

Application of Binary Logistic Regression Analysis on Household Welfare in Banjarmasin City

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Abstract

Household welfare refers to the conditions in which households can achieve a good standard of living and fulfill their basic needs. CIFOR states that decreasing poverty can be interpreted as increasing prosperity. Based on data on the number of poor people in South Kalimantan in 2022, Banjarmasin City has the highest number of poor people and has not yet met the poverty target contained in the South Kalimantan Regional RPJM for 2021 – 2026. Thus, this research aims to obtain a general picture of the welfare status of households and determine factors that are thought to influence household welfare. The analysis method used is binary logistic regression. The research uses SUSENAS secondary data in 2022. The results of this research show that households in Banjarmasin City have the characteristics of a Head of Household with an average age of 48 years, male, primary school education, employment status as laborer/ employee/ employee, and the average number of household members is three people. The variables of the number of household members and the highest level of education in the household head significantly influence the welfare status of households in Banjarmasin City in 2022. For this reason, the thing that can be recommended to reduce the poverty rate as an effort to maintain and improve household welfare is that the government should continue to control the number of household members by campaigning for the importance of households in carrying out Family Planning and maximizing the twelve-year compulsory education program year in Banjarmasin City.

Keywords: Welfare, Household, Binary Logistic Regression

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Introduction

Household welfare refers to the conditions in which households can achieve a good standard of living and fulfil their basic needs. The welfare of a household needs to be measured to determine whether the household is prosperous or not (Arisetyawan, Sasongko, & Sakti, 2019). Welfare is closely related to the problem of poverty faced by almost every

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country, both developing and developed countries. Indonesia is a developing country that cannot be separated from the problem of poverty.

According to the Central Statistics Agency (2020), poverty is seen as an economic inability to meet basic food and non-food needs as measured in terms of expenditure. Residents are categorized as poor if their average monthly per capita expenditure is below the poverty line. This poverty problem is contained in the Sustainable Development Goals (SDGs) which are placed in the first goal, namely ending poverty in all forms everywhere (BAPPENAS, 2017). This point is the priority point and is the basic basis for countries around the world to eradicate poverty. Eradicating poverty will be closely linked to other global goals, such as a world without hunger, good health and prosperity, quality education, gender equality, and so on.

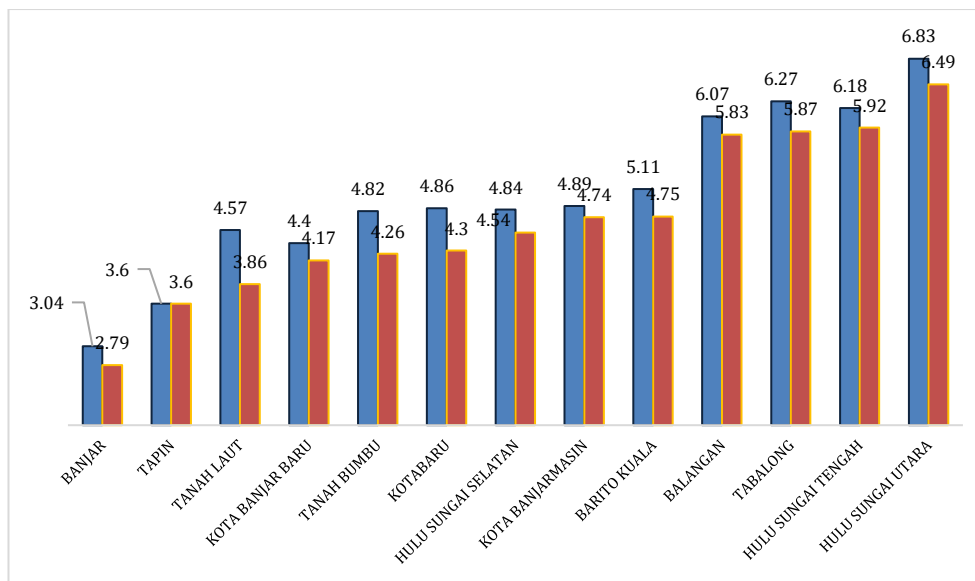


Figure 1. Number of poor people in south kalimantan province in 2021-2022

Banjarmasin City is the area with the highest number of poor people in South Kalimantan. In 2021, as many as 34,839 people or 4.89 per cent of people with low incomes, lived in Banjarmasin City and in 2022, there will be 34,009 people or 4.74 percent. This shows a decrease in the number of poor people, namely 830 people or 0.15 percent. This reduction figure is still relatively small and does not meet the regional government's poverty target in the South Kalimantan Regional RPJM for 2021 - 2026, which is around 4.05 percent.

Based on the problems above, steps that can be taken to overcome the problem of poverty and can be used as material for consideration by the government in planning policies to improve household welfare is to identify what factors influence household welfare in Banjarmasin City. To analyze the relationship between household welfare status and the factors that are thought to influence it, the binary logistic regression analysis method was used.

Theoretical review Household Welfare

Household welfare is often associated with poverty in meeting the basic needs of life, both fulfilling basic food and non-food needs. Good welfare includes adequate access to these basic needs (Puspita & Agustina, 2019). BPS measures poverty with the concept of the ability to meet basic needs (basic needs approach). With this approach, poverty is seen as an

economic inability to meet basic food and non-food needs as measured in terms of expenditure. So, poor people are people whose average per capita expenditure per month is below the Poverty Line.

Factors that Influence Household Welfare

One of the indicators used to measure household welfare is household expenditure. Apart from that, it can be seen from the variables related to the Head of Household (KRT). Suryadarma *et al.* (2005) revealed indicators that can influence household welfare, namely marital status, gender of the household head, educational level of the household head and their spouse, working household members, employment sector, food consumption and health indicators, political participation and access to information, ownership of livestock, and ownership of assets such as ownership of houses, land, cell phones and other assets. According to BPS, knowing the level of welfare covers eight areas, namely population, health and nutrition, education, employment, consumption levels and patterns, housing and the environment, poverty and other social issues, which serve as a reference in efforts to improve the quality of life (BPS, 2022). Based on demographic characteristics, poor households tend to have large household members with more children. The number of household members is thought to be closely related to household welfare because the greater the number of household members, the greater the risk of becoming a poor household if their income does not increase (BAPPENAS, 2018).

Descriptive Statistics

Descriptive statistics relate to describing or providing information about data or phenomena. So, it can be said that descriptive statistics function to explain conditions, symptoms or problems (Nasution, 2017). Presentation of data in descriptive statistics can be made through data tabulations, graphs, diagrams, or by presenting the characteristics of centrality measures and dispersion measures (Sahabuddin *et al.*, 2021).

Logistic Regression

The statistical method used to model dependent variables that are categorical, nominal or ordinal scale based on one or more independent variables in the form of categorical or continuous variables (interval or ratio scale) is called logistic regression (Varamita, 2017).

Binary Logistic Regression Model

Binary logistic regression is used to analyze the relationship between one dependent variable in the form of dichotomous qualitative data and several independent variables. The dependent variable consists of two categories, namely a value of 1 to indicate the existence of a characteristic and a value of 0 to indicate the absence of a characteristic or can be written as $y=1$ (success) and $y=0$ (failure) (Agresti, 2007). Conditions with these two categories make the dependent variable have a Bernoulli distribution (Al Mumtahanah, 2017). The general equation of binary logistic regression is as follows.

$$\pi(x) = \frac{\exp [\beta_0 + \sum_{j=1}^p \beta_j x_j]}{1 + \exp [\beta_0 + \sum_{j=1}^p \beta_j x_j]} \quad (1)$$

The equation above is a non-linear function, so it needs to be transformed using a log transformation to get a linear function so that the relationship between the dependent

variable and the independent variable can be seen (Hosmer et al., 2013). The form of the logit transformation of the function $\pi(x)$ is as follows.

$$g(x) = \ln \frac{\pi(x)}{1 - \pi(x)} = \beta_0 + \beta_1 x_1 + \beta_2 x_2 + \dots + \beta_p x_p \quad (2)$$

Model Parameter Estimation

Parameter estimation that is often used in binary logistic regression uses the Maximum Likelihood Estimation (MLE) method. This method basically provides an estimated value of β by maximizing the likelihood function. The likelihood function expresses the probability of the observed data as a function of unknown parameters. The Bernoulli distribution likelihood function for n independent samples is as follows (Hosmer et al., 2013).

$$l(\beta) = \prod_{i=1}^n \pi(x_i)^{y_i} [1 - \pi(x_i)]^{1-y_i} \quad (3)$$

Then the natural logarithm from Equation (3) is used which can be written as follows.

$$L(\beta) = \ln[l(\beta)] = \sum_{i=1}^n y_i \left(\beta_0 + \sum_{j=1}^p \beta_j x_{ij} \right) - \sum_{i=1}^n \ln \left[1 + \exp \left(\beta_0 + \sum_{j=1}^p \beta_j x_{ij} \right) \right] \quad (4)$$

Next, to get the estimated value of β , the function $L(\beta)$ is reduced against β_0 and β_j with the result set equal to zero.

$$\frac{\partial L(\beta)}{\partial \beta_0} = \sum_{i=1}^n [y_i - \pi(x_i)] = 0 \quad (5)$$

and

$$\frac{\partial L(\beta)}{\partial \beta_j} = \sum_{i=1}^n x_i [y_i - \pi(x_i)] = 0 \quad (6)$$

The two equations above are non-linear. Therefore, an iterative method using statistical software is needed that can provide a solution to this problem. The β value obtained from this iteration is the solution to equations (5) and (6) which is called the maximum likelihood estimator and is denoted as $\hat{\beta}$.

Model Significance Test

Simultaneous Test

Simultaneous testing using the G test or likelihood ratio test aims to determine the influence of the independent variable on the dependent variable in the model jointly or comprehensively.

Hypothesis:

$H_0: \beta_1 = \beta_2 = \dots = \beta_j = 0$ (there is no significant simultaneous influence between the independent variables on the dependent variable)

H_1 : there is at least one $\beta_j \neq 0$, with $j = 1, 2, \dots, p$ (there is a significant simultaneous influence between the independent variables on the dependent variable)

Test statistics:

$$G = -2 \ln \left[\frac{\left(\frac{n_1}{n}\right)^{n_1} \left(\frac{n_0}{n}\right)^{n_0}}{\prod_{i=1}^n \hat{\pi}_i^{y_i} (1 - \hat{\pi}_i)^{(1-y_i)}} \right] \quad (7)$$

The G test statistic follows a Chi-Square distribution (χ^2) with p degrees of freedom. If the significance level is assumed to be α , the decision making rule is if the value $G > \chi^2_{(\alpha, p)}$ then H_0 is rejected or the $p - value < \alpha$.

Partial Test

The partial test aims to test the existence of a significant influence of each independent variable on the dependent variable. Partial testing was carried out using the Wald test.

Hypothesis:

$H_0: \beta_j = 0$ (there is no partially significant influence between the independent variables on the dependent variable)

$H_1: \beta_j \neq 0$, with $j = 1, 2, \dots, p$ (there is a partially significant influence between the independent variable on the dependent variable)

Test statistics:

$$W = \left[\frac{\hat{\beta}_j}{\widehat{SE}(\hat{\beta}_j)} \right]^2 \quad (8)$$

The Wald test statistic follows the Chi-Square distribution (χ^2). If the significance level is assumed to be α , the decision making criteria is if the value $W > \chi^2_{(\alpha; 1)}$ or $p - value < \alpha$ then reject H_0 .

Model Fit Test

In logistic regression, the model suitability test can use a test statistic called Goodness of fit to determine the feasibility of the model formed.

Hypothesis:

H_0 : model fit (there is no difference between observed results and predicted results)

H_1 : the model is not fit (there is a difference between the observed results and the predicted results)

Test Statistics:

$$\hat{C} = \sum_{k=1}^g \frac{(O_k - n_k \bar{\pi}_k)^2}{n_k \bar{\pi}_k (1 - \bar{\pi}_k)} \quad (9)$$

The test criteria used are if $\hat{C} > \chi^2_{(g-2, \alpha)}$ atau $p - value < \alpha$ then H_0 is rejected.

Odds Ratio

Odds Ratio (OR) is a comparison of two odds, namely the odds of event a occurring compared to the odds of event b occurring. The Odds Ratio in the binary logistic regression model is a measure to determine the tendency to experience a successful event between a category compared to the reference category for each independent variable that influences the dependent variable (Hosmer et al., 2013). The relationship between the odds ratio and the regression coefficient for logistic regression with a dichotomous dependent variable is:

$$OR = \exp(\beta_j) \quad (10)$$

The odds ratio can also be interpreted by converting the odds into a percentage with the following equation (Nahhas, 2023):

$$(OR - 1) \times 100\% \quad (11)$$

Research methods

Data Sources and Variables

The data used in this research is secondary data in the form of raw data from the results of the 2022 National Socio-Economic Survey (SUSENAS) sourced from BPS, which is accessed via <https://silastik.bps.go.id> and the 2022 Poverty Line (GK) figures. Obtained from the Banjarmasin City BPS website. This research variable consists of one dependent variable, namely household welfare status (Y) and seven independent variables, namely age of head of household (X_1), gender of head of household (X_2), number of household members (X_3), highest educational level of head of household (X_4), main job status of head of household (X_5), Prosperous Family Card recipients (KKS) (X_6), and food fulfillment concerns (X_7). The analytical method used is binary logistic regression analysis.

Research procedure

This research will be carried out through the following stages:

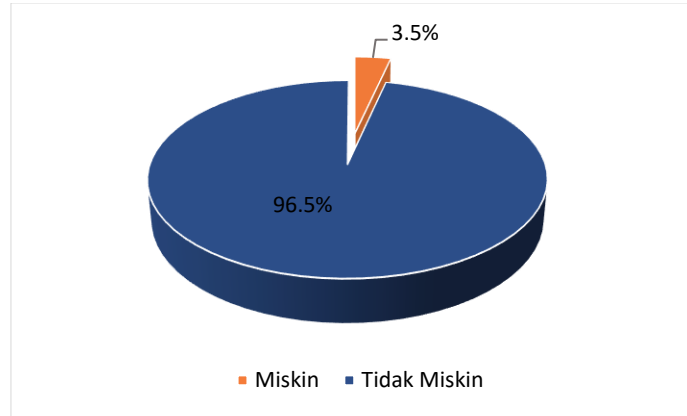
1. Categorize data into variables Y, X_1 , X_2 , X_4 , X_5 , X_6 , and X_7 .
2. Conduct descriptive analysis using tables, diagrams and narrative descriptions to determine the characteristics of household welfare status in Banjarmasin City in 2022.
3. Form binary logistic regression parameter estimates based on Equation (3).
4. Carry out parameter significance tests simultaneously using the Likelihood ratio test based on Equation (7).
5. Carry out partial parameter significance tests using the Wald test based on Equation (8).
6. Carry out a model suitability test using the Hosmer and Lameshow tests based on Equation (9).
7. Interpret the results of the parameter coefficients of the binary logistic regression model formed using the odds ratio.
8. Make conclusions from the research.

Results and Discussion

General Description of Household Welfare Status in Banjarmasin City in 2022

A general picture of household welfare in the City of Banjarmasin in 2022 based on the results of the National Socio-Economic Survey (SUSENAS) March 2022 can be seen in

Figure 2 which shows that of the 716 sample households, 3,5 percent or 25 households in the City of Banjarmasin are categorized as household poor because they have an average monthly expenditure per capita below the poverty line. Meanwhile, 96,5 percent or 691 households in Banjarmasin City are included in the non-poor category.



Source: SUSENAS 2022, processed

Figure 2. Percentage of Households Based on Household Welfare Status

The following description shows a general description of the age of head of household, gender of head of household, number of household members, the highest educational level of head of household, main job status of head of household, KKS recipients, and food fulfillment concerns which can be used as an assessment of household welfare in Banjarmasin City in 2022.

Table 1 Description of the age of the household head and number of household members on the welfare status of the household

		<i>Mean</i>	<i>Minimum</i>	<i>Maximum</i>
Age		48,01	18	97
Non-productive Age Head of Household	Poor	81	65	97
	Non Poor	70,91	65	87
Productive Age Head of Household	Poor	46,96	33	61
	Non Poor	45,49	18	64
Number of Household Members (ART)		3,26	1	10
Number of Household Members (ART)	Poor	4,80	2	8
	Non Poor	3,21	1	10

Table 2 Percentage of household welfare in terms of household characteristics

Variable	Category	Percentage	Percentage of Household Welfare Status	
			Poor	Non Poor
Gender of Head of Household	Male	79,6	4	96
	Female	20,4	1,4	98,6

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Highest Educational Level of Head of Household	Elementary School	31	5,4	94,6
	Junior High School	17	7,5	92,5
	Senior High School	30	1,9	98,1
	> Senior High School	22	0	100
Main Job Status of Head of Household	Not Working	18	2,4	97,6
	Business Owner/Entrepreneur	31	2,7	97,3
	Laborers/Employees	47	3,9	96,1
	Freelancer	3	8,3	91,7
	Family Workers/Unpaid Workers	1	20	80
Prosperous Family Card (KKS) Recipients.	Yes	9	4,5	95,5
	No	91	3,4	96,6
Food Fulfillment Concerns	Yes	12	5,8	94,2
	No	87	3	97
	Don't Know	1	20	80

Based on the results obtained from Table 1 and Table 2, households in Banjarmasin City are dominated by households with the characteristics of household heads, the average age of 48 years, male gender, primary school education, employment status as labourer/employee, and the average number of ART members is three people. Apart from that, most households in Banjarmasin City are not KKS recipients and are fine with meeting their food needs.

Table 1 shows that non-productive age head households in the poor household category have an average age of 81 years, with the youngest head age being 65 years and the oldest being 97 years. Meanwhile, households in the non-poor category have household heads with an average age of 70,91 years, with the youngest being 65 years old and the oldest being 87 years old. Then, the KRT of productive age in the poor household category has an average age of 46,96 years, with the youngest being 33 years and the oldest being 61 years. Meanwhile, households in the non-poor category have household heads with an average age of 45,49 years, with the youngest age being 18 years and the oldest age being 64 years. Regarding the number of household members, the average poor household in Banjarmasin City has $4,80 \approx 5$ household members. Meanwhile, the average number of household members in the non-poor category is $3,21 \approx 3$ people. Meanwhile, households in the poor category have a minimum of 2 household members and a maximum of 8 people. In households in the non-poor category, the minimum number of household members is 1 person, and the maximum number is 10 people. This shows that the average number of poor household members in Banjarmasin City in 2022 is higher than non-poor households.

The percentage of households with male KRTs in the poor category is 4 percent, and 96 percent of households in the non-poor category. Meanwhile, 1,4 percent of households with female KRTs are categorized as poor, and 98,6 percent of households are categorized as not poor. These results indicate that poverty occurs more often in households with male KRTs because, in Banjarmasin City, the majority of them have male KRTs. Meanwhile, let us look at the highest level of education in the household. The percentage of heads of households in the poor category with an elementary school education level is 5,4 percent, a junior high school education level is 7,5 percent, and a high school education level is 1,9

percent. An education level above high school is 0 percent. This explains that poor households are more common among heads of households, with the highest level of education being junior high school or below. Meanwhile, it can be seen that heads of households with a higher level of education, namely high school and above, have a smaller proportion of heads of households who are poor. This is in accordance with the results of research (Adnyani & Sugiharti, 2019) that a household with a head of household who is highly educated has a smaller probability of becoming a poor household compared to a head of household who has a low education.

If we look at the main employment status of KRTs, the highest percentage of KRTs in the poor household category is those with work status as family workers/unpaid workers at 20 percent. This is followed by KRTs with employment status as freelancer at 8,3 percent, laborers/employees at 3.9 percent, business owners/entrepreneurs at 2,7 percent, and KRTs not working at 2,4 percent. Then KRTs in the non-poor category had the highest rate, namely KRTs who did not work at 97,6 percent. Furthermore, KRTs with the employment status of business owners/entrepreneurs amounted to 97,3 per cent, laborers /employees at 96,1 percent, freelancer at 91,7 percent, and family workers/unpaid workers at 80 percent. Based on these results, households with the highest non-poor category are KRTs who do not work. This could occur due to internal factors in the household structure. There is a possibility that when the head of household gets older, it will have an impact on their employment status, making them unemployed or no longer working; apart from that, it could also be due to certain conditions of the head of household that cause them to be unable to work. So that the KRT gets a "cross-subsidy" from other household members who are still working, this indicates that even though the household head is no longer working, household needs can still be met through the income of household members who are still working (Fadilah & Basuki, 2020)

The percentage of KKS recipients in the poor household category is 4,5 percent, and in the non-poor household category is 95,5 percent. Meanwhile, 3,4 percent of households did not KKS recipients in the poor household category and 96,6 percent in the non-poor household category. These results show that more households in Banjarmasin City that are categorized as not poor are KKS recipients than households that are categorized as poor. This indicates that KKS distribution is uneven and still not on target. If we look at concerns about meeting food needs, 5,8 percent of households in the poor category have concerns about meeting their food needs. Meanwhile, households in the poor category who have no worries about fulfilling food are 3 percent. This shows that poor households have more concerns about meeting their food needs.

Analysis of Variables that Influence the Welfare Status of Households in Banjarmasin City in 2022

Estimated Parameters

Table 3 Estimated Parameters

Variable	Estimated Parameters	Wald	<i>p – value</i>	Criteria
<i>Intercept</i>	-5,695	209498	0,000	Reject H_0
$X_{1(1)}$	-0,581	0,3863	0,534	Accept H_0
$X_{2(1)}$	0,138	0,0249	0,875	Accept H_0
X_3	0,928	24,0297	0,000	Reject H_0
$X_{4(1)}$	0,031	0,0035	0,952	Accept H_0
$X_{4(2)}$	-1,483	5,2807	0,022	Reject H_0

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$X_{4(3)}$	-18,244	0,0002	0,988	Accept H_0
$X_{5(1)}$	0,017	0,0004	0,984	Accept H_0
$X_{5(2)}$	0,648	0,6434	0,422	Accept H_0
$X_{5(3)}$	0,835	0,4992	0,479	Accept H_0
$X_{5(4)}$	2,303	2,5324	0,111	Accept H_0
$X_{6(1)}$	-0,685	1,0598	0,303	Accept H_0
$X_{7(1)}$	-0,686	1,4126	0,234	Accept H_0
$X_{7(2)}$	1,873	1,8185	0,177	Accept H_0

Based on the results above, the estimated parameter values for each independent variable are obtained and it can be seen that there are two variables with a value of $W > \chi^2_{(0,05;1)} = 3,841$ or $p - value < \alpha = 0,05$, so a reject decision is obtained. H_0 , meaning the variable is significant. Two significant variables are the number of household members (X_3) and the head of household's highest education level (X_4). The next step is to test the significance of the parameters by removing variables that are not significant.

Simultaneous Parameter Test

Table 4 Simultaneous Parameter Test

G	$\chi^2_{(0,05,4)}$	$p - value$
50,801	9,488	0,000

Based on the results above, the value obtained is $G = 50,801 > \chi^2_{(0,05,4)} = 9,488$ and $p - value < 0,05$, so the decision taken is to reject H_0 . So it can be concluded that there is at least one independent variable that influences the welfare status of households in Banjarmasin City.

Partial Parameter Test

Table 5 Partial Parameter Test

Variable	Estimated Parameters	Std. Error	Wald	$\chi^2_{(0,05;1)}$	$OR = Exp(\hat{\beta})$
<i>Intercept</i>	-6,119	0,80423	5,889	3,841	
X_3	0,851	0,16739	25,846	3,841	2,344
$X_{4(1)}$	0,090	0,48547	0,0343	3,841	1,094
$X_{4(2)}$	-1,416	0,61009	5,3869	3,841	0,243
$X_{4(3)}$	-18,307	1229,34653	0,0002	3,841	0,001

Based on the partial test results, two variables have a significant effect, namely variable X_3 (number of household members) with a value of $W = 25,8464 > \chi^2_{(0,05;1)} = 3,841$ and variable X_4 (the head of household's highest education level) produces a significant value on variable $X_{4(2)}$ namely the variable for the KRT's highest education level in the high school category with a value of $W = 5,3869 > \chi^2_{(0,05;1)} = 3,841$ so reject H_0 . In partial parameter testing, if there is only one category in the independent variable that is significant, then the independent variable can be said to be significant. Thus, it can be concluded that the number

of household members and the educational level of household heads have a significant effect on the welfare status of households in Banjarmasin City. Meanwhile, the other five independent variables do not have a significant influence on the welfare status of households in Banjarmasin City because they have a value of $W < \chi^2_{(0,05;1)}$ or $p - value > \alpha = 0,05$. The binary logistic regression model is formed as follows.

$$g(x) = -6,119 + 0,851x_3 + 0,090x_{4(1)} - 1,416x_{4(2)} - 18,307x_{4(3)} \quad (2.13)$$

From the equation model above, it can be described as follows.

1. The constant value (α) of $-6,119$ indicates that if all independent variables are zero or do not change, then household poverty will decrease. This means that reducing household poverty has a positive impact on household welfare status.
2. The regression coefficient value for the variable number of household members X_3 is $0,851$, indicating that each increase in the number of household members will increase household poverty by $0,851$.
3. The regression coefficient value for the variable for the highest level of education for household heads in the junior high school category $X_{4(1)}$ is $0,090$, indicating that if household heads have a junior high school education, household poverty will increase by $0,090$.
4. The regression coefficient value for the highest educational level variable for household heads in the high school $X_{4(2)}$ and >high school $X_{4(3)}$ categories, respectively, is $-1,416$ and $-18,307$, indicating that if household heads have a high school and >high school education, it will reduce household poverty by $-1,416$ and $-18,307$.

Based on the third and fourth points regarding the variable for the highest level of education of the household head (X_4), it can be concluded that the higher the education level of the household head, the lower household poverty will be.

Model Fit Test

Table 6 Model Fit Test		
Hosmer and Lemeshow <i>goodness of fit</i> (GOF) test		
$\hat{C}$	df	$p - value$
2,769	8	0,948

Based on the test results in Table 6, it shows that the value $\hat{C}$ of 2,769 is less than $\chi^2_{(0,05,8)} = 15,507$ or $p - value = 0,948 > \alpha = 0,05$, so the decision obtained is to fail to reject H_0 . This decision shows that there is no difference between the observation results and the prediction results from the model formed. The conclusion obtained is that the resulting model is fit or suitable to explain household welfare in Banjarmasin City in 2022.

Interpretation of Results

Interpretation of results in binary logistic regression is obtained based on the odds ratio value. Interpretation was carried out on significant variables, namely variable X_3 (number of household members) and variable $X_{4(2)}$ (Head of household's highest level of education is high school category). The odds ratio of the independent variables used in research on household welfare status can be seen from the $Exp(\beta)$ value in Table 5.

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The number of household members has a significant effect on the welfare status of the household. The odds of a household being poor will increase $(2,344 - 1) \times 100\% = 134,4\%$ for the addition of one household member. This means that adding additional household members will increase the risk of poor household welfare status. This finding can be strengthened from Table 1 which shows that households in the poor category have an average of 5 household members. On average, the number of household members is greater than that of non-poor households.

The highest level of education of the household head has a significant effect on the welfare status of the household. The odds of a household being considered poor will decrease $(0,243 - 1) \times 100\% = 75.7\%$ if the head of household with the highest education is in high school compared to the head of household with the highest education in elementary school. This means that a low level of education will increase the risk of poor household welfare status.

Conclusion

Based on the research that has been carried out, it can be concluded that the welfare status of households in Banjarmasin City shows that the percentage of non-poor households is higher than poor households. This shows that the welfare of households in Banjarmasin City is quite good. Households in Banjarmasin City have the characteristics of an average head of household aged 48 years, male, with a primary school education, with the main job status as labourer/employee/employee, and an average number of household members of 3 people. Apart from that, most households in Banjarmasin City are not KKS recipients and are fine with meeting their food needs. The independent variables that have a significant influence on the welfare status of households in Banjarmasin City are the number of household members and the highest level of education of the household head.

The binary logistic regression model on household welfare in Banjarmasin City was formed with the following significant variables:

$$g(x) = -6.119 + 0.851x_3 + 0.090x_{4(1)} - 1.416x_{4(2)} - 18.307x_{4(3)}$$

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