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URBAN FOOD INSECURITY IN MALAYSIA: A QUALITATIVE PILOT STUDY OF HOUSEHOLD COPING STRATEGIES AND PERCEIVED NUTRITIONAL TRADE-OFFS

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Abstract:

Food insecurity is a growing challenge in Malaysia, forcing B40 households to constantly choose between their limited financial resources and daily food needs. In addition to assessing and refining the cultural suitability of the interview guide, this pilot study explored the coping strategies used by urban households to navigate food insecurity and perceived dietary trade-offs. In-depth semi-structured interviews were conducted with two male household heads from contrasting urban contexts, namely Kuching, Sarawak, and Shah Alam, Selangor. The data were analysed using thematic analysis, resulting in three main themes and distinct coping behaviours. One household relied on internalised coping, such as rationing and emotional suppression. In contrast, the other household adopted externally adaptive strategies, such as discount shopping and leveraging food assistance. In both cases, participants experienced a similar nutritional compromise, particularly in reduced meal quality and dietary variety. While these adjustments helped households stretch limited resources, they also raised concerns about hunger, perceived nutritional adequacy, and dietary variety. In addition to generating preliminary insights, the pilot study identified

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areas for refining the interview guide, particularly in relation to emotional burden, transport-related access, and perceived dietary trade-offs. Overall, this study offers preliminary policy insights by suggesting that food security interventions should consider household coping practices and emotional strain alongside affordability. Still, these suggestions need validation through larger-scale research.

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Keywords:

Coping Strategies, Dietary Trade-Offs, Nutritional Resilience, Qualitative Pilot Study, Urban Households

Introduction

Food insecurity is an increasing concern in Malaysia, particularly among low-income urban households. According to the World Bank (2025), Malaysia's urban population accounted for 79.2% of the total population in 2024. A study by Ng *et al.* (2018) from Khazanah Research Institute highlighted that living in urban areas is more challenging for low-income households, as access to food is constrained by income limitations, rising living costs, and competing household expenses. While urban areas generally provide wider physical access to food outlets, food availability does not necessarily translate into secure or nutritious food consumption when households have limited purchasing power. A study by Poh *et al*. (2023) revealed that children in Malaysia's low-income urban households faced poor growth and development due to nutrient-poor diets.

Previous studies in Malaysia have provided important evidence on the prevalence and determinants of food insecurity and their implications for health consequences (Poh *et al.*, 2023). However, much of this work often used quantitative measures to assess food insecurity (Ibrahim & Othman, 2020; Ahmad *et al*., 2022). This leaves everyday decision-making processes, emotional coping, and trade-offs unclear and often missing the deeper context of household experiences, especially when resources are limited.

Therefore, this pilot study provides qualitative insights to address gaps and will be directed toward achieving two primary aims. The first objective is to gain preliminary insights into the lived experiences of food insecurity among low-income urban households in Malaysia, specifically by examining the household coping strategies, perceived dietary trade-offs, and emotional responses to food scarcity. The next objective of this pilot study is to assess and refine the cultural suitability of a semi-structured interview guide for future larger-scale qualitative research.

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Literature Review

Food Insecurity in Malaysia

Recent studies across many parts of the world indicate that economic disruptions following the COVID-19 pandemic further worsen food insecurity among vulnerable households (Amrullah *et al.*, 2023; Bautista-Arredondo *et al.*, 2024), particularly those living in urban areas. A similar situation was observed in Malaysia, where studies by Ibrahim and Othman (2020) and Ahmad *et al.* (2020, 2022) highlighted the connection between financial constraints and food purchasing power among low-income households. As a result, low-income households often struggle to maintain a balanced diet, leading to reduced dietary diversity and reliance on cheaper foods (Sulaiman *et al.*, 2021; Ahmad *et al.*, 2022).

Food insecurity is linked to both poor physical health outcomes and psychological well-being. Low-income households tend to prioritise inexpensive foods that provide satiety. Poor intake of nutritious foods may increase the risk of poor diet quality and nutrition-related health conditions, including obesity, diabetes, and other associated health problems (Ahmad *et al.*, 2020; Sulaiman *et al.*, 2021). Studies also highlighted the existence of double burden of malnutrition (DBM), that is, the coexistence of undernutrition and overweight conditions among vulnerable populations (Littlejohn and Finlay, 2021). Hence, DBM reflects complex dietary adjustments associated with economic constraints. Apart from DBM, a study by Poh *et al.* (2023) later highlighted a triple burden of malnutrition among children in Malaysia, signalling the need for immediate, strategic action by the government to address food insecurity among the vulnerable group.

Food insecurity is associated with physical health implications, and it can also affect emotional and psychological well-being, especially among household heads. The uncertainty of not knowing whether food is sufficient and available can generate stress, anxiety, and feelings of insecurity among household members (Pourmotabbed *et al.*, 2020; Khosravi *et al.*, 2023). Likewise, studies conducted across various settings have reported that the struggle to balance household expenses with ensuring that family members receive adequate meals results in emotional strain among caregivers (Wolfson *et al.*, 2021; Khosravi *et al.*, 2023).

In line with this, the relationship between food insecurity and health outcomes has received increasing scholarly attention, though existing research often treats households as passive recipients of food insecurity. Despite this, less attention has been given to investigating how households actively respond to food scarcity and the strategies they employ to manage limited resources among households of different demographic profiles. This is particularly true within urban environments, where economic pressures are often more pronounced.

Food Insecurity in Urban Areas

A study by Ahmad *et al.* (2022) revealed that food insecurity is worsening among urban low-income communities, especially those living in densely populated housing areas and public housing schemes in major cities in Malaysia. This is due to the fact that the cost of living in urban areas is higher, and food is primarily purchased from markets (Greatwood *et al.*, 2025). A busy lifestyle, as well as limited space for self-production, makes urban households rely heavily on purchased food, especially convenience and ready-to-eat foods. Subsequently, a heavy reliance on market-based food systems makes urban families vulnerable to fluctuations

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in food prices and income instability, which can lead to food insecurity (Ruel *et al.*, 2017). Competing financial demands such as housing, transportation, utilities, and education expenses reduce households' income available for food purchases (Anacker, 2019; Seo & Park, 2021; Hui & Shariff, 2024). Similarly, the widespread availability of inexpensive processed foods and convenience meals in urban settings may encourage consumption patterns that prioritise affordability over nutritional quality (Sulaiman *et al.*, 2010; Ahmad *et al.*, 2022; Norhisham & Kam, 2022). As such, food insecurity in urban areas is a matter of food quantity and is closely related to diet quality and perceived nutritional adequacy. Despite this, studies investigating how households make decisions, prioritise resources, and cope with changes in the food landscape remain underexplored.

Households' Coping Strategies and Food Trade-Offs

Food- and non-food coping strategies have been adopted and reported by households experiencing food insecurity. Among commonly practised strategies for managing limited resources is food adjustment, such as reducing portion sizes, skipping meals, purchasing cheaper alternatives, or limiting dietary diversity (Sulaiman *et al.*, 2021; Ahmad *et al.*, 2022; Norhisham & Kam, 2022). In line with this, households also may engage in non-food coping strategies to address financial constraints, such as borrowing money from relatives, purchasing food on credit, seeking assistance from social networks, or reducing non-essential household expenditures (Ahmad *et al.*, 2022; Zakaria *et al.*, 2023; Abdullah *et al.*, 2024). Nonetheless, such strategies may provide temporary relief and may lead to longer-term financial strain. This situation worsens if households become increasingly dependent on external support.

Past studies highlighted the use of quantitative approaches to determine coping behaviours (Abdullah *et al.*, 2024; Ibrahim & Othman, 2020; Ahmad *et al.*, 2022). While these approaches provide useful information regarding the types of coping strategies used, they often overlook the deeper context surrounding household experiences. This includes the emotions, decision-making processes, and social dynamics that shape these responses. To address this gap, a qualitative study is proposed, with this pilot study expected to provide preliminary insights into the coping strategies used by low-income urban households in Malaysia when facing food insecurity.

Emotional Burden and Caregiver Responsibility

Food insecurity does not involve only food scarcity and limited income. It is also linked to emotional experiences. Past studies have highlighted how food scarcity is strongly linked to mental health challenges, including stress, anxiety, depression, and emotional strain (Hamelin *et al.*, 1999; Polsky & Gilmour, 2020). As highlighted by Sulaiman *et al.* (2010) and Polsky and Gilmour (2020), household heads, especially those from low-income families, who cannot provide sufficient food for their family members, may feel guilty and embarrassed. While the emotional burden becomes increasingly intense in urban households where food is physically available, it is also financially inaccessible due to rising living costs, competing expenses, and reliance on purchased food (Ng *et al.*, 2018).

Within a household, caregivers often play a central role in ensuring that food is distributed adequately among family members. However, when food resources are limited, parents or the household heads may reduce their own intake, delay meals, or sacrifice preferred foods to prioritise children and other dependents (Abdullah *et al.*, 2024). This form of intra-household

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food prioritisation demonstrates that coping strategies are intricately linked to emotional decision-making and self-denial, and are not limited to budgeting or food substitution (Liebe *et al.*, 2024). In many households, women or mothers are more likely to eat less or last. This is due to mothers' self-denial, in which they prioritise their children's and other family members' nutritional needs (Abdullah *et al.*, 2024; Lentz *et al.*, 2019). Intra-household food prioritisation has been linked to cultural norms and preferences (Ham, 2020; Lentz *et al.*, 2019), as well as to a child-centric approach, especially in low-income families, where children are often prioritised in food allocation (Main, 2018).

Past studies have linked food insecurity with psychological distress, which can influence eating behaviour and food choices. Still, less attention has been given to how B40 households emotionally interpret scarcity, manage guilt, and negotiate dignity when food is limited and assistance is needed. Hence, this gap is relevant to the present study as it examines how households cope as a practical response to food shortages, and as an emotionally charged process involving responsibility, sacrifice, and perceived adequacy.

Nutritional Resilience and Perceived Diet Quality

Nutritional resilience refers to the ability to withstand, adapt to, and recover from shocks and stresses such as economic pressure, natural disasters, unstable food access, or competing household needs, while maintaining adequate nutritional status (Alesso-Bendisch, 2020).

Nonetheless, in this study, nutritional resilience is treated as a perceived and behavioural concept rather than a measured nutritional outcome. In this context, nutrition resilience may involve practical adjustments such as stretching meals, choosing cheaper ingredients, purchasing discounted foods, reducing portion sizes, or prioritising satiety over variety (Sulaiman *et al.*, 2010; Ahmad *et al.*, 2022; Norhisham & Kam, 2022). These practices may help households maintain food availability and prevent hunger, although the food does not always mean achieving an ideal or nutritionally balanced diet. For low-income urban households, these strategies may help prevent short-term hunger. In contrast, according to Romo-Aviles and Ortiz-Hernández (2018) and Haile *et al.* (2022), they tend to reduce dietary diversity and increase dependence on repetitive, low-cost, energy-dense foods.

Similarly, when households dilute meals, substitute protein sources, or rely on promotional purchases, they may view these actions as necessary strategies to keep the household fed. Conversely, as stated by Luo *et al.* (2022) and Lindberg *et al.* (2022), such strategies may also reflect dietary trade-offs in which fullness is prioritised over nutritional balance, potentially resulting in poor health outcomes. In this sense, the present study contributes by indicating how households attempt to remain food-resilient while still facing perceived compromises in meal quality, variety, and perceived nutritional adequacy.

Conceptual Framework and Research Gap

This study is guided by the understanding that food insecurity involves more than the physical presence of food. It is known that food security frameworks comprise four dimensions, namely availability, access, utilisation, and stability (Food and Agriculture Organization of the United Nations [FAO], 1996), while coping strategies explain how households respond when these dimensions are threatened (Abdullah *et al.*, 2024; Sulaiman *et al.*, 2021). In the context of urban B40 households, food may be available in markets, supermarkets, or other food outlets,

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yet remain inaccessible due to limited income, transport costs, debt, school expenses, rent, and other household obligations (Ng *et al.*, 2018). Therefore, the present study positions coping strategies as a pathway between food insecurity pressures and household outcomes, including perceived diet quality, emotional strain, and nutritional resilience.

Although the existing literature in Malaysia has provided important evidence on the prevalence, determinants, and health-related consequences of food insecurity, many studies rely on quantitative indicators and validated food insecurity instruments. This may not fully capture everyday household decision-making, emotional burden, intra-household food allocation, and the meaning households attach to dietary compromise (Abdullah *et al.*, 2024; Ibrahim & Othman, 2020; Ahmad *et al.*, 2022). This creates a research gap in qualitative inquiry, especially among urban low-income households, whose experiences may differ by location, family size, social support, and access to affordable food outlets. The present pilot study addresses this gap by exploring how selected B40 households interpret food scarcity, manage coping strategies, and describe perceived nutritional trade-offs. It also contributes methodologically by testing and refining a semi-structured interview guide for future larger-scale qualitative research.

Methodology

Research Design

A qualitative design, utilising a semi-structured interview, was employed in investigating the lived experiences of food insecurity among low-income households in Malaysia. Through a qualitative study, researchers can gain a deeper understanding of the issues of interest, extending beyond the scope of quantitative indicators (Creswell & Poth, 2018). This approach is considered appropriate, as household responses to food insecurity are complex and cannot be captured by income or expenditure data alone (Maxwell & Smith, 1992). Rather than aiming for statistical generalisation, this pilot study was conducted to generate preliminary insights and assess the suitability of the interview guide for a larger qualitative study.

This pilot study intended to achieve two objectives: 1) To explore how selected urban households experience food scarcity, manage food-related decisions, and respond emotionally to constrained food resources; and 2) To assess the suitability of the semi-structured interview guide, which should be culturally appropriate, understandable, and capable of eliciting meaningful responses from participants. Correspondingly, the findings of this study are interpreted as exploratory and methodological rather than conclusive.

Participants and Sampling

In this study, purposive sampling was used to select participants who could only provide relevant and detailed information about household food management under financial constraints. As summarised in Table 1, two male household heads from Kuching, Sarawak, and Shah Alam, Selangor, participated in this pilot study. These participants were selected since they were involved in household food-related decision-making and could describe household income, expenditure priorities, food purchasing practices, and coping strategies.

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In addition, these two locations were purposively selected to reflect contrasting urban contexts. Kuching, located in East Malaysia, represented a semi-urban environment with transport-related access barriers. Meanwhile, Shah Alam, the state capital of Selangor in Peninsular Malaysia, represented a fully urbanised, high-cost setting with greater market access, though under greater economic pressure. This contrast enabled the pilot to assess whether the interview guide could capture diverse coping patterns shaped by various urban settings and conditions.

It is also important to acknowledge that the sample size of this study was small. Nonetheless, the number is considered appropriate for a pilot qualitative study, as the purpose was not to achieve saturation or to represent all B40 households. Instead, the aim was to assess the clarity, cultural relevance, and analytical usefulness of the interview guide before conducting a larger study. Hence, the limited sample is acknowledged as a methodological limitation, particularly since both participants were male household heads. Future research should include mothers, food preparers, elderly household members, and other caregivers to obtain a broader understanding of intra-household food experiences.

Participant Profile

The profile of the participants is presented in Table 1. Both participants were 35 years old and were household heads responsible for managing or contributing to food-related decisions. Their monthly household incomes were RM4,000 and RM4,200, respectively. According to the Department of Statistics Malaysia (DOSM, 2023), households earning less than RM5,250 fall into the B40 category. Thus, both households could be treated as lower-income urban households for this pilot study.

Table 1: Participant Profile Summary (N = 2)

Household	Age	Gender	Family Size	Monthly Household Income (RM)	Location
P1	35	Male	3	4,000	Kuching, Sarawak
P2	35	Male	5	4,200	Shah Alam, Selangor

Development of the Interview Guide

The semi-structured interview guide was developed based on past studies on food security, household coping, and urban food practices (Armanda *et al.*, 2019; Goldstein & Reiboldt, 2004; Gyasi *et al.*, 2021; Kolopaking *et al.*, 2011). Particular attention was given to food availability, food access, household coping strategies, and perceived dietary trade-offs. Although the initial guide was informed by the food availability dimension, the pilot interviews revealed that participants naturally connected food availability with affordability, transport, food purchasing decisions, family support, emotional strain, and perceived meal quality. This finding indicated that future versions of the guide should adopt a broader framing of urban food insecurity.

The interview guide included open-ended questions on household food purchasing, meal planning, food sufficiency, coping strategies during food shortages, family support, and emotional responses to food-related financial pressure. At the same time, probing questions were used to encourage participants to describe specific experiences, such as what they did

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when food ran low, how they prioritised household members, and whether they changed the type, quantity, or quality of meals.

Data Collection

Data were collected through in-depth semi-structured interviews conducted between November and December 2024. The interviews were conducted in Bahasa Melayu to allow participants to express their experiences comfortably and naturally. Each interview lasted approximately 80 to 90 minutes and was conducted at the participant's home. According to Bjørvik *et al.* (2023), interviews conducted in familiar environments may help participants express themselves more freely, as they are surrounded by objects and settings that trigger memories and insights relevant to the research topic. In this study, the home environment enabled participants to discuss household food practices in a comfortable, familiar setting.

Prior to each interview, participants were informed of the study's purpose, the voluntary nature of participation, and their right to decline any question or withdraw from the interview at any time. Permission was also obtained to audio-record the interviews. The recordings were later transcribed verbatim and translated into English for analysis and reporting. During translation, attention was given to preserving the meaning, tone, and context of participants' original responses.

Given the sensitivity of food insecurity as a research topic, interviews were conducted in a respectful and non-judgemental manner. Participants were not pressured to disclose information that made them uncomfortable. Questions about emotional strain, the inability to provide food, and family sacrifice were carefully asked to minimise distress.

Data Analysis

The interview data were analysed using thematic analysis following the six phases proposed by Braun and Clarke (2006), which are: 1) familiarisation with the data, 2) generation of initial codes, 3) searching for themes, 4) reviewing themes, 5) defining and naming themes, and 6) producing the report. The transcripts were later imported into ATLAS.ti version 25.0.1 to support data organisation, coding, memo writing, and theme development.

The analysis used both deductive and inductive coding. Deductive codes were informed by food security and coping strategy literature, including concepts such as food availability, food access, food-related coping, non-food coping, and household trade-offs. Meanwhile, inductive codes were generated from participants' own narratives, including transport burden, promotion-based shopping, meal dilution, guilt, emotional suppression, and family assistance. Coding began with repeated reading of the transcripts to identify meaningful segments of text. These segments were then assigned initial codes. Related codes were grouped into broader categories, which were later refined into themes. For example, codes such as "petrol cost," "weekly shopping," and "distance to market" were grouped under the locational constraint category, which contributed to the theme of economic and locational constraints. Similarly, codes such as "adding water to curry," "less meat," and "repetitive meals" were grouped under food adjustment practices. Table 2 summarises the interview outcomes, documenting the movement from raw data to codes, categories, and themes.

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Table 2: Participant Excerpt, Coding, Categorisation, and Theme Development Process

Participant Excerpt	Initial Code	Category	Theme
"If we go to the market too often, petrol also becomes a problem."	Petrol cost, limited shopping trips	Locational access barrier	Economic and locational constraints
"If chicken is on sale, we buy more and freeze it."	Promotion shopping, bulk purchase	Planned food purchasing	Shopping and consumption adjustments
"I add more water or put more vegetables and less meat."	Meal dilution, reduced protein	Food-related coping	Shopping and consumption adjustments
"Sometimes I feel guilty."	Guilt, caregiver stress	Emotional burden	Social support and emotional coping
"My sister will send rice or oil."	Family support, informal assistance	Social support network	Social support and emotional coping

Reflexivity and Positionality

Reflexivity was maintained throughout the study to ensure that the researcher's background, assumptions, and familiarity with food security issues did not influence data collection and interpretation. The researcher's prior knowledge of food insecurity in Malaysia helped build rapport with participants and supported contextual understanding. On the other hand, as Holmes (2020) stated, it also created the possibility of interpreting participants' experiences through existing assumptions. Therefore, to reduce this risk, a reflexive journal was used to record observations, assumptions, emotional reactions, and early interpretations after each interview. This allowed the researcher to distinguish between participants' narratives and the researcher's own expectations. Neutral and open-ended questioning was also used to allow participants to explain their experiences in their own terms.

Trustworthiness

Several strategies were used to enhance the trustworthiness of the study. Credibility was supported through in-depth interviews, open-ended questioning, and the use of participant quotations to ground the findings in the data. Peer debriefing was also used to review coding and theme development, allowing alternative interpretations to be considered.

Dependability was strengthened through an audit trail that documented interview procedures, transcription, translation, coding decisions, and theme development. Confirmability was supported through reflexive journaling and transparent analytic records in ATLAS.ti, which helped the researcher distinguish between participants' narrative and the researcher's own assumptions. Transferability was addressed by providing contextual descriptions of the participants, household characteristics, and urban locations, allowing readers to assess whether the findings may be relevant to similar low-income urban households (Lincoln & Guba, 1985).

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Since this was a small pilot study involving only two participants, the findings should be interpreted as preliminary. The study does not claim saturation or generalisability. Rather, its main contribution lies in identifying early themes and in improving the interview guide for future research involving a larger, more diverse sample.

Results and Discussion

The pilot interviews generated three major themes that explain how selected low-income urban households experienced and managed food insecurity: 1) economic and locational constraints, 2) shopping and consumption adjustments, and 3) social support and emotional coping. As an exploratory pilot, the findings provide useful preliminary insights into how food insecurity is experienced as a daily process of negotiation, rather than only as a condition of insufficient food. The interviews also indicated that food insecurity was shaped by affordability, mobility, household responsibilities, and emotional strain. These findings are interpreted as exploratory insights into both early theme development and interview-guide refinement.

The pilot also confirmed that the initial interview guide elicited meaningful accounts of household food practices. Despite this, the responses revealed that future interviews should include stronger probes on transport costs, perceived meal quality, intra-household food prioritisation, social support, and emotional burden. These areas emerged naturally during the interviews and should be more clearly incorporated into the full study.

Theme 1: Economic and Locational Constraints

Both participants described income as the main factor that shapes household food access. Although food was generally available in urban areas, participants explained that availability did not always translate into actual food security. Instead, food access depended on whether households had enough financial resources after paying for other essential expenses, such as transport, rent, school-related costs, utilities, and other household commitments. This finding supports the view that urban food insecurity is often less about the physical absence of food than about limited purchasing power in a high-cost environment (Ng *et al.*, 2018).

P1, who lived in Kuching, explained that transport costs affected how often the household could shop for food:

"If we go to the market too often, petrol also becomes a problem. So, usually I plan for one big trip in a week. If something finishes earlier, we just adjust the meals until the next time." (P1)

This response suggests that food access was shaped by income, distance, mobility, and the cost of reaching affordable food outlets. For P1, the household managed this constraint by reducing shopping frequency and planning larger weekly purchases. However, when food items finished earlier than expected, the household adjusted meals until the next shopping trip. This indicates that locational constraints can influence food quantity, menu planning, and household flexibility. Similar findings have been reported by Rhone *et al.* (2022) and Ver Ploeg *et al.* (2019). Their studies highlighted that the distance between the households and supermarkets can impede their ability to purchase affordable food, thereby creating spatial disparities in food access. As a result, households may opt for cheaper, less nutritious food (Sulaiman *et al.*, 2021; Ahmad *et al.*, 2022).

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P2, who lived in Shah Alam, described a different yet related challenge. For this household, food outlets were physically accessible, though food affordability remained a major problem:

"Here, food is available everywhere, but it depends on the wallet. When school fees or bills come, food is the first to be cut. We just cannot stretch the money any further." (P2)

This statement reflects an urban affordability paradox in which the food may be widely available in supermarkets, convenience stores, markets, and restaurants. However, households may still struggle to purchase sufficient or preferred food due to limited income (Ab Samat *et al.*, 2022). P2's explanation also reflects how households may prioritise fixed obligations over variable food expenditure. For example, when urgent matters such as school fees or utility bills arise, food expenditure will be deprioritised. The finding is consistent with Ward *et al.* (2013), who highlighted that low-income households often manage financial pressure by reducing food expenses since some non-food costs are largely fixed and unavoidable. This leaves little room for adjustment in low-income households.

Findings from both cases converge to demonstrate that urban food insecurity is multifactorial and operates through different pathways. For P1, the main issue was the cost and logistics of accessing food outlets, while for P2, the main issue was affordability despite physical access. This distinction is important as it illustrates that urban food insecurity cannot be understood solely in terms of food availability. This suggests that future studies should examine both physical access and economic access, including distance to food outlets, transport cost, shopping frequency, competing household expenses, and perceptions of food prices.

Theme 2: Adjustments in Shopping and Consumption

The second theme concerns how households adjusted shopping practices and meal consumption to manage limited resources. While both participants described strategies they adopted during food shortages, the strategies differed according to household circumstances. Among the mentioned strategies were planning shopping trips, buying discounted or promotional items, adjusting meals, changing food types and preparation, and prioritising satiety. Such strategies can be understood as food-related coping strategies since they involve changes in what, how much, how often, or how well households eat (Belachew *et al.*, 2013).

P2 described a more planned form of coping through promotion-based shopping:

"Every week we check the promotions first, then decide what to buy. If chicken is on sale, we buy more and freeze it. If not, we change the menu to eggs or sardines." (P2)

This statement suggests that the household actively monitored food prices and adjusted its menus in response to promotions. To maintain meal consistency, the households bought chicken at promotional prices and froze it for later use. However, when chicken was not affordable, the household substituted it with cheaper or more readily available protein sources, such as eggs or sardines, which is consistent with Orta-Alemán *et al.* (2024). This suggests a proactive coping pattern based on price comparison, menu flexibility, and household planning. As highlighted by Norhisham and Kam (2022) and Ibrahim and Othman (2020), low-income households often rely on discounts, bulk buying, substitution, and price-based shopping to manage food expenditure, hence reducing overall food costs.

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At the same time, this strategy also involves possible dietary trade-offs. Although promotion-based shopping may help reduce food costs, it can limit food variety if households repeatedly purchase only discounted items. Despite this, nutritional quality was not directly measured in this study. Therefore, the findings should be interpreted as a perceived dietary adjustment rather than as evidence of an actual nutrient deficiency. Still, the findings of this study suggest that food choices were primarily shaped by affordability, rather than by preferences or nutritional planning. In line with Keenan *et al.* (2024) and Shukri (2023), households may shift towards a less varied or less nutritious diet, such as reduced consumption of fruits and vegetables, due to financial uncertainty. This supports the need for future research to examine how low-income households define "adequate meals" (Acton *et al.*, 2025) and how they perceive changes in dietary quality during financial strain (Shukri, 2023).

P1 described a more reactive form of food adjustment:

"Sometimes, to make the curry last, I add more water or put more vegetables and less meat. The children may complain, but at least everyone eats." (P1)

This excerpt illustrates meal stretching, which is a common food-related coping strategy. Examples of this coping strategy include adding water to cooked meals, using cheaper ingredients, and reducing meat intake. These practices would allow the household to extend the meal and ensure that all members could eat. The phrase "at least everyone eats" is important as it suggests that the household prioritised fullness and food sufficiency over variety or preferred food quality (Vuong *et al.*, 2023). This does not imply that the household was unconcerned about nutrition, but as highlighted by Wells *et al.* (2024), preventing immediate hunger is their priority when facing financial pressure.

The findings of this study support the idea that food insecurity is experienced through everyday compromises. Households may strive to maintain meal frequency but end up reducing meal quality. This finding echoes Calloway *et al.* (2016) and Lindberg *et al.* (2022), who noted that food insecurity may affect meal frequency even when meal frequency is maintained. While they may continue to provide food for all members, which is often high in carbohydrates and sugar, they reduce protein, variety, or preferred ingredients (Lindberg *et al.*, 2022). These adjustments indicate that food insecurity exists on a continuum. It may not always appear as a complete food shortage, but as reduced dietary diversity, meal frequency, and portion sizes, diluted meals, repeated menus, and lower perceived food quality (Vuong *et al.*, 2023; Calloway *et al.*, 2016; Lindberg *et al.*, 2022; Shukri, 2023; Olaimat *et al.*, 2022). Table 3 summarises the possible interpretations of food coping based on examples from the study.

Table 3: The Interpretation Of Type Of Food Coping Based On Examples from the Pilot

Type of Food Coping	Example From Pilot	Possible Interpretation
Promotion-based purchasing	Buying chicken when it is discounted	Planned affordability strategy
Food substitution	Replacing chicken with eggs or sardines	Menu adjustment based on price
Meal stretching	Adding water or vegetables, reducing meat	Strategy to extend food quantity
Satiety prioritisation	Ensuring "everyone eats"	Fullness prioritised over variety

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Type of Food Coping	Example From Pilot	Possible Interpretation
Reduced dietary preference	Children complain about the changed meals	Household accepts lower meal satisfaction

Theme 3: Social Support and Emotional Coping

The third theme indicates that food insecurity is not only economic, but also social and emotional. Participants described feelings of stress, guilt, reluctance to ask for help, and responsibility toward family members. These responses suggest that household food insecurity can affect caregivers' emotional well-being, especially when they feel responsible for ensuring that children and dependents continue to eat. Previous studies have presented that food insecurity is associated with stress, anxiety, shame, guilt, and psychological distress among parents and caregivers (Keenan *et al.*, 2024; Pepper *et al.*, 2023).

P2 described receiving informal support from a family member:

"If things are really tight, my sister will send rice or oil. We do not like to ask, but when she buys in bulk, she shares." (P2)

This statement highlights the important role of family support in helping the household manage food scarcity. Ismail *et al.* (2023) mentioned that in Malaysia, informal networks of kin and neighbours have long been part of survival. Receiving basic food items such as rice and oil from family members helped reduce immediate food pressure. On the other hand, the phrase "we do not like to ask" also suggests discomfort, reluctance, and concern about dignity. As noted by Petre *et al.* (2025), social support may reduce material hardship, but receiving it can carry an emotional burden. This is due to the stigma associated with dependency and the perceived inadequacy of self-sufficiency. Meanwhile, Hill *et al.* (2021) highlighted the importance of informal support networks within low-income communities, as they provide flexible, immediate help during periods of shortage. However, Hill *et al.* (2021) stressed that such support may be irregular and dependent on the resources of relatives, neighbours, or friends. Therefore, while family assistance can temporarily reduce food insecurity, it may not provide stable long-term protection. In essence, this finding suggests that future research should examine how households feel about receiving support and whether such support is reliable.

P1 described the emotional burden of not being able to provide preferred food for children:

"It is stressful when you cannot give what the children want. Sometimes I feel guilty. But I tell myself, as long as they eat something, that is enough." (P1)

This statement indicates the connection between caregiver responsibility and emotional coping. P1's guilt was about food quantity and about the inability to provide what children wanted or what the parent perceived as better food. The phrase "as long as they eat something" reflects emotional self-reassurance, suggesting that the caregiver managed guilt by redefining adequacy in terms of basic food intake rather than preferred or nutritionally balanced meals. This finding is important since, as stated by Romero-Moreno *et al.* (2022), coping occurs at both behavioural and emotional levels.

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The emotional dimension also helps explain why food insecurity should not be treated only as a household budget issue. When parents reduce meal quality, deny their own preferences, or rely on external support, they may experience stress, guilt, shame, or a reduced sense of control. Correspondingly, these emotions may influence how households respond to future scarcity, whether they seek help and how they discuss food difficulties with others (Jung *et al.*, 2025).

Interview Guide Refinement Based on Pilot Findings

As part of the pilot process, several questions were refined after the interviews (Table 4). The pilot findings suggest that future interviews should include stronger probes on transport-related access, household budgeting, emotional burden, social support, and perceived diet quality. These areas emerged naturally during the interviews and should be integrated into the main study to capture food insecurity as both a practical and emotional household experience.

Additionally, questions about emotions should be rephrased to reduce discomfort and encourage more natural storytelling. For example, instead of directly asking participants how they felt when food was insufficient, future interviews would use softer prompts such as, "Can you describe what usually happens in your household when food supplies become limited?" This revision allows emotional responses to emerge without making participants feel judged or exposed.

Table 4: Revised Interview Approach Based On Issue Observed During Pilot Study

Original Interview Focus	Issue Observed During Pilot	Revised Interview Approach
Direct questions about feelings when food was insufficient	Participants may feel uncomfortable discussing guilt, shame, or stress directly	Use indirect prompts about what happens in the household when food runs low
Questions focused mainly on food availability	Participants linked availability with affordability, transport, and access	Add probes on distance to food outlets, transport costs, food prices, and shopping frequency
General questions about coping	Responses varied between food-related and non-food-related coping	Separate probes into food coping, financial coping, social support, and emotional coping
Questions about meal quality	Participants described meal changes, but not in nutritional terms	Ask about perceived changes in variety, portion size, freshness, and preferred foods

Similarly, the second theme revealed that participants were naturally connected food availability with transport, affordability, and household budgeting. The revised questions would allow the full study to better capture the relationship between urban location, household income, and food access.

The pilot study also revealed that emotional coping appeared in two forms. First, participants managed emotional discomfort by normalising sacrifice and focusing on the idea that the family still had something to eat. Second, participants managed social discomfort by accepting help indirectly rather than asking directly. These findings suggest that emotional burden should be included more explicitly in the full study's interview guide with questions such as "What

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usually happens in the household when food supplies are limited?" and "Who do you usually turn to when food or money becomes limited?" These questions may encourage participants to discuss emotional experiences without feeling judged or exposed.

To further enhance the methodological perspective, the future interviews should include more specific probes on perceived diet quality. Instead of asking only whether food is sufficient, the interview guide should ask how meals change when money is limited without making unsupported nutritional claims.

Comparative Observations

Although both households experienced food-related pressure, their coping strategies differed. P1 appeared to rely more on reactive coping, including meal stretching, reduced meat, transport management, and emotional reassurance. Conversely, P2 appeared to use more proactive coping, including promotion-based shopping, freezing discounted food, menu substitution, and family support. Although this comparison is preliminary, it suggests that households may respond differently depending on location, available support, shopping access, and household planning capacity.

The distinction between reactive and proactive coping should be treated with caution since it is based on only two participants. However, it is useful as an early analytical insight for the larger study. Reactive coping may occur when households respond to an immediate shortage by reducing portions, diluting meals, or delaying purchases. Proactive coping may involve planning purchases, comparing prices, buying during promotions, storing food, or seeking support before food runs out. These categories can help refine future coding and interview questions. Table 5 summarises the coping dimensions based on feedback from both participants and a preliminary interpretation.

Table 5: Coping Dimensions Based On The Preliminary Interpretation From Two Participants

Coping Dimension	Household 1, P1	Household 2, P2	Preliminary Interpretation
Main food access constraint	Transport cost and limited shopping frequency	High food prices despite nearby food outlets	Urban food insecurity differs by location and affordability pressure
Main food-related coping	Meal stretching, reduced meat, repetitive meals	Promotion shopping, freezing food, and substitution	P1 shows more reactive coping, while P2 shows more planned coping
Main non-food coping	Managing transport and shopping frequency	Receiving family assistance	Non-food coping includes mobility management and social support
Emotional response	Stress, guilt, self-reassurance	Reluctance to ask for help	Emotional burden appears in both households but takes different forms
Perceived dietary trade-off	Fullness prioritised over variety	The menu depends on discounts and affordability	Both households manage adequacy through compromise

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Coping Dimension	Household 1, P1	Household 2, P2	Preliminary Interpretation
Interview guide implication	Add probes on transport, meal stretching, and caregiver guilt	Add probes on social support, promotions, and help-seeking	Future interviews should capture both practical and emotional coping

Discussion of Pilot Study Contribution

The findings should be understood as preliminary, but they offer three important contributions. First, they demonstrate that urban food insecurity among selected households was shaped by both economic and locational factors. Food availability alone did not explain household food insecurity, as participants also discussed transport costs, food prices, competing expenses, and shopping frequency. Notably, these findings are consistent with international studies implying that urban food access is shaped by structural inequalities, uneven food infrastructures, transport barriers, and the distribution of affordable food outlets (Krstikj *et al.*, 2023; Kharel *et al.*, 2024; Marino *et al.*, 2026). The present pilot adds a Malaysian household-level perspective by highlighting how such constraints are translated into everyday shopping routines and meal adjustments.

Second, the study establishes that household coping strategies involve both food-related and non-food-related responses. Food-related coping included meal stretching, ingredient substitution, promotion-based buying, and prioritising satiety. Non-food-related coping included transport management, budgeting, and reliance on family support. These findings support Palma and Araos's (2021) argument that coping strategies should be analysed as everyday household practices rather than as isolated behaviours.

Third, the findings highlight the emotional burden of food insecurity. Participants described what they bought or ate, and they reported stress, guilt, reluctance to seek help, and concern about children's needs. This suggests that future food insecurity research should examine emotional and relational dimensions, especially caregiver responsibility and intra-household food prioritisation. In this study, emotional burden was not separated from food coping, shaping how participants interpreted scarcity and justified their decisions.

The pilot study also contributed methodologically by identifying weaknesses in the initial interview guide. The findings indicate that future interviews should move beyond general questions about food availability and include more specific prompts on affordability, transport, shopping routines, changes in meals, emotional strain, social support, and perceived diet quality. Consequently, this strengthens the value of the pilot study as it produced preliminary findings and improved the design of the larger qualitative study.

Policy Implications

Although the findings are preliminary, they suggest that urban food security interventions should consider household coping practices, transport-related access, emotional burden, and perceived dietary trade-offs alongside affordability. Nevertheless, broader research involving more diverse participants is needed before firm policy recommendations can be made.

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Programmes that improve food affordability may be useful, but they may fall short if they do not account for how households actually manage scarcity in their daily lives. The way households employ various coping strategies to reduce immediate hunger can create longer-term concerns for diet quality, emotional well-being, and household resilience (Padmakanthi *et al.*, 2025).

The findings also suggest that interventions should be sensitive to different coping profiles. Households facing transport barriers may benefit from community-based food access points, mobile food support, or localised food distribution. Households relying on price promotions may benefit from more stable access to affordable, nutritious food. Households experiencing emotional strain may benefit from support systems that reduce stigma and protect dignity.

Conclusion

Overall, the pilot findings indicate that food insecurity among the selected urban households was experienced through economic pressure, locational barriers, food-related adjustments, social support, and emotional burden. The findings reveal that households did not respond passively to food scarcity. Instead, they actively adjusted shopping practices, modified meals, relied on family networks, and emotionally managed the responsibility of providing food. However, these strategies involved perceived trade-offs, particularly in relation to meal variety, preferred foods, and caregiver well-being.

As a pilot study, the main contribution lies in identifying preliminary themes and refining the interview guide for future research. The findings suggest that the larger study should include a more diverse sample, especially mothers, food preparers, elderly household members, and households from different urban settings. In response, future research should also examine perceived diet quality more carefully, without assuming measured nutritional outcomes unless dietary assessment methods are included.

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