

Food Accessibility and the Sustainability of Food Security Among Urban Low-Income Households in Selangor: A Qualitative Study

Norfaiezah Binti Alias¹, Nor Hafizah Binti Mohamed Harith^{2*} & Thenmolli Vadeveloo³

¹Faculty of Administrative Science and Policy Studies, Universiti Teknologi MARA (UiTM), Kampus Shah Alam, Universiti Teknologi MARA, 40450 Shah Alam, Selangor, Malaysia.

^{2*}Faculty of Administrative Science and Policy Studies, Universiti Teknologi MARA (UiTM), Kampus Shah Alam, Universiti Teknologi MARA, 40450 Shah Alam, Selangor, Malaysia.

³Faculty of Administrative Science and Policy Studies, Universiti Teknologi MARA (UiTM), Kampus Shah Alam, Universiti Teknologi MARA, 40450 Shah Alam, Selangor, Malaysia.

Corresponding Author: norha561@uitm.edu.my

Abstract

The limited financial resources constrain food access and encourage families to purchase cheap rather than healthy food servers. Compounding this is the unpredictability that routine grocery shopping has on one's daily capabilities, along with rising and falling food prices. This instability of prices also makes it difficult for families to have adequate access and stability in consumption, forcing many times to have a transitory compromise that generates some long-term problems largely related to sustainable food security. This qualitative study examines the issues influencing food access and the sustainability of food security among urban low-income households in Selangor. To this end, through thematic analysis of in-depth interviews carried out with 10 participants from low-income neighborhoods, this research discloses the five most important themes: (1) economic constraints, (2) geographical and infrastructure barriers, (3) the problem of food price and market fluctuation, (4) limited involvement in urban agriculture, and (5) coping strategies in response to food insecurity. Data show that financial difficulties represent the most significant barrier to food access, which leads to families having to choose less healthy foods simply because they are more affordable. This could imply that the need to promote food security means that more support and possibly infrastructure for urban farming may be required. Lastly, although the coping strategies employed by families are inventive, they are unsustainable and highlight the pressing need for long-term policy interventions. This research highlights the necessity for action.

Keywords: Food Accessibility, Sustainability, Food Security, Urban Low-Income Households

INTRODUCTION

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Food security has been noted as a prime issue everywhere. The lack of it is most troubling for the urban poor families, which are mostly affected by the high rate of food inflation, economic crises, and scarcity of access to budget-friendly, nutritious food. Food and Agriculture Organization (FAO) defines food security as

the state in which everyone has enough, safe, and nutritious food that fits their dietary needs for a healthy and active life. This idea entails four dimensions, which are availability, access, utilization, and stability. Rapid population growth and uneven distribution of wealth as in the case of Selangor state, Malaysia have led to the deprivation

of these four dimensions in urban areas which are often lacking (FAO, 2023). Moreover, in Selangor which is the wealthiest and most populous area in Malaysia, food insecurity is manifested which is one of the major problems faced by the urban households with the lowest income state. A survey that was conducted by the Ministry of Health Malaysia (2023) shows that nearly 35% of urban low-income households in Selangor are food insecure. This figure which is much higher than the national one shows that wealth distribution is still unfair and the poorest part of the population is still left out of the economic growth this is still the case with Selangor although the state is doing relatively well. Living in these homes entails high costs of living, wages are low, and also, they have little or no access to cheap and fresh food. Thus, they have to depend on high-calorie, low-nutrient food choices mainly. As a result, they obtain less dietary diversity due to the priority of basic needs over nutritional quality (Ismail et al., 2023).

Likewise, the National Health and Morbidity Survey (NHMS) reveals that 23% of households in Selangor are unable to procure adequate supplies of food for a well-balanced diet and as a result, food rationing and reduced meal frequency have become common among the households of the low-income group. This scarcity of food not only badly affects the health of individuals immediately, but it is also a contributing factor to the increased incidence of non-communicable diseases (NCDs) in poor urban neighborhoods. In Selangor, there is an alarming statistic that 52% of adults are found to be either overweight or obese with 28% of them developing high blood pressure and 19% suffering from diabetes. This situation is somewhat caused by their dependence on the consumption of cheaper, energy-filled but nutrient-empty foods (Rohman, Hashim, & Wong, 2023).

The circular cycle of food deprivation always poses an additional challenge, where poverty cuts off the supply of healthy foods, leading to poor health conditions and further constraining income (Lim et al., 2023). In such communities and especially among the children, food accessibility issues have been linked to poor academic performance besides increasing the level of social isolation. Although there are suggestions for food subsidies, urban agriculture initiatives, and community-based food security programs, applicable only on paper, a lack of implementation has been reported in such areas as Selangor, Malaysia (Tan & Aziz, 2023). Well, the time has come when the need to ensure that food is insufficient in urban impoverished areas is done through the application of

vast policies that touch on health, economy, and social areas which promote food justice and resilience in the state are quite essential.

PROBLEM STATEMENT

According to research conducted by the Department of Statistics Malaysia in 2023, low-income urban households in Selangor are constantly at risk of being food insecure as their living costs are increasing, primarily due to the inflation of food prices. Poor households have been observed adapting their buying habits due to the inflationary pressure, prioritizing the purchasing of core food items as the price of food continues to rise by 4-5% every year such as rice and other staples (Department of Statistics Malaysia, 2023). A considerable proportion of these families are unable to buy healthier food because of cost, with more than 60% of low-income families reportedly replacing vegetables and fruits with cheaper and processed food that although not nutritious, is cheaper (Khazanah Research Institute, 2022). It is not only physical health that is affected as excessive reliance on low-cost, but low-quality food also leads to an inability to lift oneself out of poverty as poor health is directly related to the everyday economy (Ismail, Shukor, & Mohamed, 2019).

In addition, geographical and logistical constraints are additional complications. For instance, in Gombak, Projek Perumahan Rakyat (PPR) residents face a CPO constraint in terms of access to affordable grocery shops in reach which people in the project area depend on expensive general shops (Khazanah Research Institute, 2022). Limitations on the availability of affordable groceries in low-income urban communities are also reported to be serious factors that push families into 'food deserts' with minimal access to healthy and cost-effective staple foods (Selangor State Government & UNDP Malaysia, 2022). The changing costs of the basic goods combined with troubles sourcing the goods locally creates a precarious situation, which makes it difficult for these households to have a steady supply of a well-balanced diet. The objective of this study is to understand the interaction of economic factors and practical challenges to food security for low-income families in Selangor. It will be able to determine how such aspects as price volatility and lack of access to proportion markets affect the food security and strategies employed by the Projek Perumahan Rakyat (PPR) residents in Gombak to cope with these challenges.

LITERATURE REVIEW

The body of research on food accessibility and food security is quite broad, covering various aspects such as economic, geographical, and social influences. This review focuses on the main themes that are important for understanding the situation of urban low-income families in Malaysia as a whole and points out the gaps that this study intends to fill among urban low-income households in Selangor.

Grasping Food Security And Accessibility

Food security, as defined by the FAO, requires that all individuals have access to adequate, safe, and nutritious food for their daily needs and lifestyles, regardless of their location or income. Available, accessible, used, and stable are the four dimensions of this definition (FAO et al. in 2023). One of the key factors is food accessibility, which focuses on what helps households access sufficient food. The factors that impact access to food include economic, geographic, and social factors, but research on these aspects is limited (Gundersen & Ziliak, 2022; Zhang et al, 2003). Low-income individuals in food deserts are prone to food insecurity, with limited access and availability of resources (Allcott et al, 2022; Zhang. The COVID-19 epidemic and rising food prices have intensified the strain on low-income urban households, contributing to a more severe issue in rural areas. In contrast to previous studies, this one focuses on the situation of low-income households in urban areas of Selangor, where different socio-economic and geographic factors affect food access. While the broader studies on the regional and rural poor are present, this research concentrates more exclusively on them as it seeks to understand how urban planning, economic hardship, and community support structures affect access to food.

Geographical Barriers To Food Accessibility

Poverty is one of the many cultural and social problems that are significantly worsened in urban areas. The areas facing challenges in obtaining healthy and affordable food are known as food deserts. A significant proportion of these areas lack access to supermarkets or grocery stores, leading residents to rely on corner stores or gas stations with limited healthy food options (Morland et al. in 2023). Recent studies conducted in Malaysia reveal that the lack of food accessibility in urban areas is causing marginalized communities to experience greater disadvantage. (Mohd Noor et al, 2023) Due to the perceived market distance, lack of transport structure, and city planning, food access is

difficult for the urban poor, particularly those without a car (Bene & al, 2023; Pritchett et al. in 2022). In densely populated areas, food access can be improved by considering these geographic factors (Walker et al, 2022; FAO & Associates, 2003). In comparison, this research highlights the distinct geographical limitations within Selangor's urban areas, where transportation and market accessibility play a significant role in determining food access for low-income households. While Western studies have focused on food deserts, this study provides a more comprehensive analysis that emphasizes the impact of local urban development, public transportation systems and spatial inequality within Malaysian cities.

Food Price Fluctuations And Market Instability

The inflation in food prices and market instability are significant barriers to food accessibility. Low-income women with children face the most severe challenges in obtaining food. Research indicates that the rapid changes in food prices contribute to increased food insecurity and deprivation among households struggling to meet their basic food requirements (Gundersen & Ziliak, 2022; Block et al., 2023). Within a nation, domestic food prices can be significantly influenced by substantial variations in global commodity prices, which often dictate consumer food prices across different regions due to shifts in the global market (Huang et al., 2023). According to Cameron, maintaining price stability is crucial for Malaysia, as it directly affects individuals' capacity to afford essential staple foods amidst inflation (Department of Statistics Malaysia, 2023). Therefore, it is vital to comprehend the challenges involved in developing effective strategies aimed at regulating food prices and improving food security for low-income households (Khazanah Research Institute, 2023). This research further elaborates on this topic by examining how global economic factors and variation in domestic pricing specifically affect low-income urban households in Malaysia. In contrast to previous studies that mainly focus on national-level effects, this investigation aims to highlight the real-life experiences of families in Selangor, considering how localized inflationary trends and variable food prices shape their daily food selections and long-term nutritional health.

Urban Agriculture As A Solution

There is an increasing recognition that urban agriculture may serve as a viable strategy for achieving food security within urban environments. Research suggests that

urban farming enhances food accessibility, bolsters community resilience, and prioritizes environmental sustainability (Smith et al., 2021; Mendes & Morgan, 2023). Nevertheless, participation in urban farming initiatives among low-income families remains limited due to challenges such as insufficient knowledge, lack of resources, and inadequate support (Lin & Ghosh, 2022). Evidence indicates that community-driven projects in urban agriculture foster social connections and empower individuals to gain greater control over their food systems (Kim & Zhang, 2023). This study distinguishes itself by focusing on the specific barriers faced by low-income households in Selangor, including cultural attitudes, spatial limitations, and the lack of supportive urban policies, which are frequently neglected in more generalized urban agriculture research. The objective is to offer actionable insights into how localized strategies can strengthen the resilience of urban food systems, particularly for populations most vulnerable to food insecurity.

Gaps In Literature

While the food security and accessibility studies in the modern context have proliferated, challenges persist especially among urban low-income households in Malaysia. Most existing literature tends to either dwell on national patterns or rural-based studies and tends to ignore the problems that urban dwellers experience (Zamri et al., 2023). Put differently, urban food security has been studied about many micro-level factors such as economic and geographical factors, whereas the interaction of these factors within food security at the macro level has received less attention. By and large, the questions of food access, which are aggravated by increasing levels of urban poverty and high cost of living, draw attention to the fact that there is little or no research on the interaction of these dynamics in providing food security to the poor (Yusof et al., 2023).

It is noted that there has been a rise in the studies on food insecurities in Malaysia, however, very little has been done in terms of qualitative studies, and even less regarding the experiences of food insecurity in the cities (Goh et al., 2023). Hence there is little understanding of what strategies help families living in poverty, especially in times when food prices rise, and the economy is unfriendly. Existing quantitative studies address these households' contextual factors and coping strategies only superficially. Although considerable work has been done in the areas of rural households, these factors including urban food environments, food systems, and food availability are related to food access differently (Mohamed et al., 2023).

Yet, this scholarly involvement in the concerns of urban farming and hunger does not appear to have addressed these notions at any point in time or from any perspective. US and UK literature has attempted to disentangle some factors that may be specific to low-income urban areas (Marmot et al., 2023; Poppendieck, 2022). Thus, components like access to modes of transportation or distance from food retailers, social services provision and other similar areas are some of the lenses through which food insecurity and food access are viewed (Morland et al., 2023; Walker et al, 2022). Such works, however, are absent in Malaysia in numeric values, much less in qualitative and policy-related works thus makes it hard to suggest drastic policy measures.

Furthermore, there exists a dearth of research concerning the impact of raised food prices and other economic aspects on urban areas. Recent studies note that there is a social dimension to changes in food price levels in systems where the underclass must eat well below their potential and often settle for the available ‘poor quality’ diet (Block et al., 2023). Nevertheless, there has not been substantial extensive research undertaken over long periods on such effects on the urban population especially in nations with large cities like Selangor. Moreover, political intervention is essential in determining food accessibility, especially via policy formulation, subsidy distribution, and regulatory systems. Sound governance can mitigate various economic and logistical obstacles encountered by low-income families, whereas poor policies or insufficient enforcement may worsen food insecurity. Nevertheless, the influence of political frameworks and governmental support mechanisms on food access in urban low-income settings is still inadequately studied, particularly in Malaysia, where political stability and consistent policies can greatly affect market conditions and food prices (Khazanah Research Institute, 2023).

In response to those identified gaps, future research will focus on an exploration of food accessibility challenges experienced by low-income families residing in urban Selangor, through qualitative research methodology. This study pays attention to the barriers created by lack of resources and their different aspects economic barriers (poverty, lack of access to affordable healthy food) and psychosocial barriers (stress due to inadequate food supplies). The research sets out to investigate food access to understand how changes in food and nutrition prices influence food consumption patterns and affect health. Such outcomes will be useful to improve the understanding of how food security is managed in urban centers and the approaches to enhancing food systems in Malaysia.

METHODOLOGY: QUALITATIVE ANALYSIS

Research Design

This study adopts a qualitative research framework to explore the experiences of food insecurity among low-income urban households in Selangor. Qualitative research is appropriate for this topic, as it offers deep insight into the varied and complex issues influencing food access and security. The current study takes a phenomenological approach in examining the lived realities of the study subjects resulting in a deeper understanding of the context of their food insecurity problem and how they cope with it in their daily lives. The aim of phenomenological research is primarily to understand the essence of a phenomenon and the social context of the actor within that phenomenon or, in simple terms, to analyze in depth the lived experience of a person. Therefore, in conducting phenomenological research, this article will discuss participants' experiences with economic factors, distance, and market issues in their efforts to cope and function effectively daily. Within phenomenological research, as a general objective, one can state the collection and presentation of detailed and vivid experiential data concerning the participants, which allows the researcher to extract general threads and insights which are evident in people's everyday existence (Willig & Rogers, 2022). In the realms of access to food surveillances, phenomenological research seeks to resolve the research questions central to the investigation which involves the evaluation of social, economic and spatial constraints and the adequate market access challenges. This perspective enriches our understanding of the specific barriers many people, and especially urban dwelling poor, encounter in the quest for healthy and sufficient food (Hirsch & Koenig, 2023).

Participant Selection and Sampling

A purposive sampling strategy was employed in the recruitment of participants in the selected urban low-income communities of Selangor. In this case, the use of purposive sampling is justified because it is conducted in qualitative research to understand a given phenomenon by choosing participants with specific traits or experiences who can help answer the research questions (Etikan & Bala 2023). Consequently, this study examines heads of households (primary food buyers), who are the most vulnerable to the local economic and sociocultural conditions that determine food security. This method predominately limits data collection and addresses the specific problems and issues faced by these households in detail (Turner et. al, 2023). The study targeted people living in

Projek Perumahan Rakyat (PPR) in Gombak. The selection of participants was based on their socioeconomic background and reliance on meagre incomes that placed them in a vulnerable position regarding food security. Participants were selected to reflect a diversity of views by taking participants from different Projek Perumahan Rakyat (PPR) varying in family size and conditions of employment. Because of their direct experience with food access problems, selection criteria required that respondents be household heads or main food purchasers. Informed consent was obtained from participants before they entered the study.

Data Collection

Data collection consisted of in-depth, semi-structured interviews conducted over two months. This latter method is well suited for qualitative assessment as it provides an organized but sociable depth of interview that compels the respondents to disclose useful information on the subject matter. This allows for in-depth examination of complicated subjects. This format works well as it incorporates asking the questions that have been prepared beforehand while at the same time allowing the exploration of other questions that might be necessary depending on the answers given by the respondents. This is even more so appreciated in studies addressing food insecurity where different people's experiences can hardly be generalized. These interviews also permit the use of some probing questions that encourage respondents to elaborate, asking questions that would provide useful information that would be lost in a purely structured approach (Jamshed, 2022; Kallio et al., 2023). Each interview lasted from 30 to 60 minutes and was conducted at a place of convenience to the respondent, which was often the home. The semi-structured format provided flexibility, allowing respondents to freely share their experiences while ensuring that topics such as food availability, economic constraints, geographical challenges, food price volatility, and coping mechanisms were thoroughly addressed. Interviews were carried out in the Malay or English language, whichever was preferred by the participant, and transcript-recorded upon permission to ensure statements were recorded correctly. Field notes about verbal communication and other contextual information were also taken.

Data Analysis

At first, all the interviews were fully transcribed, and thereafter thematic analysis was used to seek out the significant patterns and themes present. This method is quite

common, since thematic analysis makes it possible, not only to identify and understand, but also to present those patterns within the qualitative data, in an orderly manner. Nowell et al. (2023) advice the use of thematic analysis in qualitative research because it eases the findings of the researcher in a stratified way that is open to several research situations. In this study, both deductive and inductive approaches were adopted. Where pre-established themes were related to economic and geographical barriers, these were analyzed deductively. New themes included the fluctuation of food prices and how participants cope with these fluctuations. Precise coding necessitated the reading of transcripts multiple times to become intimately familiar with the data. Initial codes on recurring topics and ideas were developed and then organized into broader themes that reflected primary issues about food accessibility.

Data management and structuring were done using NVivo software 13, and by doing this, the analysis to be conducted about the relationship of the themes will be systematic. In the context of qualitative analysis software, many analytical tools are embedded to help connect different themes and ideas by the researchers. For instance, NVivo offers mountains of visualization tools to display the effects of various economic, geographical, and market factors on food security and helps to model how these factors intermingle. This allows the researcher to appreciate better the complex realities of the participants' contexts. With features like thematic coding and query features, the researcher can delve into the connections among these factors hence facilitating an inclusive understanding of food insecurity (Woolf & Silver, 2018). To increase the credibility of the findings, the coded themes need to be reviewed by two independent researchers, which reduces bias and builds consistency in the interpretation.

Ethical Considerations

Approval for the study was secured from the Research Ethics Committee Universiti Teknologi MARA. Participants received comprehensive information regarding the study's objectives and were informed of their right to withdraw at any point without facing any repercussions. Measures were taken to ensure confidentiality and anonymity, with pseudonyms employed in the final report to safeguard participants' identities. Transcript recordings were stored securely, and accessible solely to the research team.

RESULTS AND DISCUSSIONS

Qualitative data analysis revealed some key interrelated themes that influence food access and the sustainability of food security among low-income urban households in PPR, Gombak, Selangor, namely: (1) economic constraints, (2) geographical and infrastructural challenges, (3) variation of food prices and market volatility, (4) minimal practice of urban farming, and (5) coping mechanisms with food insecurity as figure 4.1 shows below.

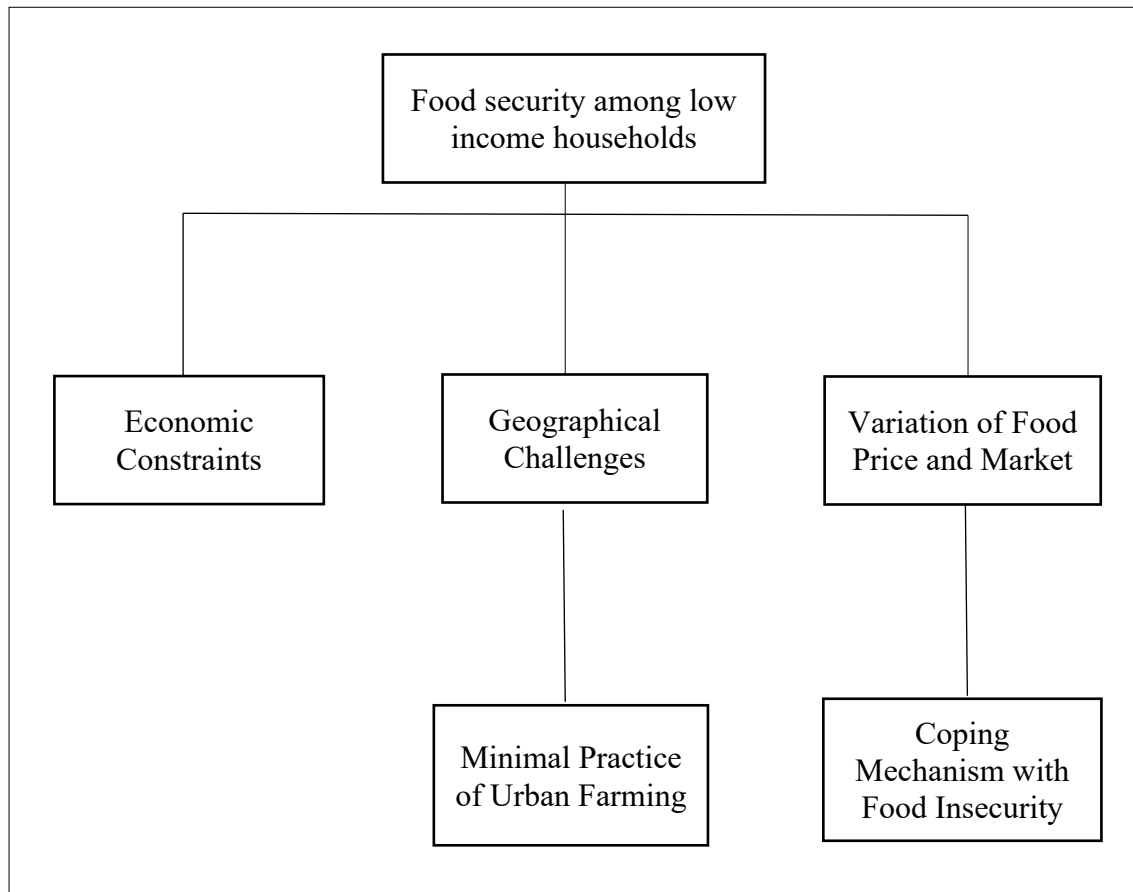


Figure 1: *The Key Themes and Sub Themes*

Economic Constraints as The Primary Obstacle To Food Accessibility

The attending body recognized access to food as one of the sectors that was greatly affected by the economic factors. Most of the participants pointed out that their low-income selves together with the high cost of living meant that they had to cut down on some important expenditures, which made it difficult for them to secure enough food. This finding corroborates the previous studies which have established in the most recent literature the strong causal links between economic inequalities and food shortages in cities (Gundersen et al, 2023). The respondents stated that due to lack of finances, they were forced to select cheap energy dense junk foods over healthy ones which are costly in the long run, which would jeopardize their health. Yet, this short supply or absence of adequate nutrition is common among the impoverished in the urban centers of the world where increasing levels of poverty are a deterrent to proper feeding (World Bank, 2022). Among them, one participant, mother of three, and said: "After paying for my rent and every other necessary thing, I am left with just a few coins for food." Often, I must choose between purchasing fresh greens or paying for my kids' school. It is so heartbreaking." Another one, a participant working in a factory, claimed: "I have to eat the most inexpensive food available with the money I earn. Most of us have to eat rice with a little sambal on most days; we can't buy fresh vegetables as they are very costly." Taken together, these comments underline the implications of the low income of many families on healthy food availability and the consequences of cheap alternatives high in calories.

Geographical and Infrastructural Challenges To Food Markets

In recent times, accessing food markets has been compounded by geographical barriers. A good number of the respondents stated that they reside in areas that have a low supply of affordable food, a situation that has been addressed in the urban areas referred to as 'food deserts' where residents who earn meagre incomes are highly affected (Walker et al., 2023). One participant who is a 42-year-old mother with two children narrates her story as follows: *"The nearest grocery store is cheap enough for us to afford is a 30-minute bus ride. Even after spending some money to reach the market, by the time I get back with the food, it might go bad. It's all the more difficult because I have to strategize for when I take the trips, I don't go every day"*.

Another participant, a private employee, stressed the unavailability of proper means of transport: *"The transportation system in this area is quite unreliable. Sometimes*

it will take hours before a bus arrives, which I cannot afford to do. For this reason, I had to buy what was close to me many times, even if it was not what we wanted".

In these accounts, external factors such as infrastructure are shown to affect food access, and therefore households are forced to resort to purchasing from stores with higher prices or with less variety of goods. The outcomes emphasize the immediate need for expansion of facilities and the availability of affordable nutrition in urban areas inhabited by low-income households. Therefore, measures should be taken to ameliorate such problems and remove such spatial barriers by encouraging the establishment of affordable and accessible food kiosks in such regions.

Food Price Variability and Market Uncertainty

Respondents identified food price volatility and unpredictability of the market environment as one of the main concerns. Study participants noted that the rapid increase in inventories of basic foods such as rice, vegetables, and meat considerably impaired their ability to spend. This situation is worsened by the fact that food prices are no longer solely local issues as they are made to be by both the local and global factors, and that is a main contributor to food insecurity. For low-income households, changes in prices often translate to giving up some food and changing to other 'cheaper' ones that are however poorer in nutrition. It also extends even to developing countries where studies have shown that food price volatility increases food insecurity by making it hard for most at risk or poor families to plan and draw their food budget (Headey & Alderman, 2023). One of the participants an Indian female in the IT-related private sector who frequently checks prices, remembers, *"Once I could buy one kilogram of chicken for RM10; the next week, it was RM15. These changes make me alter the purchasing range which is quite annoying"*.

Another Malay bakery owner who is also a participant explained the difficulty of preparing meals when prices are unstable: *"I try to organize our family meals for the week, but then there is a price surge, and I must alter everything. "Affording healthy meals is quite challenging"*. These statements reflect obsessive concerns over the economic demands rather than the health benefits of the household which in turn encourages the intake of unhealthy products. These concerns over price instability have increased especially with the effect of climate change, disruption of the supply chains and inflation hence presenting yet another challenge for the poor people in accessing enough

food. A little pricing mechanism or provision of subsidized funding for back-buying of certain minimal provisions would help alleviate some of the challenges by helping keep minimum goods affordable to vulnerable groups.

Limited Participation in Urban Agriculture and Local Food Systems

Even though urban agriculture has great importance for food security, it is often underutilized. Other obstacles include space, knowledge, and the absence of local government assistance. Certain cities have achieved some degree of success and have implemented urban farming concepts; however, such concepts require input needed in educating the community, access to land, and supportive institutions (Hou, 2023). One of the participants included a Malay pensioner who expressed her interest in gardening: *“I would like to grow my vegetables, but there is no space where I live. Even if there was no space, I wouldn’t know what to do first. I just wish there were community gardens near my house”*.

Another participant, a Chinese woman, mentioned the absence of such: *“Urban farming exists but I have not seen any of them in figure. There are no programs that I know of, or steps taken to help people informally learn about it. It seems quite impossible to me”*. These accounts are clear disappointments, as they offer insight into what families are likely to reap from urban agriculture's opportunities and the realities that low-income families face. Widespread advocacy of community-based programs in line with learning objectives and the availability of candidates for growing local food products is all but overdue. Policy measures to incorporate community garden plots into the resident areas can help address this problem by enabling families to access fresh food and promoting food security.

Coping Strategies for Addressing Food Insecurity

Strategies such as decreasing the quantity of meals taken, making alterations on the foods consumed and using informal networks as sources of food fall under these mechanisms. Such practices provide temporary relief; however, they emphasize the very precarious nature of food security among such households. Furthermore, research dealing with food deprivation has also established that such measures are only short-term and do not address the broader problems brought about by them (Jones et al., 2023). As an illustration, one participant, a government worker by degree who regularly feeds the

members of her household, explained: *“Everyone in this house eats whatever they wish.” So, at the end of the day, no one goes to bed hungry”.*

A 31-year-old Malay woman said that she will use cheaper and less healthy food which she dislikes. *“When we do not have enough money, we would turn to eating instant noodles and canned food. Although they are not good for my health, they at least fill our tummies. I just feel sorry that I cannot give more to my kids”.* The focus and creativity inherent in such strategies point to the ability of such households’ members to endure and survive in harsh conditions, and at the same time, there is evidence of the danger involved in relying on such ad hoc strategies to mitigate hunger over the long term.

Implications for Sustainability of Food Security on Food Accessibility

The findings from this study emphasize the multidimensional and varied nature of food insecurity at the urban low-income population level. Various obstacles ranging from economic to physical and market-related problems have been great deterrents to access to food and hence have contributed to unsustainable conditions of food security. Unless intervened otherwise, such households remain very vulnerable to exogenous shocks emanating from price fluctuations, economic recessions, and public health emergencies like the COVID-19 pandemic. In this regard, sustainable food security requires a multi-dimensional approach. Concretely, it should involve:

- i. Income supports programs to enhance purchasing capacity. Improvement in infrastructure to reduce physical barriers to food access;
- ii. The encouragement of urban farming, community gardens, and rooftop farming;
- iii. Policy to stabilize food prices and protect low-income consumers against market volatility; and
- iv. More importantly, these programs should be complemented with the implementation of policies which address the wider socio-economic drivers of food insecurity; these include education, jobs, and housing.

CONCLUSIONS

This study investigates the complex challenges encountered by low-income urban families living in affordable public housing, referred to as Projek Perumahan Rakyat (PPR) in Gombak, Selangor, as they strive to enhance their food security, particularly regarding food accessibility. Key obstacles to food access include financial limitations, geographical barriers, and fluctuating food prices. The instability of food availability, whether at a local or global level, intensifies the vulnerabilities linked to food insecurity. To tackle these issues, it is essential for policymakers to implement a holistic strategy for food security that includes income assistance programs, infrastructure improvements, and measures to stabilize food prices. Additionally, promoting urban agriculture and ensuring that low-income families can access affordable and nutritious food is critically important. Low-income households in Projek Perumahan Rakyat (PPR) in Gombak areas encounter various obstacles to food access, which can be classified into economic limitations, infrastructure challenges, price volatility, and political influences. Economic barriers consist of low-income levels, high living expenses, and scarce job opportunities, which diminish these households' purchasing power. Geographic challenges, such as a lack of nearby grocery stores or dependable transportation, further limit access to fresh and reasonably priced food. Moreover, the volatility of food prices, influenced by both global market changes and local economic conditions, worsens food insecurity. Political factors, including inconsistent policy support and insufficient social safety nets, significantly impact the food security situation for low-income families.

In order to effectively tackle the obstacles to food security faced by Projek Perumahan Rakyat (PPR) in Gombak, it is essential to implement specific and actionable strategies. These strategies should include the introduction of targeted cash transfer programs and food vouchers to enhance purchasing power, the provision of subsidized essential food items through government-affiliated stores or community food banks, and the establishment of income diversification initiatives such as skill development and micro-enterprise support to bolster household resilience against economic shocks. Additionally, the development of affordable and reliable public transportation systems is vital to mitigate geographic barriers that hinder access to fresh and nutritious food. Furthermore, the establishment of farmers' markets and mobile food vendors within Projek Perumahan Rakyat (PPR) in Gombak communities can significantly improve local access to affordable produce. Enhancing digital infrastructure to facilitate online food delivery services, particularly for households with limited mobility, is also of paramount

importance. Moreover, the stabilization of prices and regulation of markets are critical components of this approach. This can be accomplished through the implementation of price controls or subsidy programs for essential food items to protect low-income families from abrupt price increases, the establishment of food price monitoring systems to identify and respond to market fluctuations, and the promotion of local food production to decrease reliance on global food supply chains. Urban agriculture initiatives, such as community gardens, rooftop farms, and hydroponic systems within Projek Perumahan Rakyat (PPR) in Gombak areas, can further enhance local food production. Providing technical training and small grants for urban agriculture projects can empower low-income families to cultivate their own food, while supporting cooperative farming models can improve collective bargaining power and lower production costs.

Enhancing collaboration among local authorities, non-governmental organizations, and community leaders to tailor food security policies to the specific requirements of Projek Perumahan Rakyat (PPR) in Gombak communities is essential. This involves promoting policies that tackle the socio-economic challenges faced by low-income urban families, including issues related to housing, employment, and access to food. Encouraging community participation in food policy dialogues guarantees that interventions are tailored to the local context and effectively address regional issues. By focusing on these pivotal aspects, policymakers can establish a more robust and inclusive food system for Projek Perumahan Rakyat (PPR) in Gombak, thereby mitigating their susceptibility to food insecurity and improving the overall well-being of the community. A comprehensive strategy that combines economic assistance, infrastructure enhancement, price regulation, urban agriculture, and synchronized policy initiatives is crucial for securing long-term food stability for these populations.

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Author contributions

All authors discussed the results and analysed the data to contributed the final version of the manuscript.

Conflict of Interest

The authors reported no conflicts of interest for this work and declare that there is no potential conflict of interest with respect to the research, authorship, or publication of this article.

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