Food Security: Perspectives from the Bidayuh Community, Sarawak, Malaysia

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ABSTRACT

Food security is a significant global concern and has been debated for decades. Its importance was further emphasized when the Sustainable Development Goals (SDGs) included zero hunger as one of its goals. However, food security is a multifaceted and subjective concept, as reflected in its evolving definitions since the 1970s. The most widely accepted definition describes food security as a condition in which all people, at all times, have physical and economic access to sufficient, safe, and nutritious food that meets their dietary requirements and food preferences for an active and healthy life. This encompasses four dimensions: availability, accessibility, utilization, and stability. Given the subjective nature of the concept of food security and its mostly Western-based definitions, it is crucial to explore how food security is understood within local contexts. This paper examines the concept of food security from the viewpoint of the Bidayuh community, an indigenous group in Sarawak. The discussion is based on data from 211 Bidayuh respondents residing in Padawan, Sarawak, with different gender, socio-economic backgrounds, and age groups. The online data collection took place between October 2021 to March 2022. This approach was adopted in light of the Covid-19 pandemic, which restricted fieldwork and in-person interviews during that period. The findings reveal that over half of the participants were unfamiliar with the term "food security." The findings reveal that food security, to the respondents, is not merely about having enough food but also includes dimensions of food safety, nutrition, and health.

Keywords: Bidayuh, food accessibility, food availability, Food Security, Sarawak

INTRODUCTION

Addressing food security has become an increasingly urgent global concern. In 2021, the Food and Agriculture Organization of the United Nations reported that the world is facing food security and safety crisis, with nearly 800 million people going hungry in 2020 (Sageng et al., 2024). In this context, the international food system plays a vital role in advancing the Sustainable Development Goals (SDGs), particularly SDG2: Zero Hunger, which focuses on ending hunger and malnutrition by 2030. SDG2 aims to make sure everyone has enough nutritious food to lead a healthy life. As a result, food security remains a complex issue for countries across the globe, including Malaysia. One of the key challenges in ensuring food security is the rapid growth in population, which has significantly increased the demand for food over the years. The higher demand for food has resulted in increased food prices. Poor countries are experiencing food shortage as a consequence of poor food supply chain (Heidhues et al., 2004; Maletta, 2014; Mango et al., 2014).

When culture is associated with food security, it will rarely clarify to what extend will it affect food security or how important it is that it can influence food security. Alonso et. al (2018) further elaborate that at individual and household levels, factors such as gender roles, family dynamics, and decision-making power are closely intertwined with cultural influences on food security. Within family structures, varying relationships and responsibilities among members play a key role. For instance, a household's lifestyle significantly shapes eating habits, cultural norms, parental influence, and early exposure to food practices. Household preferences and beliefs can strongly impact decisions related to food security.

Maxwell (1996) argued that, in most literature, the term food security has always been very much focused only on the Western perspectives. Similarly, the measures of food security appeared to be very Western-centred

(Berry et al., 2015; Maxwell, 1996). However, the measure and indicators of food security has become more diverse gradually. The concept of food security has evolved not just in interpretation but has gradually enlarged, from the initial focus on food availability and food productions, to include accessibility of food, its utilization and, lastly, to encompass the stability of these dimensions (Berry et al., 2015).

There were many successful studies has been done on food security across the nation. Studies by Saha et. al (2009) and Steven et. al (2017) among different groups of people in rural Bangladesh, studies by Olayemi (2012) and Mango et. al (2014) looking at the household level of food security in Africa and studies by Cooper (2013) and Vicol et. al (2018) in Southeast Asia. The similarity in these studies is that they are using the samples that are homogenous. These studies also neglect the different culture and life of different communities. Significantly, culture is vital in the context of food security because it includes taboos, values, beliefs, traditions and behaviour of a community as they interpret and deal with food security.

Communities might have different approach of dealing with food security with regards to their roles in the community or in their family, or having different experiences, different understanding and different coping strategies when facing food insecurity based on their values and traditions. Capone et al. (2013) pointed out that including culture in discussions about food security can help create a framework that supports the sustainable use of natural and human resources.

In Malaysia and in Sarawak, however, there hasn't been much research done on household food security within the Bidayuh community (Sageng et al., 2024). There may be a few studies available, but it only addressed the issue of food security in passing. For example, there are a few studies that focus on the Bidayuh community but on a specific subject. For example, study by Bennett (2002) addresses the link between wild meat and food security among the Bidayuh community, while a study by Sayok and Teucher (2018) examines the loss of traditional indigenous (Bidayuh) knowledge on local food plant. Another study on the Bidayuh community is that by Onn (2018) that focuses on the role of women and food security among the Bidayuh. Thus, not many studies focus on the subject of food security itself as a whole among the Bidayuh households in Sarawak, especially on how they perceived household food security as well as their adapting strategies. Acknowledging the gap, this study aims to discuss the issue of food security among the Bidayuh community specifically in Padawan, Sarawak. This paper seeks to explore how the Bidayuh community perceive food security, specifically in the context of Sarawak, Malaysia, particularly in the context of post-pandemic era.

LITERATURE REVIEW

Food security is a dynamic and multifaceted concept that has been looked in different ways since the 1970s. Its broad definition emphasizes four key pillars: availability, access, utilization, and stability. One of the most well-known definitions comes from the FAO in 1996, which says that food security means everyone should always have both the physical and financial means to get enough safe and healthy food that suits their needs and preferences, so they can live an active and healthy life. In the past, the focus was mainly on whether food was available and accessible.

The concept of food security has undergone significant changes since the early 1970s. According to Maletta (2014), the focus has gradually shifted from addressing food concerns at a global scale to more localized concerns at the household and individual levels. During the 1970s, the emphasis was primarily on the availability of food items, with attention given to maintaining consistent supply chains and minimizing price fluctuations worldwide. This global supply-focused definition was emphasized in international discussions at the time. Food availability means that a society has enough food to ensure that each person's daily energy and nutrients need can be met (Rovillos et al., 2009).

In the 1980s, the concept had shifted its focus toward food accessibility. The emphasis was placed on ensuring that every individual could physically and economically access essential food items. For instance, Rovillos et al. (2009) describe food accessibility as a society as having an equitable income growth that allows people to acquire food needs. It also refers to the stability of supply (quantity) and quality of food.

In the 1990s, the focus of food security evolved to reflect its multidimensional nature, encompassing food availability, accessibility, utilization, and stability. One of the most widely recognized definitions was introduced by the FAO in 1996: "Food security exists when all people, at all times, have physical and economic access to sufficient and nutritious food that meets their dietary needs and food preferences for an active and healthy life." This evolution reflects that food security is a wide-ranging and intricate issue, often viewed differently depending on the context in which it is discussed or examined.

Over time, it's become clear that culture plays an important role in shaping food security, as noted in various studies (Alonso, Cockx and Swinnen, 2018; Sheet, 2012). According to Matsumoto and Juang (2013), culture is basically a set of shared values, beliefs, and knowledge passed down through generations. It helps people meet their basic needs, improve their well-being, and find meaning in life. However, despite this recognition, culture is often being neglected in discourses on food security (Abdullah et al., 2021). For instance, Alonso et al. (2018) describe the lack of discussion on culture and malnutrition among policy makers and researchers.

Comparative studies from the Asia-Pacific region further highlight the cultural embeddedness of food security. For example, in New Zealand, the Māori perspective emphasizes kai sovereignty, which goes beyond kai (food) access and availability to encompass cultural identity, spirituality, and community control over food systems (Roskruge, 2024). Meanwhile, in the Pacific Islands, food security is closely linked to local crops, fisheries, and communal sharing systems, which act as key coping strategies in the face of climate change and natural disasters (Campbell, 2015). Meanwhile in Malaysia, the Iban in Sarawak and the Orang Asli in Peninsular Malaysia also define food security through access to customary land, subsistence farming, and forest resources, all of which are central to their livelihoods and cultural identity (Saliman, 2021; Law et al., 2018). These examples highlight how indigenous communities interpret food security not only in terms of sufficiency and access, but also as part of cultural survival, intergenerational knowledge, and ecological stewardship.

Food availability aim to secure sufficient quantities of food, of acceptable quality, and are consistently provided through both domestic and imports productions (FAO, 2006). Food access relates to an individual's capacity to acquire the necessary resources to obtain nutritious and appropriate food. Food utilization focuses on how food is prepared, processed, and cooked to achieve optimal nutritional well-being. Lastly, stability concerns the consistent availability and accessibility of adequate food at all times for both households and individuals, ensuring ongoing food security.

According to Heidhues, Atsain, Nyangito, Padilla, Ghersi and Vallee (2004), concepts of food security evolved because there was a need to reflect changes in policy thinking. As of recently, people have started paying more attention to the ethical and human rights side of food security. At this point it has acknowledged the multi-dimensional nature of food security. However, past studies tend to focus on a bigger scale in which it will not be a good fit in order to understand the issues in the context of locality. By neglecting this dimension, we will be overlooking the specific local characteristics that might play significant role that can really help us understand food security better. By paying more attention to culture, we can take an important step toward making healthier and more sustainable diets available for everyone (Helman, 2007; Keding et. al, 2013). According to Kittler, Sucher and Nelms (2016), food is closely related to human culture. Culture and community's way of life are crucial in order to understand the context of food security. This can be seen when local community perceive food security and their ways to cope with food insecurity will be affected by their culture which include values, beliefs, traditions and their way of life. Out of four pillars of food security mentioned before, only two which are availability and accessibility will be focused on in this study.

Studies by Bhavani and Gopinath (2020) indicate that food security at the household level is strongly influenced by economic status, dietary habits, and overall nutritional well-being. The impact of food security within households extends across multiple dimensions, including social, physical, psychological, and broader societal levels. As noted by Titus and Adetokunbo (2007), economic access to food is not solely determined by financial means as it also encompasses access to land, credit, education, and healthcare services. The roots of food security, whether directly or indirectly, consistently involve an element of economic access. Therefore, the units of analysis in this study are either the households that is represented by the head of household or other members of the households or the individuals themselves.

Recent studies done by Ansah, Gardebroek and Ihle (2019), examining food availability alone is not enough because they find out that in some cases food might be available, but people are having trouble accessing it and this outcome arise due to physical and financial state of that household. Therefore, household tend to have coping strategies in order to reflect those problems that arise. Similar outcomes were highlighted by Cooper (2013) and Maxwell (1996), when facing such consequences in order to secure food, household will be using their backup plan to overcome those stresses and shock. Further strengthen by Maxwell (1996), coping strategy is a backup plan especially when household has to deal with food insecurity problem. There is still relatively little research conducted on food security in Sarawak. Current studies often focus on related topics instead of directly examining household food security. For instance, Bennett (2002) examined how wild meat consumption connects to food security, while Hashim et al. (2019) investigated how tourism development influences food availability for urban poor communities. Similarly, Lee (2019) explored the effects of palm oil plantation expansion on the livelihoods of indigenous populations. These studies highlight that Sarawak possesses diverse food sources, particularly from natural ecosystems such as forests and rivers.

METHODOLOGY

This study was conducted during the COVID-19 pandemic and, as a result, key data collection was conducted online. The implementation of the Movement Control Order (MCO) to combat the spread of Covid-19 disease started on 18th March 2020 and was extended numerous times over a long period of time. Thus, data collection for this study was carried out online between January 2022 and May 2023. The researcher was unable to carry out fieldwork during this period because of the surge in COVID-19 cases in Kuching, Sarawak.

The key research instrument is the questionnaire, that was designed and converted into a Google Form. It then was made available online for the respondents to fill in. This measure was taken to limit the physical interaction between the interviewer and the respondents. Other studies that were carry out during this period also adopted this methodology (e.g. Abdullah et al., 2021). The questionnaire was divided into six main sections: i) respondent's demographic profile; ii) household food security; iii) source and access to food; iv) stability of food in the household; v) factor of food insecurity and adapting strategy; and vi) food services. There is a total of 211 responses collected from the Bidayuh household mainly located in Padawan, Kuching areas and all the respondents varies from different group of age, different gender and different roles in a household.

However, there is limitation in using this method of data collection. It produces limited sampling and respondent availability. This method only allows respondents who have access to stable internet line, those who has smartphone in order to participate in this online survey and it involve only those who are willingly to participate in this online survey. Especially in times with this Covid-19 pandemic it is hard to gain trust from the respondent to be interviewed because people were asked to stay at home and there should be no physical interaction especially with stranger. Hence, the researcher decided to use mix method where online platforms is used as the research medium. This method however allows researcher to perform data collection during the period of restricted movement with no physical interaction involved. Respondents can participate in the online survey on their own schedule and have flexibility to complete the questionnaire.

It is acknowledged that such approach may contain sampling bias. Since participation required internet access and the use of smartphones and/or computers, the sample is more likely to represent younger, tech-savvy and urban-based respondents, while older community members or those living in rural areas with limited connectivity may have been underrepresented.

In order to get a balance view across the Bidayuh community (i.e. to address sampling bias), face-to-face interviews were also conducted. A total of eight respondents of different backgrounds were randomly chosen for follow-up in-depth interviews. The aim was to gain a deeper understanding regarding the perceptions of food security among the Bidayuh community. This interview session was also carried out mindful of respondents' willingness to be interviewed face-to-face during what was considered as risky pandemic time. It should be noted that not many were willing to be interviewed in a face-to-face manner.

To address this issue in future research, a mixed-mode approach should be adopted. This could include combining online surveys with face-to-face interviews, focus group discussions in rural villages and purposive

sampling that intentionally reaches harder-to-reach households without reliable internet access. Such approaches would help to capture a more balanced picture of the Bidayuh community's experiences and ensure that the voices of less connected groups are included. Similar recommendations have been made in other food security studies conducted during and after the pandemic, where researchers stressed the importance of blending digital and traditional methods to reduce bias and strengthen representativeness (e.g., Ishida et al., 2025; Brück & Regassa, 2023; Lasdun et al., 2023).

This paper focusing on food security in Sarawak, Malaysia. The respondents were asked about their views and their understanding based on their experiences on both accessibility and availability of food prior to their cultural background, values, and traditions. Respondent's coping strategies to cope with the challenges arise in ensuring their food supply also being explored in order to answer the key questions of this study.

RESULT AND DISCUSSION

A total of 211 respondents participated in this online survey. All of them are Bidayuh from Padawan, Sarawak. The respondents comprise of different gender, age, socio-economic backgrounds and play different roles in their respective households. Their profiles are presented and summarised in Table 1 below.

Table 1: Profiles of the respondents

	Categories	**Frequency**	**Percentage**
Gender	Male	97	46.0
	Female	114	54.0
Role	Head of household	50	23.7
	Spouse (Wife)	60	28.4
	Children	101	47.9
Occupation	Government (civil servant)	75	35.5
	Private sector	43	20.4
	Self-employed	55	26.1
	Pensioner	7	3.3
	Student	17	8.1
	Housewife	12	5.7
	Unemployed	2	0.9

Awareness about Food Security

In this study, participants were invited to share their perspectives on the concept of food security, the factors affecting their household's food situation, and the strategies they employ to manage periods of food insecurity. Their responses highlighted how the (sampled) Bidayuh community from Padawan, Sarawak perceived the notion of food security. In order to determine Bidayuh's perception on food security, respondents were asked whether they have heard the term food security prior to the data collection and whether they know the meaning of food security.
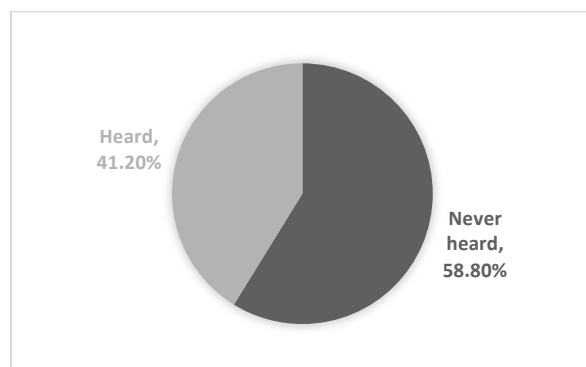

Figure 1: Awareness of the term "food security" among respondents.

The study found that more than half of the respondents have never heard the term food security and unsure of what food security is all about. Approximately 58.8 per cent (i.e. 124 respondents) said that they never heard of the term food security while another 41.2 per cent (i.e. 87 respondents) stated that they were aware of the term food security. This finding highlights a significant gap in exposure to the concept among the Bidayuh community in Padawan. Although many respondents practice food-related strategies in their daily lives, the lack of familiarity with the formal term suggests that their understanding is grounded more in lived experiences than in academic or policy frameworks. This reinforces the importance of connecting food security awareness initiatives to local knowledge systems to ensure more meaningful engagement.
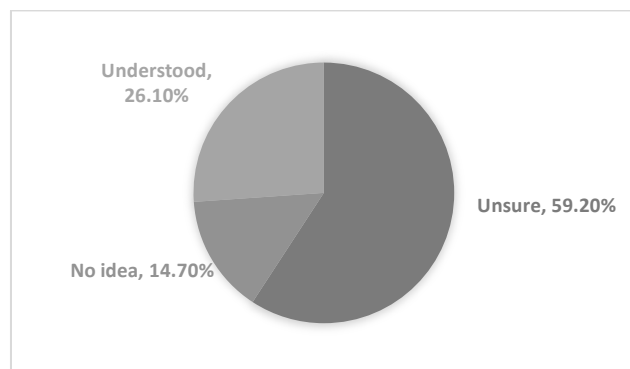

Figure 2: Understanding of Food Security

Similar pattern can be seen when respondents were asked whether they understand the term food security. Approximately 59.2 per cent (i.e. 125 respondents) indicated that they were actually unsure with the meaning of food security. While 14.7% (i.e. 31 respondents) admitted that they have no idea at all regarding food security. Only about a quarter 26.1 per cent (i.e. 55 respondents) claimed that they understood the term. This finding highlighted a significant gap in awareness and understanding of food security, which may hinder effective participation or engagement in addressing food-related challenges. However, it is important to consider whether this perceived lack of understanding came from unfamiliarity with the concept of food security as defined by Western scholars. The local Bidayuh community may, in fact, possess their own culturally grounded perception or understanding of food security. This understanding or awareness may be shaped by traditional practices, experience and local context.

Demographic Relationships in Awareness of Food Security

To further understand these findings, statistical tests were conducted to examine the relationship between awareness of food security and selected demographic factors such as gender, age, occupation, and household role. A chi-square test indicated that awareness of food security differed significantly across age groups (p < 0.05), with younger respondents (below 30) showing lower levels of familiarity compared to older respondents. Similarly, occupation was also associated with awareness of food security. The government employees and pensioners were more likely to report having heard of the term "food security" than students and housewives. However, no significant differences were found between male and female respondents or between household roles (head, spouse, children).

Table 2: Relationship between Demographic Factors and Awareness of Food Security

Demographic Factor	Significant Difference in Awareness of Food Security?	Notes
Gender	No	Male and female respondents showed similar levels of awareness
Age Group	Yes (p < 0.05)	Younger respondents (<30) more familiar; older respondents (>30) less aware
Occupation	Yes (p < 0.05)	Government workers & pensioners more aware; students & housewives less aware
Household Role	No	No notable differences between heads, spouses, or children

These results suggest that age and occupation play more prominent roles in shaping food security awareness among the sampled Bidayuh community. Older respondents and those with work experience in structured institutions may have more exposure to related concepts of food security, while younger and non-working groups rely more on their traditional and lived knowledge. This finding highlights the need for targeted awareness campaigns that consider demographic diversity.

Perception on Food Security

Figure 3 below illustrates the respondents' perceptions of food security based on the online survey that was conducted. It shows that the majority of the Bidayuh community associate food security with having safe food to consume. Furthermore, a large number of responses indicated that they also believe that food security is linked with healthy and nutritious food (over their favourite food). Based on this finding, it is assumed that the respondents are concerned about their health and well-being and cited those as their notion of food security. Their perception is that when they consumed safe food as their daily intake, they are considered as food secured. This is very much in line with the dimension of food security commonly used by FAO (1996). This notion of food security among the respondents may also be attributed to the changing food culture among the younger Bidayuh, brought about by modernization and technology advancement as described by Sageng et al (2024).
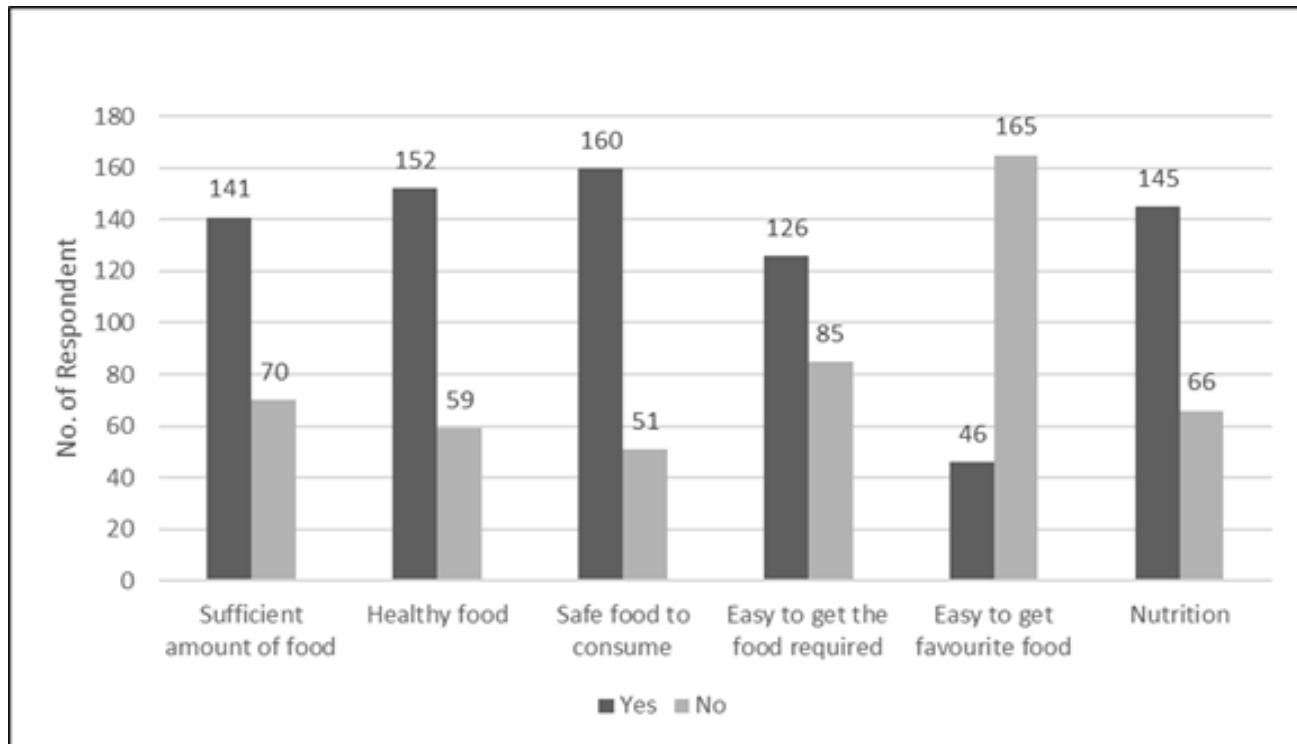

Figure 3: Respondent's perception on food security

While these perceptions reflect lived realities, they can also be contextualized against FAO's four dimensions of food security: availability, accessibility, utilization, and stability. For the sampled Bidayuh, availability and accessibility often overlap with the ability to obtain sufficient and safe food, either from markets or homegrown sources. Utilization is reflected in their emphasis on food safety and nutrition as markers of security, aligning with global standards. However, stability appears to be perceived differently: rather than long-term systemic resilience, many respondents frame stability through short-term coping strategies, such as ensuring there is enough food for daily survival during disruptions (e.g., the COVID-19 pandemic). This shows that while Bidayuh perspectives resonate with FAO's framework, they also diverge in culturally grounded ways, emphasizing immediate well-being and household sufficiency over abstract long-term dimensions.

Figure 3 above also indicated that more than half of the respondents equate sufficient amount of food as an indicator of being food-secure. This response was given more from those households with low income. Given their limited financial security, these households do not have much choices when it comes to food. It was explained that, usually, they will eat whatever that they can afford.

The findings indicated that, in this study, even those with high salary or own a stable income also associate food security with having sufficient amount of food for the family. This perception was further solidified after the recent Covid-19 pandemic that saw food security being affected tremendously during that period. Movement restriction, and lack of financial stability had created panic among the people and pushed them to secure food for their family's survival. At that time, according to the respondents, it does not matter what type of food is available, it is a question of having food for their household for survival. Studies on food security during the Covid-19 pandemic also indicated similar observations (e.g. Abdullah et al., 2021; Bhavani & Gopinath, 2020; Galanakis, 2020; Teoh et al., 2024)

Perception of Food Security by Economic Status

The study also compares the perceptions of food security across the three economic groups: B40 (bottom), M40 (middle), and T20 (top). In this case, the respondents were categorised into one of the three categories based on their household income. It is then matched against their view on food security to get the sense of understanding of how they think food security should be. Their perceptions are assessed based on sufficiency of food, healthy food, safe food, ease of obtaining required and favourite food, and nutrition (refer Figure 2 below).

Table 3: Respondents' perceptions of food security grouped according to their economic status

Economic status/ Perception	B40 Group (Total 62 respondents)	M40 Group (Total of 52 respondents)	T20 Group (Total of 26 respondents)
Sufficient amount of food	39	39	22
Healthy food	44	35	18
Safe food to consume	49	30	19
Easy to get the food required	42	23	10
Easy to get favourite food	14	7	6
Nutrition	39	32	22

Interestingly, the B40 group, despite being the lowest income group ($\leq$ RM4,849), tend to view food security as having food that are safe for consumption (ranked first), healthy food (ranked second) and easy to obtain (ranked third). This is in contradiction to the norm (e.g. findings from Abdullah et al., 2021; and Mugambiwa & Tirivangasi, 2017) which often described the poor or those from low-income households tend to define being food secured as having enough food for the household. In other words, findings from past studies often portrayed the poor group indicating food sufficiency as their main priority in order to become food secured, but the findings of this study tend to differ from those findings.

The M40 group's perceptions of food security are moderate. This means that their views on various aspects of food security are balanced between satisfaction and concern, reflecting a middle-ground position when compared to the B40 and T20 groups. These finding highlights that while the M40 group generally feels they have enough and relatively healthy food, there are significant concerns about the safety and accessibility of food. Compared to the B40 group, which shows higher confidence in food safety and ease of access, possibly due to lower expectations or different coping strategies, the M40 group exhibits more reservations.

The M40 group's moderate perceptions of food security reflect a nuanced view where basic food sufficiency and nutritional needs are generally met, but concerns about food safety and ease of access to required and preferred foods persist. This middle-ground stance underscores the complexity of food security issues among different economic groups, where financial capability and expectations play significant roles in shaping perceptions.

Meanwhile the T20 group ($\geq$ RM10,960), despite having higher income than the other two groups, a majority of the respondents perceived food security as having sufficient amount of food. In addition, they emphasize on nutrition as the key component for being food secured. Findings indicated that the respondents in this group may have higher standards and expectations with regards to food quality, variety, and nutritional value. This would explain their lower satisfaction in some areas (e.g. food security is not about getting one's favourite food) compared to those in the B40 and M40 groups. The T20 group's focus on sufficiency and nutrition is also linked to their financial strength. Compared to the other groups, they can afford more and potentially better-quality

food. However, their higher expectations might lead them to perceive greater challenges in achieving their ideal food security. Similar findings and explanation about this were highlighted in a study by Darmon & Drewnowski (2008). They explained that while financial strength enables better access to food, it also raises expectations for dietary quality.

Bidayuh Strategies for Food and Livelihood

Traditionally, like other rural community in Sarawak, the Bidayuhs are usually involved in agriculture activities as their livelihood strategies, especially paddy planting. Aside from paddy planting, they also involved in pepper, vegetable and fruits planting. According to the respondents, the traditional agricultural practices of the Bidayuh, such as paddy farming and small-scale gardening, continue to play a crucial role in their food security. However, as the time goes by, when urbanization and modernization became more prominent, Bidayuh, like other ethnic groups in Sarawak, shifted to non-farm work as key strategy to support their family. This also influences their food security approach (Sageng et al., 2024). This may also explain their responses linking food security with nutrition, healthy food and food safety. Respondents also mentioned that the shift towards non-farm, modern employment has led to a decline in large-scale agricultural activities in their area and among the Bidayuh community in general. This, according to the elder respondents, could pose challenges for future food security in their community if not addressed.

However, the study found that the respondents still, to some extent, keep the tradition going. The respondents indicated that they are still doing agriculture activities (e.g. planting fruits and vegetables), albeit on a small-scale. The produce is mainly intended for household consumption (e.g. rice and vegetables). It should be noted that, this study took place in a village where a majority of the Bidayuh household own land and a house. Bidayuh households, according to the respondents, usually have their very own small-scale gardening activities around the house compound. When asked, most of the respondents claimed that they have more than one piece of land and they are using their land for farming activities.

During the face to face interview, one of the respondents raised her concerns regarding the participation of Bidayuh youth in agriculture activities. In the study, more than half of the respondents (i.e. 119 respondents) were involved in farming activities. While this may appear to contradict the earlier statement, it actually represents a different context. Further explained, another 92 respondents who claim that they are not involve in farming activities are because many of the respondents are the children of the household. The agriculture activities were, in fact, carried out by their parents. Another reason why the number of people not working in agriculture is high is because majority of the respondents is working in non-farm sector. Thus, decision maker for food supply, food production and food preparation in many of the households were mainly done by both head of household and their spouses.

This study also found that food insecurity is never an issue in the case study area. Respondents stated that they do not have any problem with food supply (food availability) or food accessibility. This is because most of them are able to travel (outside their villages) to get their food supply. However, they stated that it was quite hard for them to actually get their preferred quality of food and that not all choice of food is available near them. A number of respondents indicated that they have to travel to the city (Kuching) which is approximately a 45-minute journey. This issue is very much linked to the dimensions of food accessibility, which involve not just the financial capability of obtaining food, but also cover the time taken to access food, as well as the issue of food choice/preference (Abdullah et al., 2021).

In addition, the Bidayuh community is well known for their hunting activity as their source of food (Sageng et al., 2024). The respondents stated that hunting activity has gradually decline in their community. This was also reported in studies, e.g. by Sageng et al. (2024) and Bennett (2002). This decline is the result of declining resources. According to one of the respondents;

Our parents used to have wild meat and other traditional food daily but, as for now, we can only have such meat if it is available. Since it hard to find those food, we seldom have it except for special occasion like Gawai, weddings and gatherings.

When asked if the respondents and their respective families ever felt worried that they might run out of food supply, more than half of the respondents (i.e. 67.8 per cent) indicated that they do not worry about the food security of the household. Only 32.2 per cent claimed that they are worried. The recent Covid-19 pandemic period has influenced the answer to this key question. Their experiences during the pandemic push them to think about their food security (i.e. availability and accessibility). However, it should be noted that, the respondents have indicated that before the pandemic, they do not have issue with food security provided that the household is financially stable. For instance, one respondent (aged 25 years old) said;

…it is because of the Movement Control Order (MCO) during the pandemic, I am worried about my household food security. In other words, financially I am not worried because both of my parents are working, I am only worried if the food stock in the market is not enough to cater to all the people who were locked up in their houses and unable to go out…

This response is similar to those reported in other food security studies conducted during the Covid-19 pandemics (e.g. Abdullah et al., 2021; Galanakis, 2020; Teoh et al, 2024). As discussed earlier, their experiences during the Covid-19 pandemic had, to some extent, influenced the respondents 'answer. It is quite hard to avoid this period because the pandemic is still fresh in their memories and it brought a lot of changes (whether direct or indirect) to the community globally. The COVID-19 pandemic marked the beginning of a new era and left us grappling with its implications for humanity, the economy, and, consequently, the food systems (Galanakis, 2020).

Beyond agriculture and modern employment, culturally rooted practices remain central to Bidayuh's notion of food security. Indicators such as self-grown produce, small-scale gardening, hunting traditions, and communal sharing during Gawai and other festivals continue to shape the Bidayuh's local food systems. These practices highlight resilience through social networks and cultural obligations, where food is not merely a commodity but a shared resource. Such strategies point to alternative ways of measuring food security, grounded in local knowledge. For example, when families share vegetables they grow or meat they hunt during festivals, it not only helps everyone have enough food but also shows the community's sense of abundance. These local practices could be used as practical signs of food security that better reflect the real-life experiences of indigenous communities.

The COVID-19 pandemic has also highlighted the community's resilience and adaptability in securing food for their household consumption. Many households reported a preference for ensuring a sufficient quantity of food during the pandemic, reflecting a coping strategy aimed at survival. This situation emphasizes the importance of building robust food systems that can withstand crises and ensure continuous food supply.

Consequently, this study revealed that only a small number of households reported experiencing challenges in securing their food in the past few years. Some of them had no doubt that they were worried of their family will not have enough food to eat. Approximately 20.4 per cent of the respondent do experience running out of food supply that they had to serve only one dish for every meal due to financial restriction. There were also a number of them (72 respondents) had to reduce the quantity of their food intake. From here we can see that not all Bidayuh household is food secured, there are still quite a number of them do experienced food insecurity.

CONCLUSION

This study provides important insights into how the Bidayuh community perceives and experiences food security in the post-pandemic context. The findings reveal that food security, to the respondents, is not merely about having enough food but also includes dimensions of food safety, nutrition, and health. These perceptions align with the broader definitions of food security articulated by the FAO. It also seems to reflect a growing awareness of health and well-being, especially among younger generations influenced by modernization and lifestyle changes and in the light of health and safety related issues raised during the Covid-19 pandemics.

This study also reveals differing perceptions of food security across income groups. The B40 group prioritizes food safety, health, and accessibility over mere sufficiency, contrasting with previous studies that associate low-income households with a focus on food quantity. The M40 group shows a balanced view, whereby they are generally satisfied but still concerned about food safety and access. Surprisingly, the T20 group, despite higher

income, emphasizes food sufficiency and nutrition but also reports lower satisfaction due to higher expectations regarding food quality and variety. These findings highlight how income level and expectations shape differing understandings of food security.

Despite these shifts, the Bidayuh community still maintains traditional agricultural practices, particularly for household consumption, indicating a continued reliance on land-based food production. However, there is a noted decline in practices such as hunting, largely due to diminishing natural resources. The study also highlights the limited participation of youth in agricultural activities, suggesting potential challenges in sustaining traditional food systems in the future.

Importantly, while the majority of respondents indicated no significant problems with food availability or accessibility, the impact of the COVID-19 pandemic remains evident in shaping current food security concerns. Many households expressed heightened awareness and anxiety during the pandemic, particularly related to food access and supply disruptions. Although most respondents reported feeling food secure, a notable minority experienced food insecurity, such as reducing meal quantity or relying on minimal food options due to financial constraints.

Overall, the study highlighted the multifaceted nature of food security within the Bidayuh community, influenced by cultural traditions, socio-economic status, and recent global disruptions. It also points to the need for more nuanced, community-specific approaches to addressing food security, with ones that acknowledge both traditional practices and emerging challenges. It was clearly shown that, while the Bidayuh community in Padawan shows a strong practical understanding of food security through their cultural practices and coping strategies, there is a clear need for increased awareness and education on the broader aspects of food security. By leveraging their traditional knowledge and integrating it with modern approaches, the community can achieve a more secure and resilient food system.

Policy Implications

The findings also provide important insights for strengthening food security strategies in Sarawak and Malaysia. It is crucial that indigenous perspectives, such as those of the Bidayuh, are integrated into policy frameworks to ensure inclusivity and sustainability. This means recognising indicators that matter to the community for example, small-scale farming, local food sharing and household coping strategies that have long supported their food needs.

Policies should also be designed in ways that respect cultural values and traditional knowledge, rather than replacing them. At the same time, support for traditional agriculture remains important, whether through securing land rights, improving access to resources or creating fairer market opportunities. Biodiversity-based practices, including sustainable hunting, should not be overlooked, as they continue to contribute to household food security. Finally, more attention needs to be given to encouraging young people to take part in agriculture, whether through education, training or incentives, so that traditional practices can be passed on while preparing the community to face new challenges in food security.

ACKNOWLEDGEMENT

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