

Food security and economic coping strategies among fishing households: Insights from Tanjung Jabung Timur and Tanjung Jabung Barat, Jambi Province

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Abstract

This study aims to: 1) Analyze the socioeconomic characteristics and economic coping strategies of fishing households in Tanjung Jabung Timur and Tanjung Jabung Barat; 2) Assess the level of food security among fishing households in these districts; 3) Examine the influence of socioeconomic characteristics and economic coping strategies on the food security of fishing households in Tanjung Jabung Timur and Tanjung Jabung Barat. Data were collected through surveys in four sample villages across the two districts. Descriptive statistics, difference tests, and Structural Equation Modeling (SEM) were employed as analytical tools. The findings indicate that economic coping strategies among fishing families, in terms of active income-generating strategies, are categorized as low. In contrast, passive strategies related to cutting back expenses are considered moderate. Overall, the level of food security among fishing households is relatively good. Furthermore, the food security level of fishing households is significantly influenced by family characteristics and coping strategies. Coping strategies directly impact and act as intervening variables between family characteristics and food security.

Keywords: *Cutting-back expenses, Economic coping strategies, Fishing households, Food security, Income-generating strategy*

JEL Classification: Q22, I32, R20

INTRODUCTION

Food is a fundamental human need, and it is crucial to ensure its availability to the public. Thus, policies, strategies, and efforts to enhance food security are a top priority in development. Indonesian Law No. 18 of 2012 defines food security as a condition where sufficient food is available to everyone at all times and everyone has access to it (Republic of Indonesia, 2012). Food security encompasses an integrated system of three main components: availability, distribution, and food consumption (Adam & Dwiastuti, 2012). At the household level, food security means the household's ability to meet its members' nutritional needs in terms of quantity, quality, and variety according to local

culture, sustainably ensuring healthy living (Suharyanto et al., 2014; Yuniriyanti & Sudarwati, 2017).

The inability to access adequate food at the household level is primarily due to poverty, leading to insufficient food quantity and quality for each household member and poor nutritional intake quality. This affects the quality of human resources, perpetuating poverty due to the low capacity to improve living standards. Therefore, nutritional investment is crucial for breaking the vicious cycle between poverty and malnutrition (Suhaimi, 2019).

Improving food security and welfare in poor households involves coping strategies to manage vulnerability using available resources (Farrington et al. 2002). Coping strategies are an active process by individuals and families to manage, adapt to, or face stressful situations, selected based on personality and the level of stress experienced, including poverty (Sunarti, 2013; Hastuti & Mulyawati, 2009; Ostlund & Person, 2014; Maryam, 2017). The choice of coping strategies is also influenced by the resources available to the family, which can be physical or non-physical assets used to develop coping behaviours (Allen et al., 2014; Hand, Hicks & Bahr, 2015; Maschi et al., 2015).

Regarding economic coping strategies for meeting food needs, Maxwell (2001) suggests families may reduce their favourite foods and buy cheaper ones; borrow food or money; buy food on credit; seek help from relatives or friends; limit and share food at mealtime; allocate small amounts of money for food purchases by family members; restrict personal food consumption to ensure children have enough; reduce the variety of food in a day; and go a day without eating. These strategies can be categorized into two: cutting back expenses and generating income (Puspitawati, 2012).

Firdaus (2008) found that high economic pressure leads families predominantly to opt for coping strategies by reducing non-food expenditures. Johan et al. (2013) observed that income declines prompt families to cut expenses rather than increase income, as reducing expenditures is easier than boosting income, which requires resource enhancement (Farrington et al., 2002). In short-term crises, families adopt coping strategies for survival (Weber, 2011), with fewer coping strategies indicating higher family welfare (Rosidah et al., 2012).

Poverty critically impacts Indonesia's development and household food security. According to the Central Bureau of Statistics (BPS, 2020; BPS, 2010), as of March 2020, there were 26.42 million impoverished individuals, or 9.78% of Indonesia's population, a decrease from 13.33% in March 2010. Despite this reduction, the figure falls short of the Millennium Development Goals target of 7.50%.

Jambi Province's poverty rate is relatively low compared to the national average, at 7.58% in March 2020. However, the decline in poverty in this region has been slower, with a national decrease of 3.55% over the past decade (2010 – 2020), whereas Jambi's poverty rate only fell by 0.76% from 8.34% in 2010 (BPS, 2010; BPS, 2020). Although urban poverty rates are higher than rural rates in Jambi Province (10.41% urban vs 6.23% rural as of March 2020), the rural poor population is almost 1.25 times larger than the urban poor population, indicating that policies improving rural food security could significantly enhance overall welfare in Jambi Province (BPS, 2020).

Rural poverty in Jambi Province directly affects household food security levels. This situation makes it compelling to analyze the food security of poor rural households in Jambi concerning their economic coping strategies. The main income sources for

rural households in Jambi involve agriculture. Still, fishing households are particularly vulnerable to poverty due to natural conditions, such as seasonal fluctuations and local economic resource conditions, and non-natural factors, including limited access to technology, unfair profit-sharing systems, lack of social security, weak market control, and negative impacts of fishing modernization (Satria in Muflikhati et al., 2013; Kusnadi, 2002).

In Jambi Province, fishing households (primarily engaged in marine fisheries) are located in Tanjung Jabung Timur (Tanjabtim) and Tanjung Jabung Barat (Tanjabbar) districts. The Agricultural Survey reports 3,376 fishing households in Tanjabtim and 2,970 in Tanjung Jabung Barat (BPS, 2019). The high number of fishing households in these districts is a significant factor in their high poverty rates, with Tanjabtim at 11.54% and Tanjabbar at 10.54%, ranking them as the areas with the highest poverty levels in Jambi Province.

Given this background, studying poverty concerning food security and economic coping strategies among fishing households in Tanjabtim and Tanjabbar is crucial. This research aims to inform policy development to enhance the welfare of fishing households specifically and reduce poverty generally in these areas.

Various studies have laid the groundwork for understanding the complex relationship between poverty, food security, and coping strategies in Jambi Province. Research by Praza & Shamadiyah (2020) in North Aceh, Devi et al. (2020) in Ciamis, Yuliana et al. (2013) in Bandar Lampung, and Sukandar (2007) in Banjar have identified socioeconomic factors affecting food security, including age, education, head of household's occupation, household knowledge, family size, asset ownership, household income, and location.

Junaidi et al. (2022) observed differences in food security between plantation and food crop households, where family characteristics and coping strategies influenced food security in plantation households, but not in food crop households. Furthermore, Junaidi et al. (2020) found that economic coping strategies and social capital significantly influence food security among poor urban households in Jambi Province. Regarding social capital, Enderwati & Wahyuni (2014) highlighted the importance of social networks from parents, siblings, neighbours, and friends in supporting farmers' daily lives, positively affecting food security. Mujiburrahmad (2018) also identified the impact of social capital on improving household food security. Utami & Suprpti (2020) specifically found that social capital—including networks, trust, participation, cooperation, social norms, exchange of favours, values, and proactive actions—has a significant simultaneous effect on food security, with participation, cooperation, and social norms having a positive impact, while social networks and trust had a negative effect.

Globally, studies by Mango et al. (2014) in Zimbabwe, Sisay & Edriss (2012) in Ethiopia, Mitiku et al. (2012) in Oromia, Ethiopia, and Bogale & Shimelis (2009) in Dire Dawa, Ethiopia, as well as Bashir, Schilizzi & Pandit (2012) in Pakistan, have shown that head of household characteristics, family size, market information access, asset ownership, income from both agricultural and non-agricultural sources, and availability of credit and irrigation affect food security.

Other research has also explored the relationship between family characteristics and the choice of coping strategies. Studies by Sugiharto et al. (2016) in Yogyakarta, Maryam (2010) in Aceh, and Astuti et al. (2016) in Central Java have examined the link

between family characteristics and coping strategy selection, finding that location, social support, health issues, personality, age of the head of household, side jobs, and spouse's employment influence the chosen coping strategies.

METHODS

Data used

The primary data for this study are collected from household survey respondents among fishermen in Tanjabtim and Tanjabbar districts. Secondary poverty and food security data are gathered from relevant departments or agencies. The population of this study encompasses all fishing households in these two districts.

Sample framework

This research employs a dual-stage sampling framework: the first for initial sample selection and the second for subsequent sample selection. The initial sample framework involves selecting villages in Tanjabtim and Tanjabbar based on the number of fishing households. The secondary sample framework focuses on selecting fishing households within these villages.

A stratified two-stage sampling method is utilized, comprising: 1) In the first stage, sample villages are selected as research locations. In each district, two villages with the most fishing households are chosen based on secondary data; 2) In the second stage, 50 households from each selected village are chosen, totalling 200 fishing household samples across four villages.

Statistical analysis

Descriptive statistical analysis is conducted to assess the socioeconomic characteristics of families, economic coping strategies, and the level of household food security. Inferential analysis employs the Structural Equation Modelling (SEM) framework using the following model structure:

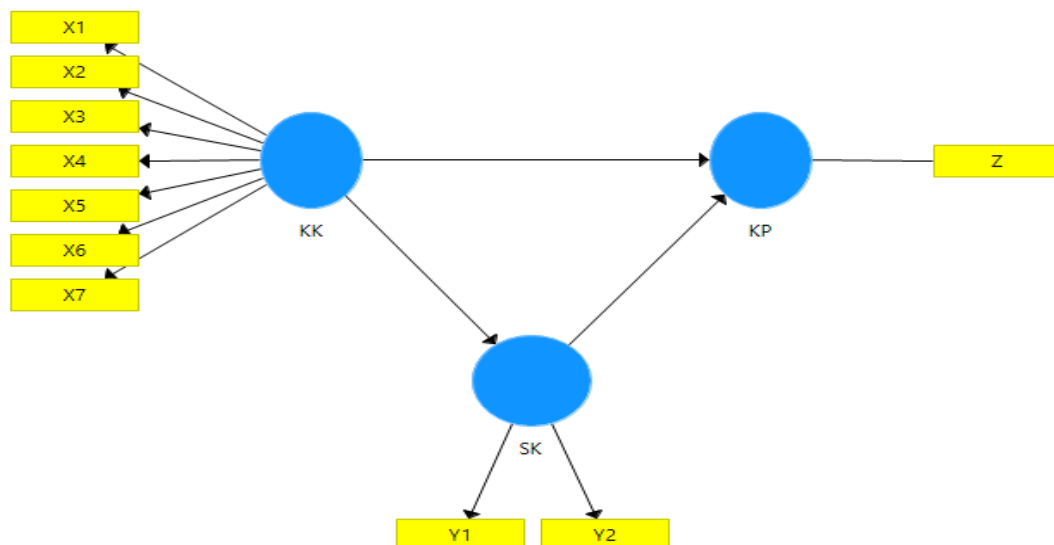


Figure 1. Research model

The SEM framework outlined is articulated through measurement model equations and structural model equations as follows:

- 1) Family Characteristics Measurement Model:

$$X1 = \lambda1 \text{ KK} + e1$$

$$X2 = \lambda2 \text{ KK} + e2$$

$$X3 = \lambda3 \text{ KK} + e3$$

$$X4 = \lambda4 \text{ KK} + e4$$

$$X5 = \lambda5 \text{ KK} + e5$$

$$X6 = \lambda6 \text{ KK} + e6$$

$$X7 = \lambda7 \text{ KK} + e7$$

2) Economic Coping Strategies Measurement Model:

$$Y1 = \lambda8 \text{ SK} + e8$$

$$Y2 = \lambda9 \text{ SK} + e9$$

3) Food Security Measurement Model:

$$Z = \lambda13 \text{ KP} + e13$$

4) Structural Model Equation:

$$\text{SK} = \gamma1 \text{ KK} + \gamma2 \text{ MS} + \zeta1$$

$$\text{KP} = \gamma1 \text{ KK} + \gamma2 \text{ MS} + \gamma2 \text{ SK} + \zeta3$$

Where:

KK = Family Characteristics

SK = Economic Coping Strategies

KP = Food Security

X1 = Education level of the household head

X2 = Age of the household head

X3 = Number of household members

X4 = Proportion of working household members

X5 = Proportion of household members who are toddlers

X6 = Proportion of household members of compulsory education age

X7 = Per capita family income

Y1 = Total score of generating additional income strategy

Y2 = Total score of cutting back expenses strategy

Z = Level of food security

Research variable measurement and assessment

Food Security. In this study, a food consumption assessment is conducted using a quantitative method, employing household food records to measure the amount of food consumed to calculate nutrient intake. The adequacy standards for daily per capita calorie and protein consumption for Female Fishermen Recipients of the Non-Cash Food Assistance Program (WNPG) 2012 set the energy requirement at 2150 kcal and protein at 57 grams. Food needs are fulfilled by meeting these energy and protein requirements (Adriani & Wirtjatmadi, 2012).

The classification of energy and protein consumption levels is divided into four categories:

1. Deficit: If the Nutritional Adequacy Level (TKG) is less than 70% of the Recommended Dietary Allowance (AKG).
2. Low: If TKG is between 70% - <80% of AKG.
3. Medium: If TKG is between 80% - <90% of AKG.
4. Good: If TKG is 90% or more of AKG.

Economic Coping Strategies. These are efforts made by families to address financial issues by reducing household expenses (cutting back expenses) and

increasing household income (generating additional income). Economic Coping Strategies is measured through a questionnaire modified from previous research findings. Each statement and answer per item is scored = 1 (never), = 2 (sometimes), = 3 (often), and = 4 (always).

Education Level of the Household Head. This is measured based on the formal education level completed by the household head.

Age of the Household Head. This is measured in years based on the age of the last birthday.

Number of Household Members. This is the total number of household members living in the same house and dependent on the household head.

Proportion of Working Household Members (%). This is the number of working household members divided by the total number of household members living in the same house.

Proportion of Household Members Under Five Years Old (%). This is the number of household members under five years of age divided by the total number of household members living in the same house.

The proportion of School-Age Household Members (%). This is the number of household members of compulsory education age (7-15 years) for 9 years, divided by the total number of household members living in the same house.

Per Capita Family Income (IDR per year). This is the total annual income of the family (household head and working household members) divided by the number of household members living in the same house.

RESULTS AND DISCUSSION

Economic coping strategies of fishing families

Fishing households in Jambi Province employ various strategies to meet their living needs, generate additional income, and cut back expenses. These strategies are evaluated on a scale of 1 – 4, categorized as low if the average score is below 2.00, medium between 2.00 – 3.00, and high if the average score is above 3.00.

Table 1. Generating additional income strategies of fishing families in Tanjabbar and Tanjabtim, Jambi Province, 2021

Strategy	Tanjabbar	Tanjabtim	Total
Household heads work harder	4.00	3.93	3.97
Wives work harder	1.72	1.19	1.46
Other family members work harder	2.93	1.97	2.45
Household heads seek side jobs	2.41	1.63	2.02
Wives seek side jobs	1.78	1.18	1.48
Other family members seek side jobs	1.57	1.15	1.36
Involving schoolchildren in work	3.37	1.27	2.32
Starting a small business	2.11	1.30	1.71
Rearing animals (chickens, goats, cows, fish, etc.)	1.87	1.09	1.48
Gathering wild food (from fields/gardens)	1.95	1.01	1.48
Receiving food from relatives	1.94	1.75	1.85
Receiving government assistance	2.39	1.84	2.12
Receiving coupons for subsidized rice	2.49	1.52	2.01
Migrating for work	2.41	1.03	1.72
Average	2.35	1.56	1.96

The average score for generating additional income strategies among fishing households in Jambi Province is 1.96, generally categorized as low. This indicates that most fishing households rely on their primary income from fishing activities, while efforts to increase additional income are limited. This finding aligns with previous research in Tanggamus (Wahyuni et al., 2019) and Sambas (Firdaus & Rahadian, 2015).

A significant difference is observed between Tanjabbar and Tanjabtim. Tanjabbar's average score for generating additional income strategies is 2.35, which is categorized as medium. This suggests variations in employment patterns and economic opportunities that allow some fishing households better access to additional work or small businesses.

Conversely, in Tanjabtim, the average score is only 1.56, which is significantly lower and categorized as low, possibly due to a lack of economic diversification or limited access to additional work.

Notably, the strategy "Household heads work harder" scored the highest at 3.97, categorized as high, indicating many household heads in both districts strive to increase income by working harder in their primary fishing jobs, reflecting their high dependence on this occupation.

In Tanjabbar, involving schoolchildren in work also scored high at 3.37, indicating that in better economic situations, some fishing households involve their children in additional work to support the family. This involvement is also noted in previous research, such as in Sumenep (Amalia et al., 2021) and Bandar Lampung (Yuliana et al., 2016).

Overall, this analysis provides insight into the strategies employed by fishing households in Jambi Province to tackle economic challenges. Understanding the factors influencing these strategies can lead to efforts to improve the economic conditions of fishing households and help them achieve greater sustainability.

Furthermore, the strategies for cutting back expenses among fishing families in Tanjabbar and Tanjabtim, Jambi Province, in 2021 are detailed in Table 2. The average score for cutting back expenses strategies among fishing households in Jambi Province is 2.12, falling within the medium category. This indicates that fishing households tend to try to reduce their expenditures in response to potentially challenging economic conditions.

However, there is a significant difference between Tanjabbar and Tanjabtim. Tanjabbar's average score for cutting back expenses strategies is 2.54, which is categorized as medium. This may suggest that fishing households in this area are more aware of the importance of reducing expenses and may have more options.

Conversely, in Tanjabtim, the average score for cutting back expenses strategies is only 1.70, which is significantly below the average and categorized as low. This could reflect limitations in reducing expenditures in this area or that some fishing households here have already reached their minimum spending limits and find it difficult to cut back further.

Table 2. Cutting back expenses strategies of fishing families in Tanjabbar and Tanjabtim, Jambi Province, 2021

Strategy	Tanjabbar	Tanjabtim	Total
Repairing the house or household appliances by oneself.	3.44	2.13	2.79
Reducing trips	3.63	2.31	2.97
Reducing clothing purchases	3.57	2.54	3.06
Reducing household goods purchases	3.85	2.83	3.34
Reducing utility use (water/electricity/phone)	2.11	2.02	2.07
Buying cheaper food	3.57	2.12	2.85
Choosing cheaper medical treatments	3.38	2.48	2.93
Replacing expensive medicines with cheaper ones	3.20	2.44	2.82
Reducing types of food consumed	2.15	1.68	1.92
Buying lower-value food	1.87	1.48	1.68
Reducing meal portions	1.88	1.20	1.54
Delaying medical treatment	1.71	1.74	1.73
Reducing children's daily allowance	2.01	1.07	1.54
Children dropping out of school	3.97	1.21	2.59
Borrowing/requesting used school uniforms/shoes/books	1.41	1.03	1.22
Buying used uniforms, shoes, and books for school	1.49	1.00	1.25
Temporarily or permanently placing children with other families	1.30	1.00	1.15
Children forced to skip school	2.05	1.02	1.54
Going days without eating (fasting)	1.66	1.01	1.34
Average	2.54	1.70	2.12

Two strategies stand out in the high category: "Reducing clothing purchases" and "Reducing household goods purchases," indicating that fishing households prioritize cutting back on clothing and household goods to respond to economic pressures. This reflects their understanding of the importance of controlling expenditures in these categories.

This analysis provides valuable insights into how fishing households in Jambi Province adapt to fluctuating economic conditions. With a deeper understanding of the factors influencing these strategic decisions, efforts can be made to provide appropriate support and solutions to help them navigate the economic challenges they face.

Food security of fishing families in Tanjabbar and Tanjabtim, Jambi Province

The analysis of energy and protein consumption among fishing families in Jambi Province presents a generally positive picture. On average, the nutritional intake of these families is categorized as good, achieving more than 90 per cent of the minimum standard expected. This indicates that fishing families in the province have relatively good access to adequate food and nutrition. These findings corroborate previous studies highlighting the relatively good food security level among fishing communities, such as those by Tambur & Saputra (2021) in Palu City and Nuryanti et al. (2019) in Luwu Timur Regency. However, these results contrast with findings by Salim & Darmawaty

(2016) in South Halmahera Regency and Tajerin et al. (2011) in DKI Jakarta and Banten, where most fishing households were categorized as food insecure.

Table 3. Distribution of fishing families according to the adequacy of energy and protein consumption in Tanjabbar and Tanjabtim, Jambi Province, 2021

District	Description	Consumption	Recommended Dietary Allowance	Nutritional Adequacy Level (%)
Tanjabbar	Energy (kcal/capita/ day)	3158	2150	146.88
	Protein (g/capita/ day)	84	57	147.37
Tanjabtim	Energy (kcal/capita/ day)	1736	2150	80.74
	Protein (g/capita/ day)	55	57	96.49
Total	Energy (kcal/capita/ day)	2447	2150	113.81
	Protein (g/capita/ day)	72	57	126.32

There is a significant difference between Tanjabbar and Tanjabtim. In Tanjabbar, energy and protein consumption is categorized as good, with average energy consumption reaching 146.88 per cent of the daily recommended standard. This shows that fishing families in this area have good access to sufficient food resources.

Conversely, in Tanjabtim, while protein consumption is categorized as good, achieving 96.49 per cent of the daily recommended standard, energy consumption is considered moderate, reaching only 80.74 per cent. This may indicate challenges in achieving sufficient energy intake in this area, possibly due to access to food resources, economic conditions, or dietary patterns.

Overall, this analysis provides an overview of the nutritional status of fishing families in Jambi Province. Despite differences between districts, it is important to continue monitoring and improving the nutritional quality of fishing families, especially in areas still facing challenges in achieving sufficient energy intake. Efforts to improve access to food resources and nutritional education could help address these issues and enhance the overall well-being of fishing families.

Furthermore, based on the classification of food security among fishing families in Jambi Province, which considers energy and protein consumption, it's revealed that a significant portion of households still face challenges in meeting their nutritional needs. While 53.50% of fishing families have reached a good level of energy consumption, more than a quarter of households experience an energy deficit. Meanwhile, 64.00% of fishing families are categorized as good for protein consumption, but a portion still experiences a deficit.

Table 4. Distribution (%) of fishing families by food security category in Tanjabbar and Tanjabtim, Jambi Province, 2021

Category	Tanjabbar		Tanjabtim		Total	
	Energy	Protein	Energy	Protein	Energy	Protein
Deficit	8.00	9.00	48.00	44.00	28.00	26.50
Less	8.00	7.00	10.00	5.00	9.00	6.00
Medium	9.00	1.00	10.00	6.00	9.50	3.50
Good	75.00	83.00	32.00	45.00	53.50	64.00
Total	100.00	100.00	100.00	100.00	100.00	100.00

The comparison between Tanjabbar and Tanjabtim shows significant differences. In Tanjabbar, over three-quarters of fishing families have achieved a good level of

energy and protein consumption, with only about 8-9% experiencing a deficit. This may reflect better access to food resources, adequate nutrition in the area, and possibly more economic opportunities.

Conversely, in Tanjabtim, the situation is markedly different. Only about a third of fishing families have reached a good level of energy consumption, and less than half have achieved a good level of protein consumption. Around half of the fishing families in Tanjabtim experience energy and protein consumption deficits. This may reflect greater economic challenges or limited access to food resources in the area.

These findings highlight the importance of improving food security for fishing families, especially in areas facing nutritional deficits. Enhancing access to food resources, nutritional education, and economic opportunities could help address these issues and improve the overall well-being of fishing families.

The influence of family socioeconomic characteristics and coping strategies on the food security of fishing households in Jambi Province

The influence of socioeconomic characteristics and coping strategies on the food security of fishing households in Jambi Province involves a detailed analysis, starting with evaluating the initial model for the validity and reliability of indicators within latent variables (constructs). Validity tests use convergent and discriminant validity of the indicators, while reliability tests employ composite reliability and Cronbach's alpha.

The preliminary model testing revealed that four indicators of the family characteristics variable—X1 (education of the household head), X2 (age of the household head), X5 (proportion of household members under five years old), and X7 (per capita family income)—were not valid and reliable. Consequently, the construct of family characteristics (KK) was also found invalid and unreliable based on the Average Variance Extracted (AVE), composite reliability, and Cronbach's alpha values, leading to the removal of these four indicators from the construct (Figure 2).

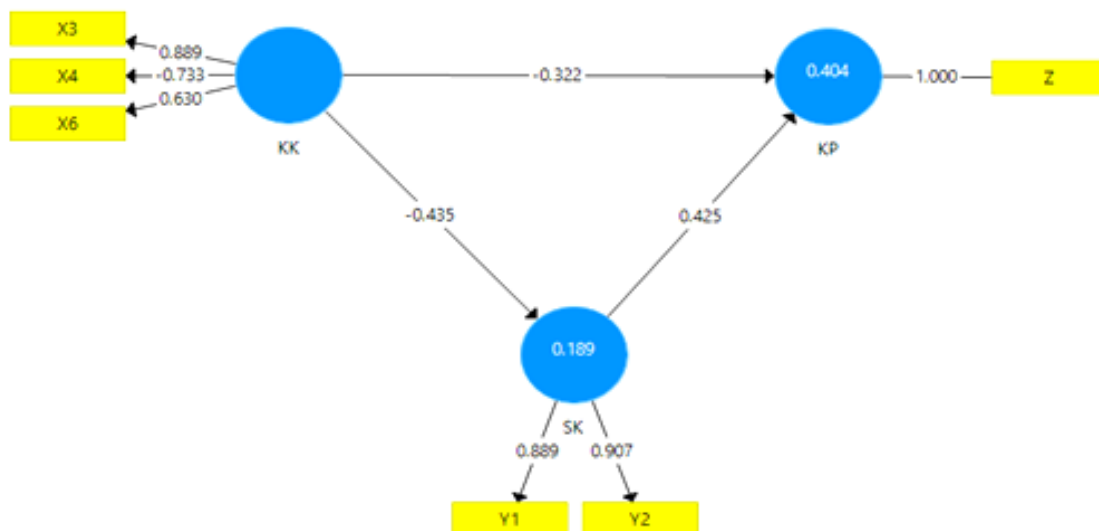


Figure 2. Modified model

Following adjustments, all construct indicators demonstrated a correlation (loading factor) above 0.5, indicating that the number of family members, the proportion of working members, and the proportion of compulsory school-age members are appropriate indicators for measuring family characteristics affecting food security. This finding is further supported by the discriminant validity test (with all AVE values

above 0.5) and reliability test (Cronbach's alpha above 0.6 and composite reliability above 0.7) (Table 5).

Table 5. Correlation between constructs, AVE, Cronbach's Alpha, and composite reliability model

Construct	Correlation			Cronbachs Alpha	Composite Reliability
	KK	KP	SK		
KK	1.000			0.649	0.799
KP	-0.507	1.000		1.000	1.000
SK	-0.435	0.565	1.000	0.760	0.893
AVE	0.575	1.000	0.806		

This analysis highlights the importance of selecting appropriate indicators for measuring the socioeconomic characteristics that influence household food security. The modified model, with its validated and reliable constructs, offers a robust framework for understanding the dynamics between family characteristics, coping strategies, and food security among fishing households in Jambi Province. The removal of invalid indicators and the focus on relevant ones help ensure that the model accurately reflects the factors contributing to food security, allowing for more targeted interventions and policies to support these communities.

The hypothesis testing and interpretation of the relationships among variables reveal the significance of the influence between variables based on the coefficient values and the significance of the t-statistic. An influence is considered significant if the probability of the t-statistic is smaller than the alpha levels of 1%, 5%, or 10%.

Table 6. Hypothesis testing of relationships among model variables

Relationship	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (O/STDEV)	P Values
KK -> KP	-0.322	-0.324	0.060	5.398	0.000
KK -> SK	-0.435	-0.442	0.056	7.822	0.000
SK -> KP	0.425	0.425	0.062	6.826	0.000

Table 2 indicates a significant relationship between family characteristics and coping strategies on the food security of fishing families, with coping strategies acting as an intervening variable. This confirms that internal family conditions, such as the number of family members, working family members, and the proportion of school-age family members, directly affect the family's ability to manage food insecurity. These findings are supported by previous research, including studies by Lybaws et al. (2022), Utami & Ani (2023), Indrastuti & Herawati (2023), and Farzana (2017), demonstrating that demographic and economic factors impact the coping strategies adopted to maintain food security.

Effective coping strategies have served as crucial mechanisms mediating the relationship between family characteristics and food security, whether in income diversification or expenditure savings. This underscores the importance of strengthening family adaptive capacities in facing food challenges, aligning with findings from Fogel et al. (2022) and Kpade et al. (2023). Thus, developing and implementing appropriate coping strategies can enhance the food security of fishing families, especially in the face of economic and environmental fluctuations.

Furthermore, this analysis highlights the importance of a family-focused approach in food security interventions, considering how internal family dynamics and coping strategies affect food access and availability. Understanding these relationships is vital for designing effective programs and policies to improve food security in fishing communities.

CONCLUSIONS AND RECOMMENDATIONS

Conclusions

The economic coping strategies of fishing families, particularly in active strategies like income generation, are categorized as low, whereas passive strategies related to cutting back expenses are considered moderate. This indicates a tendency among fishing families to adopt expense-reducing strategies. Such strategies can negatively impact the quality of life, as they often involve cutting down on essential expenditures.

Overall, the level of food security among fishing families is relatively good. However, this condition is primarily observed in families from Tanjabbar. In contrast, many fishermen in Tanjabtim still fall into the food deficit category.

Furthermore, the level of food security in fishing families is significantly influenced by family characteristics and coping strategies. Coping strategies directly impact and serve as intervening variables between family characteristics and food security.

Recommendations

Local governments are recommended to formulate policies to increase awareness about balanced healthy eating patterns among families, especially those currently in the food deficit category, to enhance the food security of fishing families.

Additionally, to enrich and deepen the study, it is suggested that other socioeconomic factors affecting the food security level of fishing families, particularly those related to social capital and household environment, be examined further.

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