

FOOD INSECURITY LEVELS AMONG PRISON OFFICERS IN MALAYSIA: DO SOCIO-ECONOMIC FACTORS MATTER?

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Abstract: *This study examines the prevalence and socio-demographic determinants of food insecurity among lower-ranking, low-income (B40) prison officers in Malaysia. Although civil servants are generally perceived to have stable employment, increasing living costs, dependence on imported food, and inflation continue to threaten household food security. A multi-stage random sampling technique was employed across Peninsular Malaysia, Sabah, and Sarawak. Data were collected through self-administered questionnaires from 420 prison officers who met the inclusion criteria of having a household income below RM5,249 per month and at least three years of service. Food security status was assessed using a six-item instrument adapted from the Malaysian Adult Nutrition Survey (MANS) 2014. Descriptive findings showed that most respondents were male (91.7%), aged between 20 and 30 years (63.3%), Malay (64.8%), and possessed STPM or Diploma qualifications (67.6%). More than half of the respondents (55.0%) earned between RM1,500 and RM2,000 monthly and served mainly as entry-level Prison Wardens (58.6%) with less than five years of service. The study revealed that 89.5% of households were at risk of food insecurity. Common coping strategies included reducing meal portions (54.8%) and purchasing inexpensive, low-nutrient foods for children (18.6%). Pearson correlation and multiple linear regression analyses demonstrated that age and length of service were significant negative predictors of food insecurity. Length of service ($\beta = -0.535, p = 0.001$) and age ($\beta = -0.412, p = 0.022$) were associated with greater financial resilience, whereas household size showed no significant effect. The findings suggest that policy interventions should prioritise younger and newly recruited officers through targeted food assistance, welfare support, and improved wage structures to reduce food insecurity among low-income prison officers in Malaysia.*

Keywords: *Civil Servants, Food Insecurity, Malaysia, Prison Officers, Socio-economic Factors*

Introduction

Food security refers to a state in which individuals or communities consistently have economic and physical access to sufficient, safe, and nutritious food to meet their dietary needs and lead healthy lives (Schmidhuber & Tubiello, 2007). Food security is built upon three primary pillars, and the stability of these pillars determines the strength of food security levels (Jereme et al., 2017). Disruptions to any of these pillars can lead to food insecurity. The Global Food Security Index (GFSI) aims to assess a country's vulnerability to food security. In 2022, Malaysia ranked 41st with an overall score of 69.9, up from 39th in 2021. This indicates that Malaysia's food security level is moderate (Ministry of Agriculture and Food Security, 2024). This underlines that food security is a critical issue requiring attention from the government, industry, and consumers. Food security not only involves the government but also directly impacts consumers, particularly the B40 group, in providing adequate food for their family members.

Although government servants generally have more stable employment than informal sector workers, many low-income civil servants in Malaysia still face food insecurity due to increasing living costs and limited financial resources (Selvaratnam et al., 2021). Several socio-economic factors contribute to this issue, including income level, cost of living, household size, education level, location, debt commitments, inflation, and access to support systems (Ahmad et al., 2020). Low wages and rising food prices, particularly in urban areas such as Kuala Lumpur and Johor Bahru, reduce purchasing power and limit access to nutritious food. In addition, large household sizes and financial obligations such as housing and vehicle loans further strain household budgets. Education and financial literacy also influence food management and purchasing decisions (Sari et al., 2021). Previous studies in Malaysia indicate that lower household income and larger family size are strongly associated with higher food insecurity, while access to government assistance and welfare programs can help improve food security among low-income civil servants (Hassan & Jia-Yi Kam, 2022). Overall, socio-economic factors significantly influence the ability of low-income government servants in Malaysia to obtain adequate and nutritious food for their households.

Food security is a critical concern within correctional institutions, as consistent access to safe, nutritious, and adequate food is essential for maintaining physical health, cognitive functioning, and overall institutional effectiveness (Tan et al., 2022). Although previous studies have extensively examined food insecurity among Malaysian households, particularly among vulnerable populations such as low-income families and working women (Sapry & Zulkifli, 2023), limited attention has been given to food security issues among prison officers. Inadequate access to nutritious food may adversely affect officers' health, well-being, and job performance, thereby influencing the operational efficiency of correctional facilities (Le et al., 2024). Drawing on the four established pillars of food security—availability, access, utilisation, and stability—this study seeks to address an important gap in the literature by exploring how institutional employment settings intersect with nutritional challenges among prison personnel (Azmi et al., 2023).

Furthermore, food insecurity is defined as limited or uncertain access to safe and nutritious food (Cook et al., 2004). Food insecurity can be measured at the national, state, or household level (Jones et al., 2013). However, it is difficult to measure directly, although many studies show that food insecurity is a risk factor for poor health and is associated with factors such as low income, ethnic minorities, the elderly, and social isolation (Agbadi et al., 2017; Coleman-Jensen et al., 2017). Several factors directly impact food security, such as climate change and food expenditures (Hassan & Jia-Yi Kam, 2022). Since Malaysia's food self-sufficiency level for

most staple foods is low, the nation relies heavily on imported food. As a food-importing country, Malaysia needs to spend a substantial amount of money to ensure an adequate food supply for its population (Hassan & Jia-Yi Kam, 2022). Consequently, local food prices have to be raised, which indirectly impacts the household expenditures of low-income consumer groups, including prison officers (Shamsul et al., 2012). In the post-COVID-19 situation, dietary intake requirements may be affected. Additionally, ensuring sufficient food is vital to keep prison officers in good health. Because food insecurity remains an issue in Malaysia, particularly among low-income households, including low-ranking prison officers, this study aims to identify the association between socio-demographic factors and food security levels among prison officers in Malaysia.

Literature Review

Socioeconomic Status and Food Security

Food security, defined as consistent physical and economic access to sufficient, safe, and nutritious food, is closely linked to socioeconomic status (SES). In Malaysia, rising living costs and inflation have increasingly challenged the economic well-being and food security of low- and middle-income households, particularly those within the B40 (Bottom 40%) and M40 (Middle 40%) income groups. Existing literature indicates that socioeconomic factors, including income, age, household size, and residential location, significantly influence food expenditure patterns and determine households' vulnerability to food insecurity. When household income fails to keep pace with increasing food costs, the risk of food insecurity rises substantially.

Recent evidence highlights the severity of this issue among public sector employees. Mohamad Yusop et al. (2025) reported that surveyed lower-ranking prison officer households were at risk of food insecurity. The study further revealed that 9.5% of households were unable to afford certain food items almost every month, while 29.8% experienced such difficulties occasionally. Additionally, 10.2% of respondents reported skipping main meals due to financial constraints, and 18.6% relied on cheaper and less nutritious food options to feed their children. These findings underscore the extent to which economic limitations affect household food security among lower-income civil servants.

The relationship between food security and socioeconomic conditions is further supported by the significant associations identified by Mohamad Yusop et al. (2025), which showed that households allocating lower absolute amounts of money to food expenditure were more vulnerable to nutritional inadequacies and food insecurity.

Socioeconomic Factors and Food Expenditure Patterns

Income and demographic characteristics are key determinants of household food expenditure. Applanaidu et al. (2022) found that B40 households in Malaysia allocated approximately 29% of their monthly income to food and non-alcoholic beverages. With an average monthly income of RM2,540.81, these households spent approximately RM563.13 on food, primarily purchasing essential items such as fresh fish, meat, vegetables, rice, and bread. The authors further identified household size, education level, ethnicity, marital status, age, and food prices as significant predictors of food expenditure patterns.

Similar expenditure constraints were observed among lower-ranking prison officers. Mohamad Yusop et al. (2025) reported that respondents earned an average monthly income of

RM2,566.97 and spent an average of RM300.61 per week on food. Food expenditures were largely concentrated on staple items such as chicken, meat, and grains, while 61.4% of respondents reported spending between RM100 and RM300 weekly on food. These findings suggest that limited financial resources restrict dietary diversity and increase susceptibility to food insecurity.

Inflation further exacerbates these challenges. According to Hamzah et al. (2025), the inflation rate in Johor Bahru (1.8%) exceeded the national average, with food prices increasing by 2.4%-2.6%. As public sector wages have remained relatively stagnant, rising grocery and utility costs have substantially reduced the purchasing power of civil servants. Consequently, many households face difficulties maintaining adequate food consumption while meeting other essential living expenses.

Coping Strategies and Policy Gaps

In response to food insecurity and inflationary pressures, households have adopted a range of coping strategies. Hamzah et al. (2025) observed that urban civil servants increasingly rely on home-cooked meals, substitute premium products with lower-cost alternatives, purchase food in bulk, and share resources within their communities to reduce household expenses. Similarly, many families depend on dual-income arrangements to offset rising living costs and sustain household consumption.

Despite these adaptive measures, significant policy gaps remain. Government initiatives such as the Jualan Rahmah program provide temporary relief through subsidised essential goods; however, beneficiaries often report challenges related to accessibility, long waiting times, and limited availability. Furthermore, M40 households frequently perceive themselves as excluded from welfare assistance because most government support programs primarily target the B40 population, despite growing financial pressures among middle-income groups.

Overall, the literature demonstrates that socioeconomic status is a fundamental determinant of food security. Fixed-income public sector workers and households within the B40 and M40 income categories remain particularly vulnerable to food insecurity due to persistent inflation, rising urban living costs, and stagnant wage growth (Hamzah et al., 2025; Mohamad Yusop et al., 2025). To address these challenges, scholars have advocated long-term structural interventions, including targeted food subsidies, food voucher schemes for low-income workers, stricter price controls on essential commodities, and community-based nutrition education programs aimed at improving dietary quality and diversity.

Methodology

Study Location

This study was conducted at selected prison locations in Malaysia through multi-stage random sampling. Peninsular Malaysia was divided into four (4) zones: north, south, east, and west. One state was selected from each zone as follows:

- i. Northern Zone – Perlis, Kedah, and Penang
- ii. Southern Zone – Johor, Negeri Sembilan, and Malacca
- iii. Eastern Zone – Kelantan, Terengganu, and Pahang
- iv. Western Zone – Perak and Selangor

Each selected state (Kedah, Malacca, Terengganu, and Selangor) was represented by one prison as the study location. For Sabah and Sarawak, both states were also included in the data collection. Simple random sampling was used to select prison locations in the selected states, such as Pokok Sena Prison (Kedah), Sungai Udang Prison (Malacca), Marang Prison (Terengganu), Sungai Buloh Prison (Selangor), Tawau Prison (Sabah), and Bintulu Prison (Sarawak).

Study Population and Sampling

The respondents were selected using purposive sampling, in which only those with incomes within the B40 category were eligible to participate in this study. Individuals working in the selected Prison Departments were chosen as respondents if they met the following inclusion criteria:

- i. Only low-ranking prison officers.
- ii. Served in the Malaysian Prison Department for 3 years or more (officers serving for 3 years or more are considered to have stabilised in terms of salary management and household expenditures).
- iii. Household income less than RM5,249 per month.

Individuals were excluded from becoming respondents if they did not meet the inclusion criteria. The total number of respondents was 420, more than 384 suggested by Krejcie and Morgan (1970). A total of 70 prison officers were selected from each participating prison to ensure balanced representation and enable meaningful comparisons across institutions. Equal allocation reduced the risk of over- or underrepresentation of any prison, thereby enhancing the comparability and reliability of the findings. The sample size was also considered sufficient to capture variations in food security and socioeconomic characteristics while remaining feasible within the study's resource and time constraints.

Research Instruments

The research instrument used was a questionnaire. The questionnaire was used in 100% of the previous validated study (IPH, 2014). The questionnaire consisted of three (3) sections:

- Section A: Background and socio-demographic information of the respondents, including age, gender, monthly income, education level, marital status, race, household size, length of service, and job rank.
- Section B: Food security was assessed using six items from the Malaysian Adult Nutrition Survey (MANS) 2014 (IPH, 2014). The items cover experiences of food shortage, inability to afford a variety of foods, reduction in portion size, skipping meals, relying on cheap food, and inability to provide a variety of foods for children. The evaluation of food security was based on the study by Ahmad et al. (2020). Scores were assigned based on frequency: 'almost every month' = 1, 'some months but not every month' = 2, 'only one or two months' = 3, and 'never' = 4. Total scores ranged between 6 and 24, with scores of 21 and above indicating no risk of food insecurity, and scores of 20 and below indicating a risk of food insecurity.

Data Collection and Ethical Approval

The researchers requested respondents to complete the questionnaire with the assistance of the researchers. Respondents were asked to provide consent via the attached consent form. Ethical approval for this study was obtained from Universiti Putra Malaysia under reference number JKEUPM-2025-255.

Data Analysis

Data were analysed using IBM SPSS Statistics software (version 29) to determine frequencies and means for variables such as age, income, household size, and total food expenditure. The Pearson correlation coefficient test was used to determine the relationship between socio-demographic factors and the respondents' food insecurity levels. Multiple linear regression was used to measure which socio-demographic factors were the main predictors of food insecurity among respondents.

Results

Socio-demographic Background of Respondents

The background of the respondents is shown in Table 1. In terms of age, the average age of the respondents was 28.92 years, with most respondents aged between 20–30 years (63.3%, n=266). Respondents aged 31–40 years represented 34.3% (n=144), while respondents aged 41–50 years and 51 and above represented 2.1% (n=9) and 0.2% (n=1), respectively. In terms of gender, male respondents dominated the study sample at 91.7% (n=385), while females represented 8.3% (n=35).

The education levels of respondents showed that STPM/Diploma was the highest education level for the majority of respondents (67.6%, n=284). This was followed by SPM/its equivalent representing 29.3% (n=123), while respondents holding a bachelor's degree and others represented 2.6% (n=11) and 0.5% (n=2), respectively. For the race of the respondents, Malay was the largest ethnic group (64.8%, n=272), followed by Sabah/Sarawak Bumiputera (29.3%, n=123). Chinese and Indian respondents represented 4.3% (n=18) and 1.7% (n=7), respectively.

Regarding marital status, it was found that single respondents represented 53.3% (n=224), while married respondents represented 46.7% (n=196). The household size of respondents showed that the average household size was 2.32 people. A household size of 1–2 people was the largest group (57.6%, n=242), followed by 3–4 people (29.5%, n=124) and 5–6 people (12.6%, n=53). Only 0.2% (n=1) of respondents had a household size of 7 people or more.

Table 1: Respondents' Background (N=420)

Variable	Frequency (n)	Percentage (%)
Age (years)		
20–30	266	63.3
31–40	144	34.3
41–50	9	2.1
51 and above	1	0.2
<i>Mean: 28.92 ± 6.46</i>		
Gender		
Male	385	91.7
Female	35	8.3
Education Level		
SPM / Equivalent	123	29.3
STPM / Diploma	284	67.6
Bachelor's Degree	11	2.6
Others	2	0.5
Race		
Malay	272	64.8

Chinese	18	4.3
Indian	7	1.7
Sabah/Sarawak Bumiputera	123	29.3
Marital Status		
Single	224	53.3
Married	196	46.7
Household Size (People)		
1 – 2	242	57.6
3 – 4	124	29.5
5 – 6	53	12.6
7 and above	1	0.2
<i>Mean: 2.32 ± 1.61</i>		

Table 2 reports on the working background of respondents. Most respondents were Prison Wardens (58.6%, n=246), followed by Prison Corporals (36.4%, n=153) and Prison Sergeants (5.0%, n=21). The most dominant job grade among respondents was Grade KA1 (55.5%, n=233), followed by Grade KA2 (39.5%, n=166) and Grade KA3 (5.0%, n=21). On average, the monthly income of respondents was RM2,566.97. The most populous monthly income range among respondents was RM1,500–2,000 (55.0%, n=231), followed by a monthly income of RM3,501 and above (39.8%, n=167). The average length of service for respondents was 7.27 years. A service period between 3–5 years was the most common (58.6%, n=246), followed by 16–20 years (18.3%, n=77) and 11–15 years (15.0%, n=63). Only 0.2% (n=1) of respondents had served for 21 years and above. Respondents were equally distributed across the six studied prison institutions, with each institution representing 16.7% (n=70).

Table 2: Respondents' Working Background (N=420)

Variable	Frequency (n)	Percentage (%)
Prison Warden	246	58.6
Prison Corporal	153	36.4
Prison Sergeant	21	5.0
Job Grade		
Grade KA1	233	55.5
Grade KA2	166	39.5
Grade KA3	21	5.0
Monthly Income (RM)		
1500 – 2000	231	55.0
2001 – 2500	8	1.9
2501 – 3000	7	1.7
3001 – 3500	7	1.7
3501 and above	167	39.8
<i>Mean: 2566.07 ± 2120.89</i>		
Length of Service (years)		
3 – 5	246	58.6
6 – 10	33	7.9
11 – 15	63	15.0
16 – 20	77	18.3
21 and above	1	0.2
<i>Mean: 7.27 ± 6.45</i>		
Working Institution		

Sungai Buloh Prison	70	16.7
Sungai Udang Prison	70	16.7
Marang Prison	70	16.7
Pokok Sena Prison	70	16.7
Bintulu Prison	70	16.7
Tawau Prison	70	16.7

Food Security of Respondents

In Table 3, findings show that 9.5% of households were unable to afford certain foods almost every month, and 29.8% experienced this occasionally. Furthermore, 3.8% reduced their meal portion sizes due to financial constraints, and 54.8% reported doing so during some months. A total of 10.2% skipped main meals, and 18.6% relied on cheaper food to feed their children, while 7.4% were unable to provide a variety of food for their children due to financial constraints. These results indicate that while some households-maintained food stability, the majority experienced periodic challenges in accessing food, likely stemming from economic constraints affecting dietary quality and overall household well-being.

Table 3: Food Security Statements of Respondents (N=420)

Statement	How often was the following statement true for you/your family?							
	1		2		3		4	
	n	%	n	%	n	%	n	%
The food that I bought was not enough and I didn't have money to buy more food.	2	0.5	225	53.6	188	44.8	5	1.2
I could not afford to eat a variety of foods that should be bought.	40	9.5	125	29.8	250	59.5	5	1.2
Over the past twelve (12) months, I and/or other adult family members REDUCED food portion sizes due to a lack of money to buy food.	16	3.8	230	54.8	139	33.1	35	8.3
Over the past twelve (12) months, I and/or other adult family members SKIPPED main meals due to a lack of money to buy food.	3	0.7	43	10.2	195	46.4	179	42.6
I only relied on a few types of cheap food to feed the children due to a lack of money.	3	0.7	78	6	124	29.5	215	51.2
I am unable to provide a variety of foods to the children due to a lack of money.	2	0.5	1	4	164	39.0	223	53.1

Note: 1: Almost every month, 2: Some months, but not every month, 3: Only one or two months, 4: Never

Table 4 shows the analysis of household food security levels, revealing that a large proportion of respondents faced challenges in maintaining consistent access to sufficient and quality food. The mean household food security score was 17.52 (min = 7.0, max = 24.0), indicating an overall level of vulnerability. A total of 89.5% (n = 376) of households were classified as at risk of food insecurity, while only 10.5% (n = 44) were not at risk, reflecting a restricted level of food access stability among most respondents.

Table 4: Food Insecurity Level of Respondents (N=420)

Food Security Level	Frequency (n)	Percentage (%)
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At risk of facing food insecurity (0 – 20)	376	89.5
No risk of food insecurity (21 and above)	44	10.5

Relationship Between Socio-demographic Factors and Food Expenditures with Respondents' Food Security Levels

Correlation analysis showed a significant negative relationship between food insecurity and all selected independent variables (Table 5). Age showed a strong negative correlation with the food insecurity score ($r = -0.629$, $p < 0.001$). This indicates that older respondents tend to report better food security conditions. This trend might mirror increased career stability, financial literacy, or accumulated household resources over time. A moderate negative relationship was found between household size and food security ($r = -0.343$, $p < 0.001$). Larger households appeared to experience slightly better food insecurity, though this moderate correlation suggests that other economic and social factors play a larger role. Length of service showed a strong negative correlation with the dependent variable ($r = -0.640$, $p < 0.001$). More years of service were related to better food insecurity outcomes, likely due to structured salary increments, promotion opportunities, and enhanced financial stability. Monthly income showed a moderate negative correlation with food insecurity scores ($r = -0.436$, $p < 0.001$). Although higher income was associated with better food security, this correlation was not as strong as expected. This indicates that an income increase alone may not suffice to protect households from food insecurity, particularly amid rising costs of living.

Table 5: Relationship between Socio-demographic Factors and Food Expenditures with Respondents' Food Insecurity Scores (N=420)

No.	Variable	1	2	3	4	5
1.	Age	—	0.683**	0.974**	0.853**	- 0.629**
2.	Household size	0.683**	—	0.652**	0.811**	- 0.343**
3.	Length of service	0.974**	0.652**	—	0.830**	- 0.640**
4.	Monthly income	0.853**	0.811**	0.830**	—	- 0.436**
5.	Food insecurity score	- 0.629**	- 0.343**	- 0.640**	- 0.436**	—

** $p < 0.001$

The multiple linear regression analysis in Table 6 reveals that age, length of service, and monthly income are statistically significant predictors of the current food insecurity score ($p < 0.05$). Among these, length of service had the strongest relative impact ($\beta = -0.535$, $p = 0.001$), followed closely by age ($\beta = -0.412$, $p = 0.022$). Both exhibit negative coefficients ($B = -0.229$ and $B = -0.176$, respectively), indicating that older individuals and those with longer work tenures experience significantly lower levels of food insecurity. Conversely, monthly income demonstrates a highly significant positive relationship with the score metric ($\beta = 0.374$, $p < 0.001$). Meanwhile, traditional demographic factors such as household size ($p = 0.948$) failed to reach statistical significance, showing no unique contribution to the food insecurity variance when controlling for the other variables in the model. Based on these findings, institutional interventions and welfare programs aimed at mitigating food insecurity should shift their strategic focus away from broad demographic metrics like family size or educational attainment. Instead, resources and support systems should be tightly targeted toward younger demographics and newly recruited employees with fewer years of service, as these subgroups exhibit the highest socioeconomic vulnerability. By prioritising these newer, younger cohorts and addressing their baseline financial intake, policymakers can implement more efficient, high-impact strategies to improve overall household food security within the target population.

Table 6: Multiple Linear Regression Analysis of Socio-Demographic Factors Associated with Food Insecurity among Prison Officers (N=420)

Variable	B	SE	β	t	p
Age	-0.176	0.077	-0.412	-2.298	0.022*
Household size	-0.007	0.111	-0.004	-0.065	0.948
Length of service	-0.229	0.070	-0.535	-3.260	0.001**
Monthly income	< .001	< .001	0.374	4.247	< 0.001**

* $p < 0.05$; ** $p < 0.01$

Discussion

Based on the results of the study, most respondents have a monthly income below the national average (Hassan et al., 2018). More specifically, 55% of respondents receive between RM1,500 to RM2,000 per month, indicating most of them are in the middle-income cluster (Salleh et al., 2020). However, there are also respondents earning between RM2,001 to RM3,000, showing a varied income background within this group. The majority of respondents are classified under the low-to-middle income category, aligning with their employment status as lower-ranking prison staff. Past studies have reported a similar pattern; most respondents earn less than RM2,500 per month, reflecting the challenges faced by the low-income group (Pitol & Shakirah, 2022).

Details about income are critical to understanding the financial capacity of respondents, especially when analysing connections to food expenditure and food security. Limited income potentially restricts their access to nutritious food (Suryawati et al., 2017; Izdihar et al., 2023). For comparison, fishermen in Medan have a higher average monthly income of around RM3,757, enabling them to spend more on food (Apriani et al., 2021). Income distribution is highly relevant for evaluating a household's capacity to achieve food security, particularly when compared to the average household income in Malaysia, which is typically higher (Ahmad et al., 2020). Furthermore, another study found that more than half of the respondents fall into the B40 group with a monthly income of less than RM3,840, alongside an average monthly household expenditure of around RM2,362.97 (Magli et al., 2021). This comparison clearly shows that a large portion of this study's respondents face financial constraints, which can subsequently impact spending and access to nutritious food (Law et al., 2018; Ghofar et al., 2024).

In terms of income, past studies report that households with incomes below RM2,499 are categorised as poor, which aligns with the majority of respondents in this study (Ibrahim, 2023). This shows that income plays a major role in influencing expenditure patterns and food choices. Usually, low income is related to prioritising cheaper staple foods, which indirectly increases the risk of nutrient deficiencies due to limited balanced food choices (Hisham & Yahaya, 2020; Mat et al., 2020). A more detailed analysis found that low-income individuals often prioritise food quantity over nutritional quality due to financial constraints, which can lead to long-term health problems if sustained. This situation is consistent with a study among low-income households in Kuala Lumpur, where rising goods prices directly affected their capacity to obtain nutritious food (Hisham & Yahaya, 2020).

Such conditions emphasise the importance of policy interventions to increase income or provide food subsidies to the low-income group so that their food security is better safeguarded (Rose & Mutsamy, 2020; Hisham & Yahaya, 2020). Overall, family income is the main factor

determining the type and quality of accessible food. Low-income households usually spend a major portion of their income on basic food items (Rahayu & Sagita, 2019; Taufik et al., 2021), whereas high-income households possess the financial flexibility to choose more varied and nutritious food (Melani & Kuswari, 2019; Cahyani et al., 2019). Other findings also show that households with incomes below the minimum wage rate are more at risk of food vulnerability compared to those with higher incomes, due to a limited capacity to buy varied foods (Adhyanti et al., 2022). The quality and quantity of food obtained by families are highly influenced by income, as the percentage of income allocated to nutritious foods like fruits and vegetables directly affects the overall household nutritional level (Fernando et al., 2023).

Food insecurity among respondents was found to be tightly linked to their financial capability to purchase nutritious food, where low-income families often face nutritional deficiency issues due to expenditure patterns that lean more toward junk food groups (Yuniar et al., 2020; Hartono et al., 2017). An in-depth study shows that low household income significantly correlates with less varied and limited food consumption patterns, especially in terms of intake of protein, vitamins, and essential minerals, thereby increasing the risk of malnutrition (Ayuningtyas & Formen, 2025). This condition also aligns with findings that limited food supply increases the risk of nutritional deficiency issues among young children (Azrimaidaliza et al., 2022).

Past studies also reveal that a lack of money and income brings adverse impacts on children because parents are unable to provide healthy meals, resulting in nutritional deficiencies and growth problems (Hisham & Yahaya, 2020). The correlation between volatile income and lack of access to food was also proven during the COVID-19 pandemic, where many families lost jobs, and their food purchasing power deteriorated (Saraswati et al., 2021). Household food security, which refers to a household's ability to access sufficient and nutritious food, is directly influenced by income levels because low income usually limits quality and quantity choices of food (Utami & Sisca, 2015; Prasetyaningtyas & Nindya, 2018). This situation deteriorated further when major income shocks occurred, such as those experienced by more than two-thirds of households in Kenya and Uganda during the pandemic, which worsened their food resilience (Adhyanti et al., 2022).

This study aligns with past research reporting a positive relationship between per capita income and food security, where higher income increases a household's chance of achieving food security levels (Sutriningsih & Lasri, 2017). This is supported by Keynes' theory of consumption, which states that an income increase potentially increases expenditure, including food expenditure (Arlus et al., 2017). In other words, an income increase can improve dietary diversity, which is essential for a balanced diet and reducing malnutrition risks. Conversely, low income can lead to household food vulnerability and nutritional problems, simultaneously increasing the risk of malnutrition and poor nutritional status (Pangaribuan et al., 2022; Sutyawan et al., 2019).

To comprehensively understand food security dynamics, it is crucial to examine how respondents' socio-demographic characteristics such as age, gender, education level, and marital status interact with their food expenditure patterns (Sadevi et al., 2020; Utama et al., 2023). The age factor, for instance, plays an important role because older individuals usually possess more stable financial resources, which helps improve their food security levels (Swangsilp et al., 2025). Additionally, other factors like household size, age of the household head, and the nutritional knowledge level of the household head also influence food

consumption patterns and a household's food resilience (Fatimah & Siregar, 2020). Prior studies show a significant positive relationship between food diversity and household food security levels, indicating that regular nutritional education efforts for household heads can increase food diversity (Dewanti, 2020).

Household size is also an important factor influencing food vulnerability and security. Larger households are frequently linked with a higher risk of food insecurity, especially when there are many economically inactive members (Pujilestari & Haryanto, 2020). The demographic composition of the household, including the ratio between productive and non-productive members, also directly impacts resource management and a household's capability to fulfill food needs for each member. From an economic perspective, sufficient monthly income helps households increase savings and investments, thereby stabilizing food security in the long run (Selvaratnam, 2021). However, moderate income might limit access to adequate resources to ensure food security, especially for large households (Pujilestari & Haryanto, 2020). The length of respondents' employment service is closely tied to income levels that influence their capacity to provide food for the family (Sutriningsih & Lasri, 2017).

Increasing experience and knowledge along with age can improve a household head's efficiency in managing resources and assets better, thereby increasing food resilience (Sundari & Nachrowi, 2015). This study also reports that household income has a significant positive effect on food insecurity, as per capita income, acting as a proxy for per capita expenditure, directly affects family purchasing power (Sundari & Nachrowi, 2015). Higher-income households generally possess better purchasing power, enabling them to access better and more varied food (Herdiana et al., 2014). This finding illustrates that households spending a large portion of their income on food are more likely to face food insecurity risks (Sutyawan et al., 2019). Conversely, high-income households enjoy more budget flexibility, allowing them to diversify food and invest in better nutritional quality (Pujilestari & Haryanto, 2020).

Conclusion

In conclusion, this study revealed a concerning prevalence of food insecurity among lower-ranking prison officers in Malaysia, despite their status as government employees. The findings demonstrated that a substantial proportion of respondents reported experiencing periodic difficulties in accessing sufficient and nutritious food, including reducing meal portions, skipping meals, and limiting dietary variety due to financial constraints. Alarming, 89.5% of respondents were classified as being at risk of food insecurity, indicating that economic vulnerability remains a significant issue within this occupational group. Correlation and regression analyses further confirmed that age, length of service, and monthly income were significant determinants of food insecurity, with younger officers, newly recruited personnel, and lower-income households exhibiting higher levels of vulnerability. In particular, length of service emerged as the strongest predictor, suggesting that career stability and financial progression play an essential role in improving household food security. These findings highlight the urgent need for targeted policy interventions, including financial assistance, food subsidy programmes, nutrition education, and welfare support specifically tailored for younger and lower-ranking prison officers. Overall, this study contributes valuable empirical evidence on the socioeconomic and food security challenges faced by prison officers in Malaysia and underscores the importance of strengthening institutional support systems to enhance household well-being and long-term food security.

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