



Gender role analysis in achieving farmer household food security in Jember District

Analisis peranan gender untuk mencapai tingkat ketahanan pangan pada rumah tangga petani di Kabupaten Jember

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Abstract

Food security is a global issue that has received serious attention from various countries, including Indonesia. Indonesia still has problems related to gender inequality, which is a separate cause of food insecurity. This study aimed to analyze the mapping related to the food security of Jember farmers and its relation to household decision-making and the division of tasks related to food management in farming households. The study used a survey method by taking 251 samples of farming families from the working area of the Health Center in the Jember District. This study was conducted from May to July 2023. Data were collected using questionnaires and supported by qualitative data through in-depth interviews. Bivariate data analysis was performed using Spearman's rho test. The results showed a correlation between gender identity and food security ($p=0,000$), and there was a positive relationship pattern: the higher the gender role given, the more food security will increase in July ($r=0,504$). In conclusion, there is a positive relationship between gender roles and food security; the higher the gender roles, the higher the farmers' food security.

Keywords: Farmers, food security, gender role

Abstrak

Ketahanan pangan merupakan permasalahan sebagai isu global dan mendapat perhatian serius dari berbagai negara internasional, tidak terkecuali Indonesia. Indonesia masih memiliki permasalahan terkait dengan ketidaksetaraan gender yang menjadi nilai tersendiri sebagai penyebab masalah kerawanan pangan. Tujuan penelitian untuk menganalisis pemetaan terkait dengan ketahanan pangan petani jember dan kaitannya dengan pengambilan keputusan rumah tangga serta pembagian tugas terkait dengan pengelolaan pangan pada rumah tangga petani. Penelitian menggunakan metode survei dengan mengambil 251 sampel keluarga petani dari wilayah kerja Puskesmas di Kabupaten Jember. Penelitian telah dilakukan sejak bulan Mei sampai Juli 2023. Data dikumpulkan menggunakan kuesioner dan didukung data kualitatif melalui panduan wawancara mendalam. Analisis data bivariat menggunakan Spearman Rho test. Hasil penelitian menunjukkan adanya korelasi antara identitas gender dan ketahanan pangan ($p=0,000$), dan terdapat pola hubungan positif, yaitu semakin tinggi peranan gender yang diberikan maka akan semakin meningkat pula ketahanan pangan pada petani di Jember ($r=0,504$). Kesimpulan, terdapat hubungan positif antara peran gender dan ketahanan pangan; semakin tinggi peran gender yang diberikan, semakin tinggi pula ketahanan pangan petani.

Kata Kunci: Ketahanan pangan, peran gender, petani

Introduction

Food security remains a global issue requiring serious attention from the international community. This is because food is a basic requirement that must be met (Hever & Cronise, 2017). According to the Global Food Security Index, food security data explains that Indonesia's food security index will fall in 2021, weakening compared to the previous year. A decline in the food security index can occur because of the accumulation of food security at the family level (Akbar et al., 2023).

Apart from being a supporting factor in achieving national food security, many farmers still need help to meet the food needs of their households (Susanto et al., 2016). Gender is often associated with household food security. Women play an essential role in achieving household food security. Women are more involved in farming activities and food preparation in households than men are. According to the FAO (2015), women produce 60%–80% of food in developing countries.

However, women's contribution to agricultural tasks differs from that of their social status. Women are often disadvantaged in terms of control over resources such as control over cultivated land and agricultural subsidies. Christiani et al. (2016) explained that women's lower social status can affect their diet as well as the health and welfare of their children and families. State and financial institutions encourage land fragmentation and privatization by providing subsidies and loans to the head of the household, usually interpreted as males. This process strengthens men in society while weakening the role of women in agricultural production, which impacts the food supply and household food security (Bilali, 2019). The novelty of this research lies in exploring how traditional gender roles in agriculture intersect with emerging agroecological practices. Investigate how women and men contribute to sustainable farming methods, biodiversity conservation, and the overall resilience of farming systems in achieving food security.

This study aimed to analyze issues related to food security and gender roles in farmers. The linkage of this research with the Jember University research master plan is the theme related to food security, which is based on the lowest level of the food security pyramid,

namely, food security at the family level. In line with Jember University's flagship research theme, this research also provides data related to food security, which can later be used as primary data in Jember University's flagship research, namely cassava-based agro-industry for equitable development and national food security.

Methods

This study used a mixed-methods approach that used qualitative data to strengthen the quantity of the data. The survey method was used in this study. According to Sofiyan & Tukiran (2017), survey research is limited to sampling data representing several populations. Information and data were collected from respondents using a questionnaire. The sampling was performed using the purposive sampling technique. Qualitative data were obtained through in-depth interviews with the research subjects using a guide for the prepared questions. This study was approved by the Ethical Committee of the Medical Research Faculty of the Dentistry University of Jember (number 2070/UN25.8/KEPK/DL/2023).

This research was conducted in the Jember District Health Center work area, namely, the Panti Health Center work area, Ajung Health Center work area, and Pakusari Health Center work area. This research was conducted over three months, from May to July, 2023.

Primary and secondary data were used in this study. Primary data were obtained through surveys, in-depth interviews, and field observations. Primary data were obtained using instruments and in-depth interview guides that contained several questions to obtain information relevant to the research objectives of the research subjects. The in-depth interview guide was aimed at respondents and informants to obtain information that supports the interpretation of the measurement results from a quantitative approach. Secondary data were obtained from documents such as village profiles from the village office. In addition, secondary data were obtained from Organizations such as the Food and Agriculture Organization (FAO) and World Food Programme (WFP), compiling extensive data on global and regional food security trends, including reports, databases,

and analyses. We selected 251 respondents as research subjects.

The results of this study are quantitative and qualitative. The data obtained using a quantitative approach with a questionnaire instrument that is inputted into a computer application, to be processed and analysed using statistical applications. Data analysis included statistical description of frequency and correlation tests with the Spearman Rank test to prove the hypothesis.

Data analysis was carried out in stages starting from univariate analysis, data normality test, and bivariate analysis. The results of the data normality test using the Kolmogorov-Smirnov test showed that the gender role variable was normally distributed ($p= 0,071$), but the food security variable was not normal ($p= 0,000$). Thus, the bivariate analysis uses the Spearman Rank statistical test at 95% CI

Result and Discussion

Characteristics of Respondents

Farmer households consisted of husbands and wives aged 20 to over 45 years (Table 1). Most of the respondents were over 45 years old, with a percentage of 62,9%.

Table 1. Characteristics of respondents (n= 251)

Variabel	n	%
Age		
20-35	33	13,2
36-45	60	23,9
>45	158	62,9
Education level		
Not completed in primary school	11	4,3
Elementary school	70	27,9
Junior High School	87	34,7
Senior High School	83	33,1
Household Size		
≤ 3 People	226	90,0
4-5 People	25	10,0
>5 People	0	0
Land ownership status		
One's own	175	69,7
Rent	69	27,5
Do not have	7	2,8

Based on the education level of the respondents (Table 1), the majority of husbands

and wives had attended elementary school as their last education.

Farmer households consisted of husbands and wives with a categorical age range of 20–45 years. Most of the respondents were >45 years old, indicating that they were in the late adult phase. Elderly people can also support food security. Although no longer productive, it is undeniable that they remain productive. This is in line with research conducted by Nurjismi (2021), which states that the elderly can support food security while simultaneously bringing additional income to the elderly.

Based on their level of education, the majority of husbands and wives study Elementary School as their final education. This is due to the low public awareness of the importance of education. Research conducted by Putri & Pamungkas (2022) states that low education is caused by the level of awareness of education, which is still relatively low, and that working in farming is an option to make ends meet.

Household Characteristics

Based on Table 1, the majority of the respondents' households have a number 3 household members ≤, with a percentage of 90%. The percentage of household members with > 5 was 0%. Meanwhile, based on the status of land ownership, most of the respondents owned private land, namely 69,7%.

Most of the respondents have a number of family members in their household as much as ≤3 People (90%) with the least number of 2 people consisting of husband and wife. The more family members the household has, the more food dependents it must provide. Most farming households have their own land (69,7%), rent (27,5%), and do not own as much land (2,8%). Land is an important factor for meeting food needs. Farmers who own their own land have better food security because they do not have to pay rents. Food security is also closely related to land area. The decline in agricultural land used for residential and industrial purposes has negatively impacted the agricultural sector. Therefore, farmers who have their own land must utilize it as much as possible to produce various types of food that can increase food security. Ahmadian et al. (2021) state that farmers, who are the spearheads of the agricultural sector, play an essential role in supplying food.

Table 2. Household food security on farmers household (n= 251)

Household Food Security	n	%
Food availability		
Available	135	53,0
Not available	121	47,0
Food Accessibility		
Easy	121	48,0
Hard	130	52,0
Food Utilization		
Complete	150	59,0
Incomplete	101	41,0

The level of food availability for farming households in the Jember health service working area is included in the stable category at 53% (Table 2). Food availability is determined by the availability of household food reserves and the level of household food reduction. A household categorized as stable means that it can provide food reserves for the household, and there is no or a minimal level of food reduction.

Unstable and unstable food availability conditions can arise because of a lack of food reserves in households. In this study, 121 households needed more food reserves to meet their food consumption needs for less than one month. Adequate food reserves for household consumption vary between two and fifteen days. The first factor that causes food reserves to be insufficient for one month's needs is the climate. Field data collection was conducted from May 2023 to July 2023. Several incidents occurred when farmers who had access to staple food in the form of rice could not plant rice because of drought.

Another case is a household that cannot meet its rice needs because the availability of rice in the household has almost run out and is unable to replenish rice reserves. Rice reserves, which were sufficient for two people, were consumed by four people.

The level of food access for farming households was included in the less easy category, that is, 52% (Table 2). In this study, although the majority of households (52%) had access to staple food in the form of rice by owning or cultivating agricultural land, unfavorable climatic conditions at the time the research was conducted meant that

households did not get rice from their rice fields, but instead received rice by buying.

Village residents generally shop at small stalls or at mobile vegetable traders to meet their daily needs. Shopping in the market is considered quite far, and you must have much money because you must buy in large quantities. Most respondents stated that it was difficult for them to access the market. This distance must be covered to reach the market.

Food utilization value is measured based on the food consumption of vegetable protein and animal protein using the 24-hour recall method or food consumption in the last 24 hours. To facilitate research, this method asks "What did the household consume yesterday?" focused on food cooked at home, not including food consumed outside the home. This was done to see a picture of household animal and vegetable protein nutritional intake in a single day.

The level of household food utilization is taken based on three categories, namely the "complete" category seen from households that consume vegetable protein and animal protein food, the "incomplete" category seen from households that only consume animal protein food or only consume vegetable protein food, and the "incomplete" category is seen from households that do not consume animal protein food or vegetable protein food (Kurniyawan, 2023).

Most farmers' household food utilization levels are in the "incomplete" category, that is, 41% (Table 2). This means that farmers' household food consumption mainly consumes animal protein food, or only vegetable protein food. Most farming households consumed food containing animal protein (85%). The animal protein food most consumed by farming households was salted fish. Most respondent households did not consume vegetable protein. Tempe is the most widely consumed vegetable protein. Fifteen percent of households consume only tempeh as a side dish are 15%.

Level of Gender Equality in Deciding Food Needs

The level of gender equality in deciding on food needs is seen in how husbands and wives make decisions to meet food needs (Larson, 2019).

Table 3. Degree of equality in deciding food needs, clothing needs, social needs and educational needs (n= 251)

Variabel	n	%
Deciding food needs		
Husband	27	10,8
Wife	145	57,8
Together	79	31,5
Deciding clothing needs		
Husband	71	28,3
Wife	69	27,5
Together	111	44,2
Deciding social needs		
Husband	109	43,4
Wife	80	31,9
Together	62	24,7
Deciding educational needs		
Husband	40	15,9
Wife	7	2,8
Together	204	81,3

The level of equality between husband and wife in deciding the food needs of farmers in Jember Regency illustrates that the wife has the biggest role compared to the husband, with a percentage of 57,8%. activities carried out by husbands was only 10,8 %, and 31,5% of activities were carried out together (Table 3).

The wife, who is a housewife, is responsible for setting a food budget, buying food reserves, and providing the daily food menu in the household (Nwaka, 2020). The wife was responsible for fulfilling the family's food needs. This is similar to research conducted by Megantara & Nuraini (2021), who analyzed gender in the food security of agroforestry farmer households. This study concludes that women are responsible for household food availability; when a household needs assistance with food or other needs, a wife can discuss how to solve the problem with the man (husband).

The household cannot be separated from problems; if there are problems with fulfilling food, the wife continues to discuss with her husband to find a solution. Several problems can arise when fulfilling food, one of which is the lack of food and food reserves in households. One solution that can be used is to reduce food consumption. Households that reduce food cannot be categorized as stable households because they are able to provide food reserves for households, and there is no or a minimal level of food reduction (Megantara & Nuraini, 2021).

Level of Gender Equality in Deciding Clothing Needs

The level of gender equality in deciding on clothing needs is seen in how husbands and wives decide to meet clothing needs. The level of equality between husbands and wives in deciding the clothing needs of farmers in the Jember Regency illustrates that most of the activities are carried out together. The husbands carried out 28,3 % of the activities and the wives carried out 27,5% (Table 3).

The choice of clothes can be made together, starting from the price of the clothes, where to buy the clothes, and *the style of* clothing that each wife and husband likes. The availability of proper clothing can increase food security, because clothing is a basic requirement in households that cannot be abandoned and changes continuously with time. The thing to do is buy new clothes one to two times each year, as clothing reserves.

Level of Gender Equality in Deciding Social Needs

The level of gender equality in deciding on social needs can be seen in how husbands and wives decide to meet social needs (Pereira, 2020). The level of equality between husband and wife in deciding the social needs of farmers in Jember Regency illustrates that the husband plays the largest role compared to the wife, with a percentage of 43,4%. Only 24,7% of the activities were carried out together, and the were carried out the % (Table 3).

There are gaps in gender roles, especially in activities involving farming groups (Freguin 2022). The husband is considered to represent his wife's position in various social activities. Social factors such as wives mostly staying at home are housewives, so wives feel lazy to join organizations (Nurdin et al., 2021).

Level of Gender Equality in Deciding Educational Needs

The level of gender equality in deciding on social needs can be seen in how husbands and wives decide to meet educational needs (Howland, 2019). The level of equality between husbands and wives in deciding the educational needs of farmers in the Jember Regency illustrates that most activities are decided jointly, with a percentage of 81,3%. By 2,8%, the wife made the decision, and by 15,9%, the decision was made by the husband (Table 3).

Women and men have different degrees of influence and autonomy in making decisions that affect their lives and livelihoods, such as what crops to grow, how to allocate income and expenditures, and how to cope with shocks and stresses. Women often have less decision-making power and agency than men because of unequal power relations, social norms, and cultural beliefs (Ashagidigbi, 2022). This affects their ability to voice their needs and preferences, access opportunities and benefits, and exercise their rights and entitlements (Dedehoanou 2020). For example, according to a study by Sari et al., only 33,3% of female farmers in Jember District participated in decision-making on agricultural production compared to 66,7% of male farmers.

In contrast, Isalman and Saediman (Isalman & Saediman, 2022) state that people with a higher education level tend to choose food that is better in quantity and quality than those with low education. Education is one of the factors that influence a person’s acceptance of innovation. The level of education will affect mindset, attitude patterns, and actions to improve the quality of life. Education level can affect one's way of thinking when making decisions. The higher the educational level, the more highly educated people will certainly think about the positive and negative impacts that will occur in the future (Mbow, 2020). Therefore, the educational needs of family members are a determining factor for the sustainability and support of food security in households.

Correlation Test Results between Gender Roles and Food Security

Table 5. Correlation test results between gender roles and food security

Variable	Food Security	
	r-value	p-value
Spearman's rho Gender Role	0,504	0,000

Information: Gender Role (PG), Food Security (KP)

Based on the results of the correlation test between gender roles and food security for farmers in the Jember District, a significance value of 0,000 was obtained, which means that there is an influence between gender roles and food security. The correlation coefficient value obtained was 0,504, which means that the closeness of the relationship between the two

variables has a strong strength with the direction of the correlation in the same direction. The greater the contribution of gender roles, the greater the food security of farmers in the Jember District.

The positive relationship between gender roles and food security shows that optimal gender roles will increase existing food security for farmers in the Jember Regency (Table 9). this is in line with Megantara & Nuraini (2021) research that showed in their research. They found a positive correlation between the division of gender roles and the type of household decision-making for agroforestry farmers. Positive relationships were also found between the type of household decision-making in determining the allocation of land for cultivation and the household food security of agroforestry farmers. In addition, the correlation value is in the range of 0,51 - 0,75, which means there is a strong relationship. This is similar to research conducted by Megantara & Nuraini (2021), who analyzed gender in the food security of agroforestry farmer households. This study concluded that the correlation value between the type of household decision making in determining land allocation for cultivation and the food security of agroforestry farmer households was 0,262. This indicated a moderately positive linear relationship. Pical & Lopulalan (2022) also state that increasing gender roles to support food security can improve welfare (Mbow, 2019).

However, our research is not good enough because some potential limitations in the method of analysis using interviews for collected data can lead to bias or error due to social desirability, recall, or misinterpretation of questions. There are also many factors other than gender identity that influence food security. Some possible factors are as follows: Climate change and natural disasters can affect the availability and quality of local fruits and vegetables as well as the livelihoods and health of farmers and consumers. Market access and infrastructure: These can affect the distribution and affordability of local fruits and vegetables as well as the income and bargaining power of farmers and traders (Smith, 2022).

Cultural preferences and consumption patterns: These can affect the demand and acceptability of local fruits and vegetables as

well as the nutritional diversity and awareness of consumers (Prugel, 2021).

Policy and institutional support: This can affect the regulation and promotion of local fruits and vegetables, as well as the incentives and opportunities for farmers and traders to improve their production and marketing practices.

Conclusion

There is a positive relationship between gender roles and food security; the higher the gender role assigned, the higher the food security of farmers will also increase. In summary, a positive relationship between gender roles and food security exists when there is acknowledgment and utilization of the diverse skills, knowledge, and perspectives of both men and women.

There is still a need to develop several other findings as a method of solving family food security problems and new data sources related to field facts related to farmers' food security in the Jember district. Farmers and foster community support networks where neighbors help each other in times of need, share resources, and support one another. Another suggestion is that training programs should be tailored to address the specific needs and constraints identified in gender role analysis. Develop training modules that empower both women and men with the knowledge and skills necessary for sustainable and diversified agricultural practices.

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Conflict of Interest: The authors declare that they have no affiliations with or involvement in any organization or entity with any financial interest in the subject matter or materials discussed in this manuscript. This statement includes an author who does not have any financial affiliations or involvement that could potentially bias our research or influence our interpretation of our findings.

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