Frequency of fish consumption in one month. • Amount of fish consumed in one month.
3.	Nutritional Knowledge Research Variables	• Type of fish (freshwater fish, saltwater fish). • Type of processed fish (traditional processed fish, fast food processed fish, frozen food processed fish).
4.	Childhood Eating Habits	• Importance of consuming fish for nutritional needs. • Protein content of fish. • Benefits of consuming fish. • Nutritional content of fish.

2. Classical Assumption Test
   Classical assumption testing consists of several types, namely normality, heteroscedasticity, and multicollinearity, which are analyzed using SPSS 2015 software.

3. Partial Test (T Test)
   The T-test is used to test the level of significance of the influence between the independent variable and the dependent variable. If the calculated t value is greater than the table t value, the independent variable has a significant influence on the dependent variable. Meanwhile, if the calculated t value is less than the table t value, the independent variable does not have a significant influence on the dependent variable. Assuming the hypothesis of each variable to be tested with this t statistic, the $t_{calculated}$ value is first determined using the formula: $t_{calculated} = \frac{Bi}{SBi}$ where: Bi = Regression coefficient of each variable; Sbi = Standard error of each variable.
4. Stimulant Test (F Test)
   The F test is used to determine whether all independent variables in the model simultaneously influence the dependent variable (Ghozali, 2018). If the calculated f value > table f value, then H0 is rejected at a certain confidence level. The calculated f value formula is as follows: $t_{calculated} = \frac{R2/(k-1)}{(1-R2)/(n-k)}$ where: R2 = Coefficient; Determination; k = Number of Independent Variables; n = Number of Samples.
5. Test of the Coefficient of Determination
   The coefficient of determination is used to measure the extent to which the model is able to explain variations in the dependent variables, namely childhood eating habits, nutritional knowledge, parental income, and consumer preferences.

RESULT AND DISCUSSION

Overview of Research Locations

The collected questionnaire results showed that there were 360 respondents divided into 60 respondents domiciled in Central Jakarta, 60 respondents domiciled in South Jakarta, 60 respondents domiciled in West Jakarta, 60 respondents domiciled in North Jakarta, 60 respondents domiciled in East Jakarta, and 60 respondents domiciled in the Thousand Islands. The potential for fishery resources in DKI Jakarta is very large considering DKI Jakarta is a coastal area. Capture fisheries production in the eastern waters of Jakarta Bay has the potential for fish recruitment, namely as a spawning area and nursery area for economically important fish species such as pelagic fish groups and shrimp resources. The results of detection using acoustics showed that the further north, namely the Thousand Islands, the higher the fish abundance (Nugraha et al., 2020). Aquaculture production in Jakarta is also quite high, although the fisheries cultivation business sector in DKI Jakarta continues to decline, both in terms of production and the number of fish farming households. This is due to the large number of fish farmers changing professions due to the increasingly limited land due to land conversion (Rizal et al., 2018).

Classical Assumption Test

The Classical Assumption Tests in this study include normality, heteroscedasticity, and multicollinearity tests.

Normality Test

Based on Figure 1, the Normal P-P Plot of the standardized regression residuals for the dependent variable "Fish Consumption Level," it can be seen that the residual data lie around the diagonal line and do not significantly extend or deviate from the diagonal line. This indicates that the residuals follow a normal distribution.

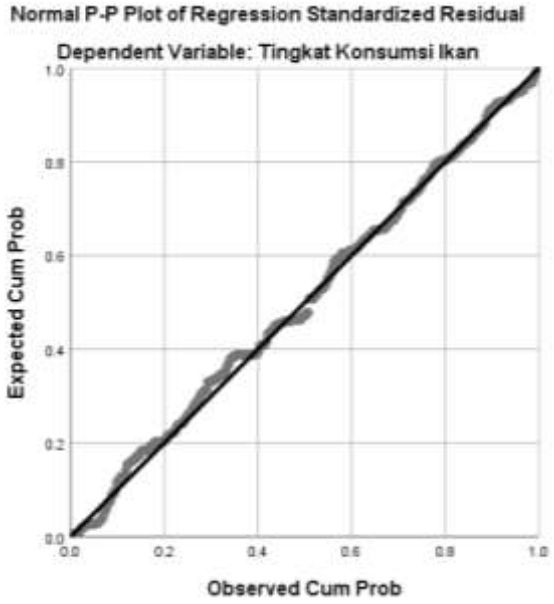

Figure 1. Normality Test Results

Heteroscedasticity Test

The scatterplot in Figure 2 above shows that the residual data are scattered around the value 0 and do not form any particular pattern. The data points are randomly distributed above and below the horizontal line at the residual value of 0, indicating the absence of heteroscedasticity in the regression model.

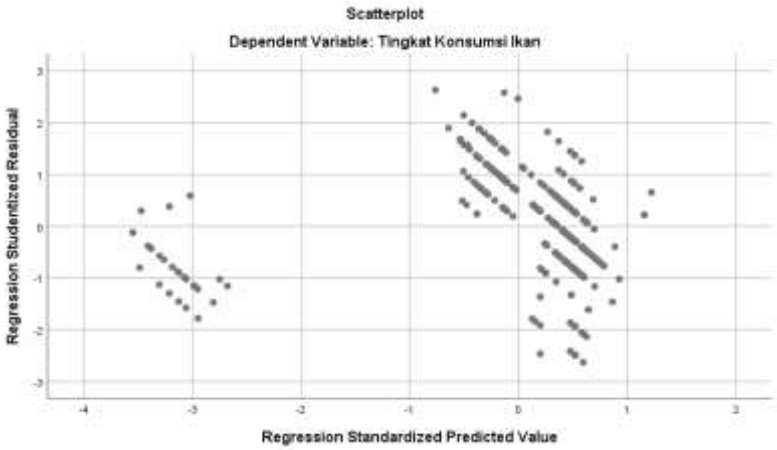

Figure 2. Heteroscedasticity Test Results

Multicollinearity Test

Based on Table 2, the multicollinearity test results show that the tolerance value for childhood eating habits is 0.538, greater than the tolerance limit of 0.1. Nutrition knowledge is 0.497 > 0.1, parental income is 0.596 > 0.1, and consumer preferences is 0.524 > 0.1. The VIF values for all independent variables are <10, indicating no multicollinearity.

Table 2. Multicollinearity Test Results

Model		*Unstandardized Coefficients*		*Standardized Coefficients Beta*	t	Sig.	*Collinearity Statistics*	
		B	*Std. Error*				*Tolerance*	VIF
1	(Constant)	2.525	0,702		3.600	0,000		
	Childhood Eating Habits	0,345	0,051	0,239	6.832	0,000	0,538	1,858
	Nutritional Knowledge	0,251	0,031	0,300	8.230	0,000	0,497	2,014
	Parental Income	0,207	0,027	0,251	7.539	0,000	0,596	1,678
	Consumer Preferences	0,238	0,031	0,270	7.625	0,000	0,524	1,907

a. Dependent Variable: Fish Consumption Level

Multiple Linear Regression Analysis

Table 3. Multiple Linear Regression Test Results

Model		*Unstandardized Coefficients*		*Standardized Coefficients Beta*	t	Sig.
		B	*Std. Error*			
1	(Constant)	2.526	0,702		3,600	0,000
	Childhood Eating Habits	0,345	0,051	0,239	6,832	0,000
	Nutritional Knowledge	0,251	0,031	0,300	8,230	0,000
	Parental Income	0,207	0,027	0,251	7,539	0,000
	Consumer Preferences	0,238	0,031	0,270	7,625	0,000

a. Dependent Variable: Fish Consumption Level

Based on the results of the multiple linear regression test in Table 3, a regression equation was obtained that shows the relationship between the level of fish consumption with the variables of childhood eating habits, nutritional knowledge, parental income, and consumer preferences. The resulting regression equation is Y = 2.526 + 0.345X1 + 0.251X2 + 0.207X3 + 0.238X4 + e, where Y represents the level of fish consumption; X1 is childhood eating habits; X2 is nutritional knowledge; X3 is parental income; and X4 is consumer preferences. The results of the regression equation are as follows:

a. The constant of 2.526 indicates that if all independent variables were zero, the fish consumption rate would be 2.526 units.
b. The regression coefficient for the childhood eating habits variable of 0.345 indicates that every one-unit increase or decrease in childhood eating habits will increase or decrease fish consumption by 0.345 units, assuming other variables remain constant. The direction of the relationship between childhood eating habits and fish consumption is unidirectional (+), meaning that an increase or decrease in childhood eating habits will result in an increase or decrease in fish consumption among adolescents in DKI Jakarta.

c. The regression coefficient for nutritional knowledge of 0.251 indicates that every one-unit increase or decrease in nutritional knowledge will increase or decrease fish consumption by 0.251 units, assuming other variables remain constant. The direction of the relationship between nutritional knowledge and fish consumption is unidirectional because the value is positive, meaning that if nutritional knowledge is high, fish consumption will also be high, and vice versa.
d. The regression coefficient for parental income of 0.207 indicates that every one-unit increase or decrease in parental income will increase or decrease fish consumption by 0.207 units, assuming other variables remain constant. The relationship between parental income and fish consumption is unidirectional or positive, meaning that if parental income is high, fish consumption will increase, and vice versa.
e. The regression coefficient for consumer preference of 0.238 indicates that every one-unit increase or decrease in consumer preference will increase or decrease fish consumption by 0.238 units, assuming other variables remain constant. The relationship between consumer preference and fish consumption is unidirectional because the value indicates a positive correlation, meaning that if consumer preference is high, fish consumption will increase, and vice versa.

Coefficient of Determination (R2)
The results of the coefficient of determination test can be seen in Table 4.

Table 4. Results of the Coefficient of Determination Test

Summary Model

Model	R	*R Square*	*Adjusted R Square*	*Std. Error of The Estimate*
1	0,875[a]	0,766	0,763	1,818

a. Predictors: (Constant), Childhood Eating Habits, Nutritional Knowledge, Parental Income, Consumer Preferences

Based on the results of the determination coefficient test shown in the model summary table, the adjusted determination coefficient (Adjusted R Square) is 0.763. This indicates that the independent variables, namely consumer preferences, parental income, childhood eating habits, and nutritional knowledge, together are able to explain 76.3% of the variation in the dependent variable, namely the level of fish consumption. The remaining 23.7% of the variation in the level of fish consumption is influenced by other variables not included in this research model.

Stimulant Test (F Test)
The results of the stimulant test can be seen in Table 5.

Table 5. Stimulant Test Results (F Test)

ANOVA[a]

Model		*Sum of Squares*	Df	*Mean Square*	F	Sig.
1	Regression	3837,829	4	959,457	290,424	0,000
	Residual	1172,794	355	3,304		
	Total	5010,622	359			

a. Predictors: (Constant), Childhood Eating Habits, Nutritional Knowledge, Parental Income, Consumer Preferences

The F test is used to determine the influence of the variables of childhood eating habits (X^1), nutritional knowledge (X^2), parental income (X^3), and consumer preferences (X^4) together on the variable of fish consumption level (Y). The F table can be found at α = 5%; n = 360; k = 5, then the degree of numerator = k -1 = 5 -1 = 4; the degree of denominator = n – k = 360 – 4 = 356, so that the F table = 2.40. The calculated F value obtained is 290.424 with a significance level of 0.000. This shows that the calculated F value is greater than the F table, thus H0 is rejected, and this significance value is smaller than 0.05 (0.000 < 0.05), it can be concluded that the regression model built is significant.

Partial Test (T-Test)
The results of the partial test can be seen in Table 6.

Table 6. Partial Test Results (T-Test)

Coefficients[a]

Model		*Unstandardized Coefficients*		*Standardized Coefficients Beta*	t	Sig.
		B	*Std. Error*			
1	(Constant)	2.526	0,702		3,600	0,000
	Childhood Eating Habits	0,345	0,051	0,239	6,832	0,000
	Nutritional Knowledge	0,251	0,031	0,300	8,230	0,000
	Parental Income	0,207	0,027	0,251	7,539	0,000
	Consumer Preferences	0,238	0,031	0,270	7,625	0,000

a. Dependent Variable: Fish Consumption Level

In testing the regression model hypothesis, to find out the t table value, it is necessary to determine the degree of freedom with the formula Df = n – k. The value of n is the number of observations in the data period which in this study was 360 respondents, while the value of k is the number of independent variables and dependent variables, namely 5 variables. Thus, the value of the degree of freedom (df) is 355. In this study using α = 5% with a two-sided probability, the probability is 2.5% (0.025) and the results obtained for the t table value are 1.96667. The calculated t value for each independent variable is greater than the t table, the variable of eating habits in childhood 6.832 > 1.96667, nutritional knowledge 8.230 > 1.96667, parental income 7.539 > 1.96667, and consumer preferences 7.625 > 1.96667. These results can be concluded that all independent variables in this study have a positive and significant influence on the dependent variable, namely the level of fish consumption.

Factors Affecting Fish Consumption Levels

Based on the research results, factors that influence the level of fish consumption among adolescents in the DKI Jakarta area include childhood eating habits, nutritional knowledge, parental or personal income, and consumer preferences. Childhood eating habits have a significant influence because fish consumption patterns that have been instilled since childhood become habits. Adolescents who have eating habits in childhood tend to have high levels of fish consumption in adolescence. Nutritional knowledge influences the level of fish consumption in adolescents, as evidenced by adolescents who understand the importance of consuming fish to meet daily nutritional intake having high levels of fish consumption. Furthermore, factors that influence the level of fish consumption among adolescents in DKI Jakarta are parental or personal income. The results showed that income factors influence the level of fish consumption. This is indicated by the income of the largest number of respondents,

namely in the range of IDR 4,700,000 - IDR 6,000,000 for 181 respondents. Where the higher the income, the better the awareness of nutritional fulfillment. Thus, respondents will choose to consume fish to meet their nutritional needs.

Consumer preference factors indicate that respondents prefer simple fish preparations such as grilled fish, fried fish, and fish soup. This indicates that adolescents' awareness of fish consumption is quite good, with many not being picky about the types of processed fish they consume. Therefore, factors influencing fish consumption among adolescents in the DKI Jakarta area include childhood eating habits, nutritional knowledge, parental or personal income, and consumer preferences, with each factor influencing the others.

CONCLUSION AND SUGGESTION

Based on the research conducted and the discussion presented, the following conclusions were reached:

1. The level of fish consumption among adolescents in the DKI Jakarta area is influenced by the following factors: childhood eating habits, nutritional knowledge, parental or personal income, and consumer preferences.
2. Childhood eating habits, nutritional knowledge, parental or personal income, and consumer preferences have a positive and significant influence of 76.3%, with the remaining 23.7% influenced by other factors.

The following suggestions can be made based on the research results:

1. The government is expected to further promote the fish-eating movement, especially among adolescents, due to its excellent nutritional content for brain development and intelligence. Furthermore, with more people consuming fish, marine and aquaculture catches will also increase, resulting in greater prosperity for fishermen.
2. The public, especially adolescents, is expected to increase their daily fish consumption, as fish has excellent nutritional value, being a better source of animal protein than red meat or chicken.
3. Future research is expected to use different variables, such as fish availability in the market, and a narrower research scope, such as within a single city or district.

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