

Current Situation of Household Food Security of Smallholder Farmers: A Case Study in Walallawita Divisional Secretariat Division, Kalutara District, Sri Lanka

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ABSTRACT

Purpose: Food security refers to people's ability to obtain the food they need to stay healthy at any time. The main aim of this study was to assess the level of food security among smallholder farmers in the Walallawita Divisional Secretariat Division in Kalutara District, Sri Lanka, using a single case study approach.

Research Method: Data were collected from a randomly selected sample of 221 smallholder farmers within the Walallawita Divisional Secretariat Division during the period spanning July to September 2023. A pre-tested questionnaire was used to conduct a household survey. Descriptive statistics were utilised to analyse socio-economic data, cultivation data and food insecurity coping strategies, where the household food security status was assessed and categorised using a widely accepted household food insecurity access scale tool. Moreover, the Multinomial Logistic Regression Model was utilised to investigate the influence of different factors on household food security.

Findings and Values: Only a small fraction (1.4%) of the participants could be classified as food secure. A significant portion faced varying degrees of food insecurity: 35.6% experienced mild food insecurity, 18.5% encountered moderate food insecurity, and a substantial portion (44.6%) grappled with severe food insecurity. According to the multinomial logistic regression model, odds ratios, land size, on-farm income, gender, and three coping strategies exhibited a positive impact on the likelihood of achieving food security or experiencing lower levels of food insecurity compared to a severe food insecurity situation. The findings imply the necessity of empowering policymakers to prioritise training, credit access, and land productivity, driving targeted interventions to strengthen smallholder farmers' food security.

Keywords: Case study, Household food security, Multinomial Logistic Regression, Smallholder farmers, Sri Lanka

INTRODUCTION

The concept of food security has evolved, reflecting the dynamic nature of scholarly discourse, with various definitions and conceptual frameworks proposed in the literature (Yusriadi & Cahaya 2022). In 1983, the Food and Agriculture Organisation (FAO) emphasised food access in its analysis, leading to a definition based on the balance between food demand and supply: "Ensuring that all people at all times

have physical and economic access to basic food needs" (FAO 2008). The World Conference on Food Security has defined food security as "the physical, social, and economic access for all people to adequate, safe, and nutritious food at all times, to meet their nutritional needs and

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healthy eating” (World Food Program 2022). Food security relates to individuals’ ability to access the required food for sustaining good health. Food security issues can be analysed from two primary dimensions.

Firstly, the level of analysis can vary from individual to household, regional, or national scales. Secondly, the timeframe is a crucial consideration; individuals or groups may experience insufficient food intake persistently, necessitating a focus on food consumption levels and their determinants (Care International 2022).

In recent years, household food security, which aims to ensure universal access to sufficient food for a healthy lifestyle, has attracted significant attention from policymakers and researchers (Lowe 2021). Emerging as a central theme in contemporary development discussions, food security has taken a prominent place in the economic strategies of many developing countries and the agendas of various international organisations, particularly the FAO (Axinn *et al.* 2010).

The global population has surged from 2.5 billion in 1950 to 6.1 billion in 2000 and is projected to reach 9.1 billion by 2050, marking a doubling within a span of 50 years. This growth is expected to predominantly occur in developing nations, particularly in Africa and Asia, while developed nations may even experience population decline (United Nations 2022).

Food security involves three aspects: a) primary hunger caused by malnutrition due to poverty, b) concealed hunger arising from deficiencies in micronutrients such as iodine, zinc, and vitamin A, and c) transient famine triggered by natural calamities and social unrest (Kapari *et al.* 2023). Therefore, true food security entails not just increasing food supply in the market, but also enhancing economic, social, and physical accessibility to a diverse diet, safe drinking water, environmental cleanliness, and essential healthcare services (Swaminathan 2007).

These challenges are notably prevalent in

developing countries, where the UN Millennium Goal of halving the number of individuals experiencing hunger by 2015 remained unfulfilled. Consequently, food security persists as a mounting issue across all developing nations, including Southeast and South Asia, where nearly half of the world’s impoverished populace resides, with 70% surviving on less than US\$2 a day (Raj *et al.* 2022).

Sri Lanka, situated in South Asia, epitomises this challenge, hosting 20.1 million people across its 65,525 square kilometres. Endowed with diverse climates and fertile soils due to abundant rainfall, the country boasts a rich biodiversity that underpins its food security and influences its populace’s well-being (Amarasinghe *et al.* 2005). Approximately 60% of Sri Lanka’s populace engages in some form of food production or processing, reflecting its status as an agrarian society (Japan International Cooperation Agency (JICA) 2019).

In Sri Lanka, the agricultural landscape is primarily characterised by crop-based practices, with rice farming being predominant. Smallholder farmers, constituting over 70% of the farming community, play a crucial role in fulfilling the country’s food requirements (Central Bank of Sri Lanka 2022). However, challenges such as high cost of production, low crop prices and competition from neighbouring nations like India and Pakistan have impeded agricultural growth, despite substantial investments in infrastructure and policies like the Structural Adjustment Policy (Rathnayake *et al.* 2021).

The stagnation in the agricultural sector has implications for the nation’s food security, especially considering that approximately 80% of Sri Lanka’s population resides in rural areas and depends on agriculture for their livelihoods (Asian Development Bank (ADB) 2023). Despite agriculture contributing around 7% to the national GDP, food insecurity remains a pressing concern, with the country grappling to ensure sufficient dietary energy intake and address chronic energy deficiency among its population (Deyshappriya 2019).

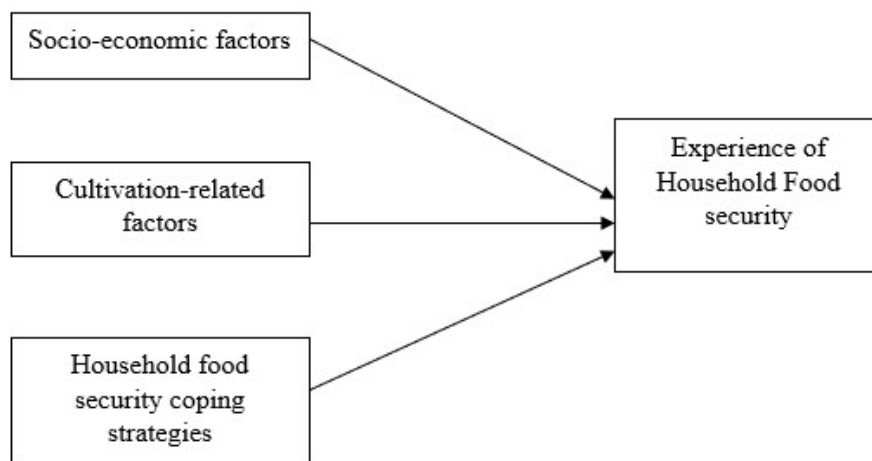


Figure 1. Conceptual framework for household food security.

Socio-economic characteristics, cultivation-related factors, and food insecurity coping strategies are widely recognised as fundamental determinants of food security among small-scale farmers (Biswas & Nautiyal 2023). Socio-economic aspects such as household size, education level, gender, and income significantly influence access to food and resource allocation (Kalainathan *et al.* 2023). Cultivation-related factors, including land size, crop diversity, irrigation access, and farming technology, directly affect production stability and household food availability (World Food Programme 2024). Moreover, coping strategies such as reducing meal frequency, borrowing food, or seeking off-farm employment play a critical role in mitigating temporary food shortages and ensuring survival during crises (Food Security Cluster Sri Lanka 2022, Rodriguez-Camayo *et al.* 2024).

This study focuses on the household food security of smallholder farmers in *Walallawita* Divisional Secretariat (DS) Area in *Kalutara* district, Sri Lanka, representing a substantial portion of this vulnerable population. The smallholder farmers (in this study, smallholder farmers were considered as the farmers who have farmlands below or equal to 5 acres (Esham *et al.* 2006) in this area often struggle to achieve stable household food security, facing challenges in obtaining adequate and nutritious food for themselves and their families (Care International 2022). Therefore, it is important to study the situation of household food security

among these farmers. While numerous scholars have investigated the Assessment of Household Food Security among smallholder Farmers in various global regions, limited research has been conducted in the Sri Lankan context (Sangakkara & Nissanka 2008, Food Security Cluster Sri Lanka 2022, Kalainathan *et al.* 2023), particularly none found regarding the *Kalutara* district. Therefore, this study was conducted to evaluate the Household Food Security of smallholder Farmers with its determinants in this area in order to fulfil the existing research vacuum.

The broad objective of this research was to study the level of food security of smallholder farmers. This area was specifically selected due to its higher abundance of target participants over other areas within this district. This broad objective was covered using three specific objectives. They were to find out the impacts of socio-economic factors, cultivation-related factors and coping strategies on the household food security of smallholder farmers. The conceptual framework for household food security is given in Figure 1.

MATERIALS AND METHODS

Study area, sample size and data collection

Kalutara district is a well-known farming area in the Western Province of Sri Lanka, and a large number of smallholder farmers who rely primarily on agriculture live there. There are

14 Divisional Secretariats (DS) Divisions in this district. This research was conducted in the *Walallawita* DS Division of the District. It consists of two Agricultural Extension divisions, namely *Pelawatta* and *Ittapana*. The target population of the study was smallholder farmers from these two areas. Out of them, 221 farmers were randomly selected for the study following the cluster sampling technique. Only primary data were used for the study. Those were collected using a pre-tested questionnaire from a household survey with the support of the selected farmers during May–July 2023.

Data and variables

In this study, data were collected to apply two analysis methods, namely descriptive statistics and multinomial logistic regression. In multinomial logistic analysis, the level of food security (FOSU) was used as the dependent variable, where socio-economic characteristics (Age of the Household Head (AGE), Gender of the Household Head (GEND), Level of Education (LOED), Family Size (FMSZ)), Cultivation-related Factors (Cultivated Land Size (CLSZ), On-farm Income (ONFI), Family House Labour (FMHL), Access to Financial Facility (ATFF), Access to Agricultural Training and Extension Services (ATES), Use of Mineral Fertilizer (UOFZ) and Livestock Ownership (LIOS)) and nine household food insecurity coping strategies (given in the results and discussion section) were used as independent variables. Table 1 shows the description of the variables used in the multinomial logistic regression model in detail.

Household Food Insecurity Access Scale (HFIAS)

The Household Food Insecurity Access Scale (HFIAS) (Coates *et al.* 2007) is a widely used tool to measure food security at the household level. It measures the access component of food security, which focuses on how households acquire food, whether they have enough to eat, and the quality of the food they consume. The HFIAS typically includes a set of questions or statements that respondents answer, and their responses are used to categorise the household's food security status. Some common questions or statements in the HFIAS may include:

1. In the past month, did you or any household member go to bed hungry because there wasn't enough food?
2. In the past month, did you or any household member reduce the portion size of meals or skip meals due to a lack of food?
3. In the past month, did you or any household member eat food that you thought was of low quality or unsafe?

Based on the responses to these and similar questions, households are categorised into different food security levels such as “food secure,” “mildly food insecure,” “moderately food insecure,” or “severely food insecure.”

Data analysis

Responses were numerically coded and entered into a database created using a Microsoft Excel 2013 worksheet. Data was analysed using the SPSS Version 1.0.0.1406 statistical package. The Multinomial Logit Model (MLM) was used to analyse the socio-economic determinants of household food security among these farmers.

RESULTS AND DISCUSSION

Socio-economic factors of the respondents

Important socio-economic factors of the respondents were studied, and the findings are presented in Table 2. As per the findings of Table 2, the majority of respondents were male (74%), while females represented only 26%. Most participants were aged between 41–60 years (58%), indicating a predominantly middle-aged farming population. Regarding education, while 32% had primary education, 31% had no formal education, and only 10% had higher education. Family size was mainly between three to five members (68%), indicating medium-sized households. In terms of income, most respondents earned between LKR 50,001–75,000 from on-farm activities (62%), while 37% had total monthly incomes between LKR 25,000–50,000. These findings indicated that respondents generally had moderate income levels, limited education, and were largely engaged in farming by middle-aged people.

Table 1. Description of Variables Used in the Multinomial Logistic Regression Model.

Variable Code	Variable Description	Type	Measurement / Categories
FOSU	Food Security Status	Dependent	1 = Food Secure, 2 = Mildly Food Insecure, 3 = Moderately Food Insecure, 4 = Severely Food Insecure
AGE	Age of Household Head	Independent	Continuous (years)
GEND	Gender of Household Head	Independent	1 = Male, 0 = Female
LOED	Level of Education	Independent	1 = No formal, 2 = Primary, 3 = Secondary, 4 = Higher
FMSZ	Family Size	Independent	Continuous (number of members)
CLSZ	Cultivated Land Size	Independent	Continuous (acres)
ONFI	On-farm Monthly Income	Independent	Continuous (LKR)
FMHL	Family House Labour	Independent	Continuous (number of workers)
ATFF	Access to Financial Facility	Independent	1 = Yes, 0 = No
ATES	Access to Agricultural Training/Extension	Independent	1 = Yes, 0 = No
UOFZ	Use of Mineral Fertilizer	Independent	1 = Yes, 0 = No
LIOS	Livestock Ownership	Independent	1 = Yes, 0 = No
CS1–CS9	Food Insecurity Coping Strategies	Independent	Scale (1 = Never to 4 = Everyday)

Cultivation-related factors of the respondents

Cultivation-related factors for the food security of the farmers were studied, and the findings are presented in Table 3. The findings of Table 3 show that the most farmers cultivated between 1–2 acres (38%) of land, while only 2% had around 5 acres. The majority (83%) lacked agricultural education, and, when family labour is considered, 43% households had one person as family labour. Additionally, only 40% accessed financial facilities, and only 24% used mineral fertilisers.

Coping strategies of farmers for food insecurity

Table 4 illustrates the coping strategies adopted by farm households to manage food insecurity. According to the results of Table 4, the majority frequently relied on less preferred or

cheaper foods (41% occasionally, 37% often), indicating a tendency to compromise food quality. Borrowing food or seeking help from relatives was common, with 36% doing so occasionally and 35% often. Purchasing food on credit and gathering wild food were also prevalent strategies.

Some households consumed seed stock meant for the next season (33% often), potentially affecting future productivity. Limiting portion sizes and reducing daily meals were moderately practiced, while staying days without food were rare. Overall, the findings revealed that most households adopted short-term, consumption-based coping mechanisms rather than sustainable strategies, reflecting the severity and persistence of food insecurity challenges among these farming families.

Table 2. Socio-economic factors of the respondents (n=221).

Socio-economic factor	Frequency	Percentage (%)
Gender		
Male	164	74
Female	57	26
Age (years)		
< 31	15	07
31–40	27	12
41–50	64	29
51–60	64	29
61–70	31	14
> 70	20	09
Education		
No formal education	68	31
Primary education	71	32
Secondary education	60	27
Higher education	22	10
Family size		
< 3 members	44	20
3–5 Members	151	68
6–8 members	26	12
Monthly income (LKR)		
On-farm monthly income		
< 25000.00	28	13
25000–50,000.00	49	22
50,001–75000.00	137	62
75,001–100,000.00	07	03
Total monthly income (LKR)		
< 25000.00	11	05
25000–50,000.00	82	37
50,001–75000.00	75	34
75,001–100,000.00	51	23
> 100,000.00	02	01

Assessment of smallholder farmers' experience with food insecurity situations

A comprehensive assessment of food insecurity experiences among smallholder farmers in this area was conducted. Results are presented in Table 5. As per the results of Table 5, most respondents frequently worried about food shortages, with 45% often and 44% experiencing it daily. A majority (75%) were unable to eat preferred foods due to limited resources, while 61% consumed the same foods repeatedly. About 70% had to eat less preferred foods, and 43% regularly ate smaller meals. Nearly half (44%) have been eating fewer meals per day, and 27% experienced days with no food at home.

Furthermore, 35% frequently have gone to bed hungry, while 05% spent days without eating, reflecting the severe and persistent nature of food insecurity.

Food security status of the farmers

The food security status of the farmers was studied to get a clear understanding. Their findings are reported in Table 6.

The results presented in Table 6 reveal that the majority of farmers (44.6%) were severely food insecure, indicating that a large proportion of farming households frequently experienced difficulties in accessing sufficient and nutritious

Table 3. Cultivation-Related Factors of the Respondents (n=221).

Cultivation-related factor	Frequency	Percentage (%)
Cultivating land size (Ac)		
< 1	75	34
1–2	84	38
3–4	58	26
5	04	02
Getting agriculture education and training		
Yes	38	17
No	183	83
Family labour use		
1 Labour	95	43
2 Labour	55	25
3 Labour	51	23
4 Labour	18	08
5 Labour	02	01
Access to a financial facility		
Yes	88	40
Use of mineral fertilizer		
Yes	53	24
Availability of Livestock		
Yes	95	43
Access to Agric training & Extension service		
Yes	35	16

Table 4. Farm Household Coping Strategies to Manage Food Insecurity (n=221).

Coping strategy	Never (%)	Occasionally (%)	Often (%)	Every day (%)
1. Rely on less preferred and less expensive foods.	09	41	37	03
2. Borrow food, or rely on help from a friend or a relative.	17	36	35	12
3. Purchase food on credit.	19	37	34	10
4. Gather wild food, hunt, or harvest immature crops.	15	43	30	12
5. Consume seed stock held for next season.	14	41	33	12
6. Limit portion size at mealtimes	21	41	32	06
7. Ration the money you have and buy prepared food.	18	41	31	10
8. Reduce the number of meals consumed in a day.	15	42	31	11
9. Stayed entire days without eating	90	03	03	04

Table 5. Assessment of Smallholder Farmers' Experience with Food Insecurity situations (n=221).

Aspects of food insecurity	Never (%)	Occasionally (%)	Often (%)	Every day (%)
1. Did you worry that your household would not have enough food?	05	06	45	44
2. Were you or any household member not able to eat the kinds of food you preferred because of a lack of resources?	08	06	11	75
3. Did you or any household member eat just a few kinds of food day after day due to lack of resources?	18	07	14	61
4. Did you or any household member eat food that you preferred not to eat because of a lack of resources to obtain other types of food?	12	02	16	70
5. Did you or any household member eat a smaller meal than you felt you needed because there was not enough food?	14	09	39	43
6. Did you or any household member eat fewer meals in a day because there was not enough food?	16	04	36	44
7. Was there ever no food at all in your household because there were not enough resources to get more?	35	12	26	27
8. Did you or any household member go to sleep at night hungry because there was not enough food?	04	10	51	35
9. Did you or any household member go a whole day without eating anything because there was not enough food?	88	04	03	05

Table 6. Food security status of farmers (n=221).

Status	Frequency	Percentage (%)
Food Secure	03	1.4
Mildly Food Insecure	79	35.6
Moderately Food Insecure	41	18.5
Severely Food Insecure	99	44.6

food. About 35.6% of farmers were mildly food insecure, while 18.5% were moderately food insecure, suggesting varying levels of vulnerability to food shortages.

Only a very small fraction (1.4%) of farmers were food secure, highlighting the widespread prevalence of food insecurity among the surveyed households and emphasizing the need for targeted interventions to improve their

livelihood stability and access to food resources.

Food-related challenges faced by the farmers

Moreover, food-related challenges faced by these farmers were studied in detail. Findings are presented in Table 7. The findings of Table 7 show that nearly all respondents frequently faced food-related challenges, with 89% worrying about food shortages. A majority (75%) could not eat preferred foods, and 61% consumed the

Table 7. Food-related challenges faced by the farmers (n = 221).

Challenge	Frequency	Percentage (%)
Worried about food shortages	197	89
Unable to eat preferred foods	166	75
Consumed the same meals repeatedly due to limited resources	135	61
Ate foods they disliked	155	70
Ate smaller meals	95	43
Reduced meal frequency	97	44
Had days without any food at home	60	27
Often went to bed hungry	77	35
Spent an entire day without food	11	05

Table 8. Details of model fitness.

Model	–2 Log Likelihood	Chi-Square	df	Sig. (p-value)
Intercept Only	612.47	–	–	–
Final Model	465.82	146.65	42	0.000

Table 9. Goodness-of-Fit statistics.

Statistic	Value	df	Sig.
Pearson	496.27	489	0.376
Deviance	472.54	489	0.687
Pseudo R ² (Cox and Snell)	0.482		
Pseudo R ² (Nagelkerke)	0.537		
Pseudo R ² (McFadden)	0.316		

same meals repeatedly due to limited resources. Many (70%) ate foods they disliked, while 43% ate smaller meals and 44% reduced meal frequency. About 27% reported days without any food at home, and 35% often went to bed hungry. Also, 05% spent days without food. These findings highlighted widespread and severe food insecurity among these farmers.

Assessing the determinants of household food security using multinomial logistic regression

Tables 8 and 9, respectively, present the details of model fitness and goodness of fit statistics of the final model.

Model fitting results indicate that the full model was statistically significant ($p < 0.001$), suggesting that the independent variables reliably predicted food security status.

The pseudo R² values indicate that approximately 32–54% of the variation in food security status was explained by the model.

Parameter estimates for multinomial logistic regression analysis

The parameter estimates for the multinomial logistic regression model were carried out using the base category of severely food insecure. The results are presented in Table 10. The results of Table 10 revealed that gender, cultivated land size, on-farm income, and certain coping strategies significantly increased the likelihood of achieving higher food security compared to the severely food-insecure group. Male-headed households were 2.37 times more likely to be food secure, suggesting that gender-based access to resources and decision-making power influences food availability. Comparatively, the bigger landholdings and higher on-farm income substantially improved food security, with each additional acre and income increment increasing the likelihood by 157% and 119%, respectively. Coping strategies such as consuming less preferred foods, borrowing food or seeking assistance, and purchasing food on credit also contributed positively, reflecting adaptive

Table 10. Parameter Estimates for Multinomial Logistic Regression (Base Category: Severely Food Insecure).

Predictor Variable	Food Secure β	Wald	Sig.	Exp(β)
Intercept	-6.245	—	—	—
AGE	0.012	0.312	0.577	1.012
GEND	0.864	4.812	0.028	2.37
LOED	0.216	1.436	0.231	1.24
FMSZ	-0.153	2.273	0.132	0.86
CLSZ	0.945	10.376	0.001	2.57
ONFI	0.783	12.421	0.000	2.19
FMHL	0.095	0.847	0.357	1.10
ATFF	0.216	1.632	0.201	1.24
ATES	0.187	1.079	0.299	1.21
UOFZ	0.241	1.273	0.259	1.27
LIOS	0.173	1.152	0.283	1.19
CS1 (Less Preferred Food)	0.643	5.972	0.015	1.90
CS2 (Borrow Food/Help)	0.719	6.387	0.012	2.05
CS3 (Purchase on Credit)	0.681	5.822	0.016	1.98
Mildly Food Insecure				
Intercept	-4.613	—	—	—
AGE	0.018	0.514	0.473	1.018
GEND	0.652	3.947	0.047	1.92
LOED	0.189	1.078	0.299	1.21
FMSZ	-0.107	1.832	0.176	0.89
CLSZ	0.712	8.429	0.004	2.04
ONFI	0.561	9.358	0.002	1.75
FMHL	0.082	0.771	0.380	1.09
ATFF	0.147	1.218	0.270	1.16
ATES	0.112	0.894	0.344	1.12
UOFZ	0.198	1.094	0.296	1.22
LIOS	0.142	0.986	0.321	1.15
CS1 (Less Preferred Food)	0.532	4.581	0.032	1.70
CS2 (Borrow Food/Help)	0.594	5.043	0.025	1.81
CS3 (Purchase on Credit)	0.564	4.483	0.034	1.76
Moderately Food Insecure				
Intercept	-3.821	—	—	—
AGE	0.015	0.428	0.514	1.015
GEND	0.593	3.631	0.057	1.81
LOED	0.152	0.948	0.330	1.16
FMSZ	-0.092	1.716	0.190	0.91
CLSZ	0.648	6.185	0.013	1.91
ONFI	0.508	7.123	0.008	1.66
FMHL	0.064	0.684	0.408	1.07
ATFF	0.095	0.947	0.331	1.10
ATES	0.105	0.785	0.376	1.11
UOFZ	0.152	0.971	0.324	1.16
LIOS	0.125	0.911	0.340	1.13
CS1 (Less Preferred Food)	0.408	2.356	0.125	1.50
CS2 (Borrow Food/Help)	0.512	4.206	0.040	1.67

Predictor Variable	Food Secure β	Wald	Sig.	Exp(β)
CS3 (Purchase on Credit)	0.449	3.851	0.050	1.57

Note: Base outcome = Severely Food Insecure. A positive β and Exp(β) > 1 indicate a higher likelihood of being in a more food-secure category relative to the severely food-insecure group.

behaviours that reduce vulnerability during food shortages.

Other socio-economic factors, including family labour, access to financial facilities, agricultural training, fertiliser use, and livestock ownership, did not show significant effects. Overall, the findings highlight that both structural factors (land and income) and behavioural strategies are critical determinants of household food security, underscoring the importance of interventions that enhance resource access and promote effective coping mechanisms among smallholder farmers.

In a study by Thirumarpan (2014) on paddy farmers in *Batticaloa* district, Sri Lanka, the analysis of multinomial logistic regression reported that family size, education level of the household head, and total monthly income as significant factors influencing food security status. Similarly, Shah (2020) in Nepal found that wealth index, size of agricultural land, and access to financial services were crucial determinants of food insecurity. These studies underscore the importance of socio-economic factors in shaping food security outcomes.

Furthermore, coping strategies play a vital role in mitigating food insecurity. This study observed that strategies such as consuming less preferred foods, borrowing food, and purchasing food on credit were associated with improved food security levels. This finding is consistent with Thirumarpan's (2014) research, which reported similar coping behaviours among paddy farmers in Sri Lanka.

However, some studies have highlighted the limitations of coping strategies. For instance, Atube *et al.* (2021) in Uganda found that although coping strategies like planting drought-resistant crops and land fallowing were

commonly practiced, their effectiveness was often constrained by limited resources and access to information. This suggests that while coping strategies are essential, their success depends on the availability of supporting resources and knowledge (Woleba *et al.* 2023).

In a nutshell, the consistent findings across different studies emphasise the multifaceted nature of food security. Socio-economic factors, land resources, income levels, and coping strategies collectively influence food security outcomes. Addressing these determinants through targeted interventions can enhance food security among smallholder farmers. Future research should focus on exploring the interplay between these factors and developing integrated strategies to combat food insecurity effectively.

CONCLUSIONS

This study assessed the current situation of household food security among smallholder farmers in the *Walallawita* Divisional Secretariat Division, *Kalutara* District, Sri Lanka, using a combination of descriptive statistics and multinomial logistic regression. The descriptive analysis revealed that most households were male-headed, predominantly middle-aged, and had limited education, with a majority having primary or no formal education. Family sizes were generally medium, and on-farm incomes were modest.

Cultivation-related factors indicated that most farmers cultivated small landholdings, relied primarily on family labour, and had limited access to agricultural training and financial facilities. Livestock ownership and mineral fertiliser use were relatively low. Food insecurity experiences were widespread, with many households unable to access preferred foods or consuming monotonous diets regularly.

The multinomial logistic regression highlighted that gender, cultivated land size, on-farm income, and adaptive coping strategies such as consuming less preferred foods, borrowing food, and purchasing food on credit positively influenced the likelihood of achieving higher food security compared to severe food insecurity. Other factors such as age, education, family labour, and access to extension services were not significant. The findings imply that both structural factors and behavioural strategies

critically shape household food security. Policy interventions should focus on improving access to land, enhancing farm incomes, promoting adaptive coping strategies, and providing targeted agricultural training. Future research could explore longitudinal changes in food security, evaluate the effectiveness of specific coping strategies over time, and examine the role of community-based support systems in enhancing resilience among smallholder farmers.

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