



## Farmers' Perceptions and Experiences on Family Nutrition Fulfillment and Mental Health Management in Rural Indonesia

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| ARTICLE INFO                                                                                                                                                                                                                                   | ABSTRACT                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
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| <p>Keywords:<br/>Agricultural<br/>Workers; Diet;<br/>Family Nutrition;<br/>Mental Health;<br/>Stress</p> <p>Submitted: July<br/>1<sup>st</sup> 2025<br/>Reviewed: July<br/>14<sup>th</sup> 2025<br/>Accepted: Aug<br/>19<sup>th</sup> 2025</p> | <p><b>Introduction:</b> Farmers in rural Indonesia face challenges in maintaining nutritional adequacy and mental health due to economic instability, crop failure risks, and fluctuating commodity prices. Limited empirical evidence exists on how these factors intersect within farming communities.</p> <p><b>Objective:</b> This study aims to explore farmers' perceptions and experiences regarding nutrition and mental health among farmer groups in three rural districts of Indonesia.</p> <p><b>Methods:</b> A qualitative study was conducted with 36 farmers (aged 25–65 years; all males) from Kulonprogo, Boyolali, and Bogor, selected purposively. Data were collected through focus group discussions and analyzed using inductive qualitative content analysis based on Graneheim and Lundman's framework and processed with enVivo® software.</p> <p><b>Results:</b> The main stressors identified were economic hardship, crop failure, debt and unstable commodity prices. Food decision-making was largely determined by wives, with children's needs prioritized. While severe food insecurity was not reported, mild to moderate food insecurity characterized by limited dietary diversity was common. Coping strategies included additional income-generating activities, utilizing homegrown produce, and borrowing from relatives or neighbors.</p> <p><b>Conclusions:</b> Findings indicate a strong interrelation between food insecurity and mental distress among farmers. Interventions that integrate nutrition improvement and mental health support alongside economic and agricultural policy reforms are essential to enhance farmers' well-being.</p> |

### Introduction

Mental health disorders are one of the most significant psychosocial hazards in today's society, given their widespread impact on individuals' quality of life, productivity, and physical health (Edú-Valsania et al., 2022; Salvagioni et al., 2017). Various studies have focused on

professional groups such as healthcare workers, teachers, and social workers, but research on the agricultural sector, particularly farmers in Indonesia, remains relatively limited (Hagen et al., 2021). In fact, workers in this sector face economic pressures, crop failure risks, climate change, and price uncertainty, which can

trigger stress and burnout. Indeed, individuals working in this sector often experience financial strain, exposure to climate variability, risks of crop loss, and market price instability all of which can contribute to heightened stress levels and emotional exhaustion (Irawan & Wicaksono, 2016).

In addition to psychosocial factors, dietary patterns and nutritional status are closely linked to mental health (Markus et al., 2021). In addition to psychosocial influences, dietary habits and nutritional status play a crucial role in maintaining mental health. Poor nutrition, such as low intake of omega-3 fatty acids, vitamins, and minerals, has been associated with an increased risk of depression, anxiety, and cognitive decline. Conversely, balanced diets rich in fruits, vegetables, whole grains, and lean proteins can enhance mood regulation and cognitive function by supporting neurotransmitter synthesis and reducing inflammation (O'Neil et al., 2019; Marx et al., 2021). Research in various countries shows that poor nutrition can increase the risk of depression, anxiety, and cognitive decline. But, most of these studies focus on high-income countries, so the availability of empirical evidence describing conditions in rural Indonesia, especially among farming communities, is still very limited. This needs to be further

investigated, because farmers are not only food producers, but also consumers who are potentially vulnerable to household food insecurity.

The selection of research locations in Kulonprogo, Bogor, and Boyolali was based on differences in socioeconomic characteristics, types of agricultural commodities, and varying levels of vulnerability to food crises and environmental pressures. So, this study aims to explore farmers' perceptions and experiences regarding nutrition and mental health in farmer communities. It is hoped that the results of this study will be useful for creating programs to help achieve quality nutrition and prevent mental health problems in farmers.

## **Methods**

Qualitative study data were obtained through Focus Group Discussions (FGD) conducted from March to May 2024 in Kulonprogo, Boyolali, and Bogor, exploring the perceptions and experiences of 36 farmers using a content analysis approach based on the framework of Graneheim and Lundman (2004). This approach was chosen because it can systematically identify the meaning contained in participants' statements, maintain context, and allow findings to emerge naturally from the data. The

analysis was conducted inductively, so that themes and categories were developed directly from field data without using a strict initial theoretical framework.

Respondents were farmers who were selected purposively based on the following criteria: being a farmer (farmers, livestock breeders, fish cultivators, fishermen, and communities around forests); residing in the research location; and being willing to provide information related to perceptions and experiences regarding eating patterns, diet, and psychological stress experiences, particularly burnout. All respondents were males, with age range of 25–65 years.

The analysis process was carried out in the following stages: (1) verbatim transcription of the FGD recordings, (2) repeated reading to gain a comprehensive understanding, (3) identification of meaning units relevant to the research focus, (4) condensation of meaning units into shorter narratives without changing the meaning, (5) coding each meaning unit, (6) grouping codes into subthemes, then main themes, and (7) verifying themes by the research team to enhance credibility. Data management was carried out using enVivo® software, while data validity was strengthened through member checking with several participants and peer debriefing among researchers. The research was conducted with ethical approval

obtained from the Ethics Committee of IPB University, certificate number 1190/IT3.KEPMSM-IPB/SK/2024, and informed consent provided by all respondents.

## Results and Discussion

### *Nutrition and Food Security*

#### *Perceptions regarding healthy food*

The following are several quotes that show respondents' understanding of healthy food:

*"Food that is suitable for cooking, fresh vegetables, fresh fish, does not contain formaldehyde, reduce instant food"*

(FGD1, R2, Male, KP)

*"Clean, hygienic food should not use pesticides for vegetables, but in Indonesia there are no regulations. Organic food, not overcooked. I used to be a former chef."*

(FGD 3, R1, Male, BGR)

The theme of healthy food, namely four healthy five perfect foods, appears in Boyolali and Bogor but not in Kulon Progo. In Kulon Progo, the theme of fresh food or food without preservatives was predominant. In Boyolali, the emphasis was on unflavoured food, while in Bogor, the theme of clean or hygienic food free of pesticides emerged. These findings align

with the World Health Organization's (WHO) in 2020 statement encouraging people to eat a variety of fresh and minimally processed foods every day to maximize nutrition and support immunity (WHO, 2020). The theme of balanced nutritious food did not appear in data collection.

*"Basically, four are healthy, five are perfect, namely there are staple foods, side dishes, vegetables, fruit and milk"*  
(FGD 2, R2, Male, BY)

#### *Practices Related to Diet*

In the three data collection locations, respondents very rarely eat out or eat in restaurants, generally only once a month.

*"When I go to sea, I bring at least 6 pieces of bread, water and cigarettes, I rarely bring food, I don't have time in the morning..."*  
(FGD 1, R1, Male, KP)

The definition of eating out varied significantly across the locations. Eating together was rarely practiced and mostly occurred during breakfast or dinner, as many men ate lunch at work sites. "Eating out" was not associated with restaurants but with eating in the fields or gardens using food brought from home. These practices

reflect the working conditions and routines of agricultural families and are consistent with findings from previous studies (Siregar and Mukhsinuddin, 2020).

In all study locations, the habit of eating together is also rarely done, eating together is sometimes done in the morning or evening, never at lunch.

*"Yes, it's rare, they work in other ways, some work on projects, some are farmers, eating together is very rare, yes, they don't eat together, they mostly eat out. In the evening and afternoon, eat at home, in the morning or afternoon, at work"*  
(FGD 2, R3, Male, BY)

#### *Menu, Allocation of Food and Side Dishes*

The types of food consumed by adult respondents are more or less similar, namely the main staple food in the form of rice accompanied by vegetables, these two types of food are always available.

*"What is often consumed is egg tofu tempeh; vegetables are rare, nowadays farmers rarely eat vegetables, I myself never because they don't cook them; Eating with children is different, if the child likes fish, meat, maybe chicken or eggs, so if vegetables are rare, eggs, chicken are the most common, if beef is the most, if there is Eid al-Adha; ...."*

(FGD 2, R2, Male, BY)

Menu planning was generally the responsibility of wives, and husbands respected their decisions. Food was prioritized for children, reflecting traditional gender roles and maternal focus on child nutrition (Aditianti *et al.* 2016). An understanding of a good children's diet emerged in Boyolali, where it was stated that children's food should include sufficient protein from eggs, fish, tempeh, tofu, and green beans. However, fruit consumption was very rare in all locations due to purchasing power, habit, and lack of knowledge (French *et al.*, 2019).

The limited consumption of fruits and the general reliance on simple, repetitive meals suggest a gap in understanding the concept of balanced nutrition. According to the Ministry of Health of Indonesia guidelines, balanced nutrition not only includes adequate protein, but also sufficient intake of vegetables, fruits, carbohydrates, and healthy fats (Kemenkes, 2014). The low intake of fruits and the tendency to consume monotonous, simple meals indicate a lack of awareness regarding the principles of balanced nutrition. As outlined by the Indonesian Ministry of Health, a balanced diet should consist not only of adequate protein but also include sufficient portions of vegetables,

fruits, carbohydrates, and healthy fats to maintain optimal health (Ministry of Health of the Republic of Indonesia, 2021). The application of “*gizi seimbang*” emphasizes dietary diversity, appropriate portion sizes, regular physical activity, and clean living habits.

*Experience of Food Insecurity*

In Bogor, the respondent group did not experience severe food insecurity, but it was still found in farming families who were not members of farmer groups. All respondents stated that they had never experienced severe food insecurity, as defined by the Household Food Insecurity Access Scale (HFIAS), which indicates experiencing hunger or sleeping with a hungry stomach due to a lack of food (Salman *et al.*, 2023).

*"It's rare, it's not that I haven't slept yet because I don't have any, but I've slept because I haven't eaten...."*

(FGD 2, R2, Male, BY)

*"So far, if you are part of a serious farmer group, no one has gone so far as not to eat, but if you are outside the farmer group, you can still hear about it."*

(FGD 3, R2, Male, BGR)

### *Coping Mechanisms for Severe Food Insecurity*

Mechanisms for fulfilling food needs that emerged from discussions with respondents include; the wife's involvement in earning a living, food produced from her own garden, consistent adoption of a simple diet and borrowing from relatives or neighbors. These coping mechanisms are common in rural settings facing economic challenges (Gultom and Harianto, 2021).

*"Fulfilling the needs of the family is for the head of the family, the father. But yes, not just the father, the mother also came along..."*

(FGD 1, R2, Male, KP)

*"Here you get your own rice from the rice fields, you also get your own vegetables from the garden, the most you buy is chicken, cut if you want, with spices, like garlic from the market, you get your own fish."*

(FGD 1, R3, Male, KP)

*"Where I eat, it's a need for energy, even if you have a lot of money, you just eat normally. Just to be safe, if you don't have any money, then you'll have debt. There are a lot of workers here, there are two or three farmers, if you're a farmer, right?..."*

(FGD 2, R2, Male, BY)

The role of traditional knowledge and practices in promoting health and nutrition was also evident. Many respondents relied on traditional dietary practices and locally sourced ingredients, which are often nutrient-rich and beneficial for health. These practices were more pronounced in Kulon Progo, where there was a strong emphasis on using homegrown vegetables and herbs (Abdoellah *et al.*, 2020).

### *Experience of Mild to Moderate Food Insecurity*

Based on the findings from focus group discussions with respondents, the three locations experienced mild to moderate food insecurity.

*"Well, eating is eating, but for meeting nutritional needs, it's lacking. A diet doesn't have to be nutritious; what's important is that it's filling and healthy"*

(FGD 2, R4, Male, BY)

Mild to moderate food insecurity was reflected in the inability to access desired food and a monotonous eating pattern, particularly in Boyolali and Bogor. This is consistent with other studies showing that economic constraints often lead to a lack of dietary diversity (Grimaccia and Naccarato, 2019). Families with stable incomes or additional sources of revenue, such as small

businesses or livestock, were better able to maintain diverse and nutritious diets.

**Table 1.** Summary of Nutrition and Food Security Themes

| No | Topic                                       | Theme and Findings                                                            | Location    |
|----|---------------------------------------------|-------------------------------------------------------------------------------|-------------|
| 1  | Healthy food                                | Fresh food without preservatives                                              | KP          |
|    |                                             | Food without flavour                                                          | BY          |
|    |                                             | Hygienic food free of pesticides                                              | BGR         |
|    |                                             | "4 healthy 5 perfect" foods                                                   | BY, BGR     |
| 2  | Eat together and eat out                    | Rarely done. Eating out is eating at work, gardens, rice fields               | KP, BY, BGR |
| 3  | Determining the menu and food allocation    | In the hands of wife and children come first                                  | KP, BY, BGR |
| 4  | Severe food insecurity                      | Never experience hunger or sleep hungry because there is no food              | KP, BY, BGR |
| 5  | Mild and moderate food insecurity           | Ever experienced not being able to eat the foods you want or nutritious foods | KP, BY, BGR |
| 6  | Coping mechanism for severe food insecurity | Wife's involvement in earning a living                                        | KP, BGR     |
|    |                                             | Consistently simple meals even during harvest season                          | BY, BGR     |
|    |                                             | Debts to relatives, neighbors or shops                                        | BY, BGR     |
|    |                                             | Utilize your own agricultural and garden products                             | KP          |
| 7  | Consume vegetables and fruit                | Consuming vegetables frequently but consuming fruit rarely                    | KP, BY, BGR |

## ***Mental Health***

### ***Stress Experiences and Their Triggers***

Respondents in all three locations stated that they had experienced stress with various triggers. Economic hardship was the dominant source of stress among farmers, followed by family concerns and environmental factors.

*"When it's quiet, it's empty, there aren't any fish, when it's fast, the current is fast, when farmers are planting, it continues to flood, so there's no produce..."*

(FGD 1, R3, Male, KP)

*"Stress is pressure, but there are other types of stress, there is stress thinking about children, stress thinking about work, maybe a failed panel can cause stress, if*

*you spend a lot and then the harvest  
fails....”*

(FGD 2, R2, Male, BY)

*"As for burn out, I experienced chronic stress. Once in my pond there were 8 ponds filled with catfish, at that time when the flood was big, my pond all collapsed, all my catfish disappeared, so that's when I experienced stress... "That's up to 7 days, I rarely slept, only 2 or 3 hours at most, if I could sleep at all."*

(FGD 2, R1, Male, BY)

*"During PMK (Hoof and Mouth Disease), the cows had already been sold and then they got sick, on the 19th they were going to sacrifice, there were 27 cows that hadn't been sold yet, I had a headache, sir, so I couldn't sleep."*

(FGD 2, R3, Male, BY)

*"For me, one thing that influences stress is if I don't have money. If the stress trigger is mainly in the family environment first, then environmental triggers, if it's in the family the main trigger... As for the weather, for coffee farmers, if there's high rainfall and wind, there's fog, it has an impact, "It all fell out bro, it was a crop failure, that's what stresses farmers, their income is reduced, that was last year."*

(FGD 3, R1, Male, BGR)

Environmental factors such as climate change, erratic rainfall, and flooding negatively impacted agricultural productivity, further contributing to farmer stress. These challenges reduced crop yields and complicated food availability, particularly in areas with fragile ecosystems. Such environmental stressors amplified the psychological burden already faced by farming communities (Yang *et al.* 2024).

#### *Coping Mechanism*

In the three study locations, the coping mechanism included seeking additional work to solve problems and diverting attention, as well as relying on family support. This finding aligns with literature on stress and coping among agricultural workers (Yazd *et al.*, 2019).

*"If I respond like this, if I want to do another job then it won't work, yes, whether we like it or not, that's what we'll do, no matter how much the results are, the important thing is that we work instead of sitting at home and it will cause more stress."*

(FGD 2, R2, Male, BY)

*"Drinking coffee, smoking, gathering together with friends, going to the barn...."*

(FGD 2, R3, Male, BY)

*"Actually, personally, we are okay with it, just surrender, because this is not our will, this is because of nature, so we have a lot to be grateful for, that's the point. Moreover, if we sleep more, bro, it will become even more stressful, we are better off doing positive things that produce results... Usually here we often get together, if there is a problem, we look for a solution together."*

(FGD 3, R1, Male, BGR)

Social support and community networks were important factors in managing stress and maintaining mental well-being among farmers. In rural areas, strong social ties—such as group gatherings, cooperative work, and informal peer support—helped farmers cope with economic and environmental stressors. This reinforces the idea that social capital plays a buffering role against psychological pressure in agricultural communities (Cassidy and Carswell, 2024).

### *Hopes*

Regarding future hopes related to efforts to reduce stress among farmers, because the root of the problem is often harvesting failure and selling prices that do not match the "labor and capital investment" that has been spent, the hopes that emerge from

respondents are mostly related to increasing farmer welfare. Especially in terms of income and ensuring price stability for agricultural or plantation products. In addition, it is also hoped that there will be a policy that regulates the selling prices to stabilize the price of products and farmers get profits that match the labor and capital investment that has been spent (Ganindha and Sukarmi, 2020).

*"The hope is, firstly, the government must be consistent with what is promised, make the highest retail prices, so that they are willing to buy farmers' products, then secondly, fertilizer subsidy should not be reduced, then if possible, there will be outreach, the aid will be delivered correctly so that it reaches its destination..."*

(FGD 2, R2, Male, BY)

*"For me, the most important thing is stable prices, good production, if I am providing farmer extension treatment, post-harvest processes to down streaming, don't combine them with the same person, it won't be good, this is also a dilemma in farmers' associations in Java, even at the national level."*

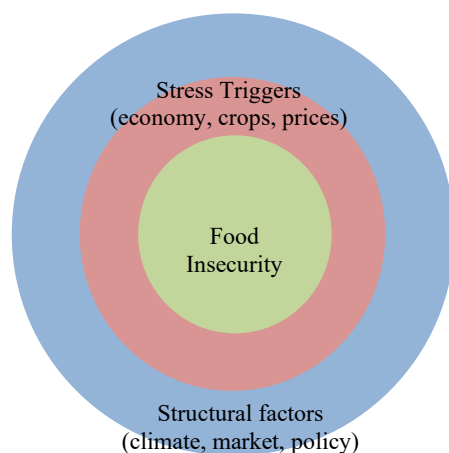
(FGD 3, R1, Male, BGR)

**Table 2.** Summary of Mental Health Themes

| No | Topic                                 | Theme and Findings                                                       | Location    |
|----|---------------------------------------|--------------------------------------------------------------------------|-------------|
| 1  | Stress experiences and their triggers | Crop failure                                                             | KP, BY, BGR |
|    |                                       | Weather                                                                  | KP, BY, BGR |
|    |                                       | Debt charged                                                             | KP, BGR     |
|    |                                       | School needs                                                             | BY, BGR     |
|    |                                       | Failed to sell livestock products                                        | BY          |
|    |                                       | Invitation needs                                                         | BGR         |
| 2  | Coping Mechanism                      | Divert with other activities                                             | KP, BY, BGR |
|    |                                       | Support system of family and friends                                     | KP, BY, BGR |
| 3  | Hopes                                 | Improving farmers' welfare with fertilizer assistance and price policies | BY          |
|    |                                       | Prices stabilized and labor wages increased                              | BGR         |

### ***Intersection of Nutrition and Mental Health***

To clarify the relationship between food security and mental health, the results of this qualitative analysis are visualized in the form of a thematic diagram with the aim of showing the relationship between levels of food insecurity, triggers of mental distress, and the structural factors that influence them.



**Figure 1.** Thematic Diagram: The Relationship Between Food Insecurity and Mental Health

This diagram shows that food insecurity is at the heart of the problem, directly intersecting with various stressors such as crop failure, price fluctuations, and household economic pressures. Structural factors such as climate conditions, markets, and agricultural policies reinforce these impacts. These findings suggest that interventions to improve food security have the potential to positively impact the psychological burden on farming communities.

The intersection between nutrition and mental health emerged as a significant theme across the study locations. Poor nutrition and food insecurity were closely linked to increased stress levels and poorer mental health outcomes. Respondents who experienced mild to moderate food insecurity often reported higher levels of stress and anxiety, primarily due to the

uncertainty and struggle to meet daily food needs (Maynard *et al.*, 2018). Theoretically, these findings are consistent with Maslow's hierarchy of needs framework, which places physiological needs, including food, at the base of the pyramid of human needs. When these basic needs are disrupted, the achievement of higher-level needs such as safety, social affiliation, and self-actualization becomes hampered, ultimately increasing the risk of mental distress (Kenrick *et al.*, 2010).

Conversely, those with better access to nutritious food reported lower stress levels and better overall mental health. This highlights the role of adequate nutrition in supporting mental well-being, suggesting that efforts to improve food security could have positive mental health benefits (Kris-Etherton *et al.*, 2021). From the perspective of Social Determinants of Health (WHO), food security is one of the structural determinants that directly affects physical and mental health. Adequate access to nutritious food not only determines nutritional status, but also contributes to the psychosocial stability of individuals and communities, so that reducing food insecurity can be an important strategy in efforts to improve public mental health (WHO, 2023).

In addition to large-scale interventions to improve food security, educational

initiatives are also needed as a more feasible and sustainable strategic measure. Educational initiatives aimed at improving nutrition also had mental health benefits. Increased awareness and knowledge about healthy eating and sustainable practices not only improved dietary habits but also empowered individuals, reducing feelings of helplessness and stress (Grajek *et al.*, 2022).

In summary, addressing food insecurity and improving nutritional practices can have far-reaching benefits for mental health. Conversely, efforts to support mental health through community and educational programs can enhance food security, creating a positive feedback loop that supports overall well-being in rural communities.

## Conclusion

The responsibility for food expenses typically lies with the father or husband in farming families, while the mother usually decides on the daily menu. Food is prioritized for children first, followed by the parents. The experience of severe food insecurity was never experienced, where the farmer family has never experienced hunger or gone to bed hungry because there was no food, but has not been able to provide a nutritionally balanced diet. In addition to agricultural problems such as crop failure

and unpredictable weather, the economy is the biggest trigger of stress in farmers. Coping stress that farmers do in dealing with this problem is trying to find other income opportunities and asking for help from family or neighbors. It is suggested that the government pay attention to the welfare of farming families both in terms of nutrition and mental health with clearly defined policies related to agriculture and other assistance programs for farming families.

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