RESEARCH ARTICLE

# Food security status of households with children aged 0-10 in an urban poor community in Quezon City, Philippines during the COVID-19 pandemic

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**ABSTRACT**

**Background:** The COVID-19 pandemic and its effects such as community restrictions, lockdowns, and unemployment have greatly affected the household food security status in urban poor communities leading to poor accessibility of sufficient nutritious food and subsequently affecting the nutrition of children.

**Objectives:** This present study aims to determine the prevalence of household food insecurity in households with children aged 0-10 amid the COVID-19 pandemic in an urban poor community in Quezon City.

**Methodology:** A descriptive cross-sectional study was done to evaluate the food security status and experiences of households amid the COVID-19 pandemic.

**Results:** A total of 405 households were surveyed to answer questions designed to determine their general profile relative to their food security experiences during the pandemic. It was observed that the majority of the households in the urban poor community belong to Class D earning between PhP 8,001.00 - PhP 15,000.00. The heads of these households as well as caregivers mostly belong to the high school graduate level. Based on the conducted survey, it was revealed that 59.5% of the households were severely food insecure (90% CI: 55.4-63.4) and only 4.2% ( 90% CI: 2.8-6.2) were food secure.

**Conclusion:** The prevalence of food insecurity in the urban poor community is determined to be high, with 31.6% households having moderate food insecurity, while only 4.2% households are food secure. The majority of surveyed households were anxious and uncertain about their food supply, and also reported experiencing varying levels of food insecurity related to sufficiency of food quality.

**Keywords:** *household food insecurity, food access, households with children, COVID-19*

## Introduction

**Food insecurity** occurs when there is not enough adequate access to food for the individual or household due to a deficiency in resources or funds [1]. This health issue encompasses food availability, access to food, and the proper utilization of food. It is also addressed in the Sustainable Development Goals (SDGs) of the United Nations. Food insecurity has been shown to impact the health and development of an individual, especially their nutritional status [2].

Food insecurity became more evident during the COVID-19 pandemic. Countries such as Bangladesh, Nepal, and Belgium experienced disrupted food security in terms of access, ability to buy, affordability, and availability [3-5]. Developing countries such as the Philippines have also been experiencing household food insecurity.

Before the pandemic, the majority (53.9%) of Filipino households were already experiencing varying levels of household food insecurity [6]. In relation to food security status, the prevalence of hunger may have declined nationwide from 13.6% to 10.0% before the pandemic, however, there were no signs of decline in hunger status in Metro Manila. Due to the pandemic, the livelihoods of people were greatly affected, worsening the situation of food security in the Philippines [7]. Although there have been studies done with regards to household food security, there have been no studies focusing on food insecurity in the Philippines especially in

urban poor communities during the pandemic. This public health concern seems to have worsened during the pandemic particularly for urban poor communities.

In addition to this, household food insecurity can greatly affect the nutrition of children, as this is known to be a risk factor for undernutrition in children [8]. A study by Ieiri, Kosaka, Tomitsuka, & Umezaki (2021) observed that severe food insecurity status can have a grave impact on the nutritional status of children [9]. It has also been related to increased likelihood of being underweight and stunting among preschool-aged children [10,11]. Determining the severity of food insecurity during these times of crises in households can help in formulating programs and interventions that can address household food insecurity especially for those with children ages 0-10 years old.

There are a number of areas in the Philippines classified as urban poor. In Quezon City, there are several urban poor areas or barangays [12]. During COVID-19, these urban poor areas were greatly affected by the pandemic. Due to restrictive protocols, citizens of the area had difficulty in having access to food aid as well as the need to follow enacted protocols such as social distancing.

In general, there are still gaps when it comes to determining the extent of household food insecurity in urban poor communities in urbanized areas in the Philippines, such as Quezon City. Studies evaluating this may be able to help in understanding the status of household food insecurity, and with analysis can help in recognizing it as a burden during the pandemic and guide policy makers to direct programs to target this issue [13]. The development of policies can help alleviate the concerns in connection with food insecurity [14].

Hence, this recent study aims to determine the severity of household food insecurity during the COVID-19 pandemic in an urban poor community in Quezon City. Moreover, it also aims to the household food insecurity experiences of the households during the pandemic. The findings from this study will be beneficial in identifying new information about household food insecurity, and the results can be utilized in creating interventions and strengthening existing nutritional programs and policies for the urban poor community in Quezon City.

*Theoretical Framework*

The conduct of this present study was anchored to the United Nations Children's Fund (UNICEF) Theoretical Framework on the causes of malnutrition. This framework focuses on the multifactorial causes of malnutrition which were categorized into basic, underlying, and immediate causes of malnutrition. Based on the UNICEF Framework on Malnutrition (1993), the immediate causes include inadequate dietary intake and diseases. Failing to obtain the nutritional needs of the individual can lead to diseases, particularly for children. This can then lead to the development of malnutrition. On the other hand, underlying causes include food insecurity in households, poor maternal and child care, and insufficient prevention and control of disease [15].

The basic causes as indicated are potential resources and control of resources. The control of resources is composed of human, economic, and organizational resources. Human resources are composed of people and their contributions such as their time and skills. Economic resources are the assets that can be utilized for having enough food to address an individual's nutritional needs. Organizational causes are those that include institutions and organizations focused on obtaining a person's nutritional needs [15].

## Methodology

*Research Design*

A descriptive cross-sectional study was conducted to determine the household food insecurity of households in urban poor communities in Quezon City during the COVID-19 pandemic.

*Study Area*

An urban poor community located in Quezon City was chosen as the location of interest for this study. This area was defined to be an urban poor community in previous studies and reports [16-18]. Furthermore, the chosen community also falls under the definition of urban poor from the Asian Development Bank (ADB) which defines urban poor communities as having poor quality of infrastructure and shelter, more vulnerable to natural disasters and adversities which can lead to stress and adversity, and insecurities with regards to livelihood and income which could affect the household [19]. This community is ideal for the study as it is located nearby major thoroughfares in the metro and is estimated by community groups to house around 6000 families with 3 to 5 people in each household, most of which belong in the lowest income groups [16-18]. These characteristics make this specific locale a good representation of an urban poor community with a large population group.

*Study Population*

This study considered the following criteria for the inclusion of the households in the survey. Households considered in the study must have had at least one child aged 0-10 years old, with the study respondent being the mother or caregiver of the child, of at least 18 years old during the start of the study implementation, and must have been a resident of the study site for at least one year prior to the study.

*Sampling Method*

Cluster sampling was used to determine the households by preparing a list of the areas in the urban poor community from the barangay health center. These areas were used to determine the clusters for this study. After divisions had been made, the order of clusters was randomly chosen. All the households in the chosen clusters were part of the sample size.

*Sample Size*

Based on the 2020 census of the PSA, the number of people residing in the barangay where the urban poor community is located was around 29,389. The estimated number of families living in the area during the start of the COVID-19 pandemic was estimated to be at 6000 [17,18]. Since the study focuses on determining the prevalence of household food insecurity in the community, the formula that was used for calculating sample size will be the following equation:

$$n = deff \times \frac{N\,\hat{p}\hat{q}}{\frac{d^2}{1.645^2}(N-1) + \hat{p}\hat{q}}$$

n = sample size; deff = design effect;

N = population size; $\hat{p}$ = estimated proportion;

$\hat{q} = 1 - \hat{p}$; d = confidence limit

**Equation 1.** *Sample size calculation used*

With the equation, the calculated sample size at 90% confidence level was 389. Given the estimated number of families, a hypothesized % frequency of outcome factor in the population of 50%, confidence limit of 5%, and design effect of 1.5, the sample size was computed. Usually, the rough estimate used in computing sample size is 50% [20]. It was considered to be the safest choice if the frequency of the outcome factor is not known. The confidence level is usually set at 95% for most research studies [21]. To accommodate for the academic workload of the researchers, and the uncertainty of achieving appropriate sample size due to ongoing demolitions, the confidence level was set to 90% instead. The confidence limit was set to 5%. Based on this, the computed sample size is 389. For this study, a total of 405 participants were surveyed.

*Research Instruments*

A survey questionnaire was utilized to gather the necessary data for the research. The survey questionnaire included:

1. Socio-demographic Profile of the Households. This was used to collect the sociodemographic profile of the households, including the gender of the caregiver and head of the household, ages of both the caregiver as well as the household head, highest educational attainments of the aforementioned individuals, marital status, household size, occupation of household head, occupation of caregiver, and socioeconomic classification.

2. Household Food Insecurity Assessment Scale (HFIAS). This contained questions adapted from the HFIAS questionnaire from the DOST-FNRI. The HFIAS is a nine-question scale that measures food access in terms of the following: (i) anxiety over household food supply; (ii) household food quality; and (iii) quantity of food intake [22,23]. As this is a retrospective tool, the respondents were assisted with appropriate probing regarding the frequency of certain activities related to food security to stimulate memory. The HFIAS is the primary instrument used by the Philippines' Department of Science and Technology - Food and Nutrition Research Institute (DOST-FNRI) in the conduct of National Nutrition Surveys [24].

*Data Gathering Procedure*

*Letter to Barangay Captain with the assistance from BHWs and BNSs*

A letter addressed to the barangay captain was formulated and sent to the barangay office with assistance from barangay's health workers (BHWs) as well as nutrition scholars (BNS).

*Informed Consent*

An informed consent letter written in both English and Filipino was given to each participant before distributing the questionnaires. This document included an assurance of confidentiality for the participants' data as well as a clause to state that should they opt to stop participating at any point of the study, their information would not be used.

*Questionnaire*

A total of 433 questionnaires were printed and distributed to participating individuals identified as the caregivers of their household, who then answered this in the presence of the researcher so that the latter may answer questions that may arise. Data collection was done.

*Data Analysis*

Descriptive statistics was applied for analyzing the results. Frequencies and proportions were used to report the sociodemographic characteristics of the household including the following: gender of the caregiver, age of caregiver, highest education level attained by the household head and the caregiver, marital status of the caregiver, household size, occupation of both household head and caregiver as well as socioeconomic classification. Frequencies for each of the sociodemographic characteristics (Table 1), experiences of food insecurity (Table 2) and food insecurity status (Table 3) were obtained by dividing the tally with the total sample size. For experiences in food insecurity in Table 2, the answers provided

**Table 1.** *Characteristics of households in an urban poor community in Quezon City, 2022 (n = 405)*

| Characteristics | No. (n = 405) | Percent (%) |
|---|---|---|
| **Gender of Caregiver** | | |
| Male | 31 | 7.7 |
| Female | 374 | 92.3 |
| **Mean age of household caregiver** | 35.3 ± 0.8 | |
| **Mean age of household head** | 36.3 ± 0.8 | |
| **Mean number of children in household** | 2.0 ± 0.1 | |
| **Household size** | 5.1 ± 0.2 | |
| > 5 members | 189 | 46.7 |
| 5 members | 128 | 31.6 |
| < 5 members | 88 | 21.7 |
| **Civil Status** | | |
| Single | 43 | 10.6 |
| Married | 223 | 55.0 |
| Live-In | 110 | 27.2 |
| Divorced/Separated | 13 | 3.2 |
| Widowed | 16 | 4.0 |
| **Occupations** | | |
| **Caregiver Occupations** | | |
| Managers and Professionals | 1 | 0.3 |
| Technicians and Associate Professionals; Office support and service staff; and Sales employees; | 22 | 5.4 |
| Skilled agricultural, forestry, fishery, craft and related trade occupations | 25 | 6.2 |
| Plant and machine operators and assemblers | 2 | 0.5 |
| Elementary occupations | 110 | 27.1 |
| Unemployed | 245 | 60.5 |
| **Household Head Occupations** | | |
| Managers and Professionals | 5 | 1.2 |
| Technicians and Associate Professionals; Office support and service staff; and Sales employees; | 79 | 19.5 |
| Skilled agricultural, forestry, fishery, craft and related trade occupations | 187 | 46.2 |
| Plant and machine operators and assemblers | 25 | 6.2 |
| Elementary occupations | 100 | 24.7 |
| Unemployed | 9 | 2.2 |
| **Household Income** | | |
| PHP 30,001-99,000 (Class B and Upper Class C) | 6 | 1.5 |
| PHP 15,001-30,000 (Class Broad C) | 100 | 24.7 |
| PHP 8,001-15,000 (Class D) | 199 | 49.1 |
| PHP 8,000 and below (Class E) | 100 | 24.7 |
| **Highest Educational Attainment** | | |
| **Caregiver** | | |
| No grade completed | 9 | 2.2 |
| Elementary graduate | 103 | 25.4 |
| High school graduate | 220 | 54.3 |
| College graduate | 35 | 8.7 |
| College graduate and Post baccalaureate | 38 | 9.4 |
| **Household Head** | | |
| No grade completed | 9 | 2.2 |
| Elementary graduate | 107 | 26.4 |
| High school graduate | 213 | 52.6 |
| College graduate | 38 | 9.4 |
| College graduate and Post baccalaureate | 38 | 9.4 |

**Table 2.** *Frequency distribution of food insecurity experiences of households in an urban poor community in Quezon City, 2022 (n=405)*

| Occurrence Questions | Frequency of Experience (in the last 30 days)* | | | |
|---|---|---|---|---|
| | Often n(%) | Sometimes n(%) | Rarely n(%) | Never n(%) |
| Worried that their household will not have enough food | 175 (43.2) | 153 (37.8) | 43 (10.6) | 34 (8.4) |
| Respondent or other household members not able to eat different foods they would rather have since not enough resources | 124 (30.6) | 161 (39.8) | 55 (13.6) | 65 (16.0) |
| Respondent or other household members have to eat a limited variety of foods since not enough resources | 109 (26.9) | 162 (40.0) | 62 (15.3) | 72 (17.8) |
| Respondent or other household members have to eat some foods that they really did not want to eat because of lack of resources to obtain other types of foods | 112 (27.7) | 145 (35.8) | 65 (16.1) | 83 (20.5) |
| Respondent or other household members have to eat a smaller meal than they felt they needed because there was not enough food | 79 (19.5) | 153 (37.8) | 81 (20.0) | 92 (22.7) |
| Respondent or other household members have to eat fewer meals in a day because there was not enough food | 75 (18.5) | 109 (26.9) | 67 (16.5) | 154 (38.0) |
| Instances of having no food to eat of any kind in your household because of lack of resources to get food | 34 (8.4) | 114 (28.2) | 59 (14.6) | 198 (48.9) |
| Respondent or other household members went to sleep at night hungry because there was not enough food | 24 (5.9) | 77 (19.0) | 53 (13.1) | 251 (62.0) |
| Respondent or other household members went a whole day and night without eating anything because there was not enough food | 16 (4.0) | 40 (9.9) | 39 (9.6) | 310 (76.5) |

**Table 3.** *Food security status of households in an urban poor community in Quezon City, 2022 (n=405)*

| Food Security Status | Frequency | Prevalence (90%CI) |
|---|---|---|
| Food Secure | 17 | 4.2 (2.8-6.2) |
| Mildly Food Insecure | 19 | 4.7 (3.2-6.7) |
| Moderately Food Insecure | 128 | 31.6 (27.9-35.5) |
| Severely Food Insecure | 241 | 59.5 (55.4-63.4) |

by the participants regarding frequency of experience were divided by the total number of participants. The proportion and the 90% confidence intervals were used to report the prevalence of household food insecurity in the study area. The estimation of prevalence was computed for each type of household food insecurity category using 90% confidence.

*Ethical Considerations*

The participants were asked to read and understand an informed consent form before signing. The conduct of this study was approved by the UP Manila Research Ethics Board (UPMREB) with protocol number 2022-0374-EX.

*Potential Biases*

Potential sources of bias can arise from the measurement tools used as well as during data collection. Recall bias and measurement bias were addressed by proper probing. The researchers were trained, and even familiarized themselves with the research instrument. Pre-testing was also done to ensure validity and usability of the survey tool. The researchers that conducted the survey also went through training to address this potential source of bias. In addition, the researchers also ensured that the translation of the English and Filipino surveys were certified. The research tool used was also based on the HFIAS generated by the DOST-FNRI to ensure validity.

## Results

A total of 405 households were surveyed in an urban poor community in Quezon City towards their food security experiences. The details of socio-demographic profile were presented in Table 1.

*Socio-demographic profile of the respondents.*

Majority (92.3%) of the caregivers were female. The mean age for the household caregiver and household head was 35.3 (95%CI: 34.5, 36.1) and 36.3 (95%CI: 35.5,37.1), respectively.

The mean household size was 5.1 with an average of 2 children aged 0-10 in each household. Majority of these households had more than five members (46.7%). Married individuals made up more than half of the participants (55.0%), while some (27.2%) were live-in partners.

In terms of occupations, the majority (60.5%) of the caregivers were unemployed. On the other hand, almost half (46.2%) of the household heads have occupations which are classified as skilled and related trade workers. Skilled workers included those of agricultural, craft, fishery, and forestry occupations. In addition, more than half (54.3%) of the caregivers were high school graduates. A quarter (25.4%) were elementary graduates, and only some (9.4%) were college graduates or undergraduates (8.6%). There is a small percentage of caregivers that did not complete any grade. The case was similar for the household heads wherein majority are high school graduates for their highest educational attainment (52.6%). This is also followed by elementary graduates as the second highest proportion for educational attainment (26.4%), college undergraduates (9.4%) and college graduates or post baccalaureates (9.4%). Similar to the case of caregivers, there is a small percentage of household heads that did not complete any grade (2.2%).

For household income, the majority of the sampled households belong in Class D (49.1%). This is then followed by Class Broad C and Class E at 24.7% each. A very small percentage is attributed for Class B and Class Upper C at 1.5% combined. With regards to educational attainment, 54.3% of the sampled caregivers are high school graduates. For household heads, around 52.6% graduated high school. This has the highest frequency when it comes to educational attainment.

*Food insecurity experiences of households in an urban poor community in Quezon City*

The majority (81.0%) of surveyed households were anxious and uncertain about their food supply, categorizing them as either mildly food insecure (if rarely anxious) or moderately food insecure (if sometimes or often anxious. A majority of households also reported experiencing varying levels of food insecurity related to sufficiency of food quality. About 8 out of 10 households reported an inability to eat their preferred food because of a lack of resources, having to restrict food in terms of variety, and eating food that they did not like since they don't have enough resources to obtain more preferred types of food.

Experiencing insufficient intake of food and its attributing physical consequences were also reported by households, albeit less frequently than the other two domains. Approximately 80% of households experienced having to eat smaller portions of meals compared to what they felt they needed to save on food, while three-fifths of respondents had household members that ate fewer meals in a day due to insufficient food quantity. Around half of the surveyed households (51.1%) experienced having no food to eat of any kind. Almost 40% of the respondents reported going to sleep at night hungry or with no evening meal, while almost a quarter (23.5%) of all households experienced going through a whole day and night without being able to eat any food. The details are shown in Table 2.

*Food Security Status of the Households*

Only 4.2% (90%CI: 2.8, 6.2) of the households were classified as food secure and the rest were classified as households who were experiencing food insecurity. The prevalence of mildly food insecure households was recorded to be at 4.7% (90%CI: 3.2, 6.7). More than a quarter of households (31.6%) were classified to be moderately food insecure (90%CI: 27.9, 35.5). Lastly, almost 60% (59.5%) of the households were experiencing severe food insecurity (90%CI: 55.4, 63.4). Details were shown in Table 3.

## Discussion

*Demographic profile of the households*

Majority of the caregivers were female, which shows that mother, grandmother, or female elders were the usual caregivers. Mothers or mother figures are usually the primary caregivers of the family, with some having grandparents as the caregivers in the Philippine setting [25]. This explains why there are more female caregivers compared to higher male caregivers.

The average number of household members was computed to be 5.1, wherein about 46.67% of the surveyed households have greater than 5 members. This mean is relatively higher compared to an affordability report by a local survey done in the community which sampled 202 households in 2019. Based on this affordability report, the mean was computed to be 4.20, wherein the majority of the households have 3 to 5 members [26]. The mean of children aged 0-10 living in the household was 2 while the average household size was 5. The extra members may be an extended family member living with the household such as the siblings of the parents. It is also possible that some of the children of the parents are beyond 10 years old which is not included in the computed mean for children aged 0-10 but included in the household size.

The mean age of the household caregiver was relatively lower at 35.3 compared to that of the household head which was 36.3. Hence, most of the caregivers and household heads are categorized under the prime working age between age 25 to 54. Based on data from the Philippine Statistics Authority (PSA) in 2018, the distribution of employed persons according to age group places 26.8% of the population between 25-34 years old and 23.2% between 35-44 years old. With the household heads, and some caregivers, usually being the primary source of income of the family, the categorization of their mean ages as such can be attributed to this [27].

In this present study, most of the caregivers graduated high school. Similar to those findings, most of the household heads graduated high school as well. These findings were supported by the study of Sarte *et al.* (2019) which could also explain the low employment rate in the community due to low levels of educational attainment that hinders them to be employed in higher paying employment opportunities [28].

*Food Insecurity Experiences of the Households*

Household food insecurity was seen to be widespread among the urban poor community in Quezon City. More than half of the sample (~60%) were experiencing severe food insecurity and almost one-third (~32%) were classified as moderately food insecure. These findings were also similar to the reports of Laborde et al. (2020); Crush and Si (2020), during the earlier months of the pandemic [29, 30]. Their studies suggest that the prevalence of food insecurity is expected to increase especially in vulnerable groups such as low-income families living in urban poor communities.

In the Philippines, the DOST-FNRI conducted a rapid nutrition assessment survey about food insecurity in the Philippines during the pandemic. Results showed that 62.1% of the 5,717 households were experiencing moderate to severe food insecurity [31]. This is higher than the reported 46.9% prevalence of households with moderate to severe food insecurity by the DOST-FNRI in their 2019 Expanded National Nutrition Survey and also the 35% in the conducted National Nutrition Survey - Quezon City in 2018 [32].

The difference in the results for household food insecurity between the conducted study and that of Angeles-Agdeppa *et al.* (2022) may be attributed to the difference in methodology [31]. A telephone rapid nutrition assessment survey was used in the study while the present study did house-to-house surveys. The telephone surveys limited the respondents of the study to households with active contact numbers which may have limited responses to those from higher income classes. In comparing the profiles of respondents, around three-fourths of the households surveyed in the present study are classified as Class D or E while 7 out of 10 telephone survey respondents would be classified Class Broad C or higher. Furthermore, as the present study focused on an urban poor community, it was expected that most of the households belong to lower income classes, which is dissimilar from the conducted 2019 Expanded National Nutrition Survey (ENNS) since this national survey utilized the national population as primary sampling population which consists of different respondents from varying income classes. It is worth noting that the collection period was different for these studies compared to the collection period when conducting this study. This can also be a possible explanation as to why there are differing results with that of the study of Angeles-Agdeppa *et al.* (2022) and the 2019 ENNS. In addition, the collection period for the ENNS was done before the COVID-19 pandemic compared to this study wherein the pandemic was still ongoing.

In terms of household income, results of the present study suggests that almost half of all surveyed households belong to income status Class D (PHP 8,001-15,000) which is relatively lower compared to the national monthly average recorded in the 2018 Family Income and Expenditure Survey (FIES) of Php 26,083. Since the survey was done in an urban poor community, it is expected that the lower bracket of income status would be more common. There will be a bias or increased frequency of households in the lower bracket of income status. This may be linked to the job opportunities present for those working in the household. Since most of both household heads and caregivers have only achieved secondary education, their job opportunities may be limited. Fewer job opportunities would mean significantly less income which in turn can lead to a higher risk of poverty [33]. Educational attainment is one of the factors that can affect employment rates [34]. According to the World Bank (2015), those with low educational attainment would usually be employed in low-skilled jobs [33]. It was reported that in 2015, about 30% of laborers with secondary educational attainment had unskilled jobs. With these factors, the food security of the household can be negatively affected.

McIntyre *et al.* (2014) and Drammeh *et al.* (2019) have found that total income greatly affects adequate food access and overall food security [35,36]. On the other hand, it was noted by Alcantara *et al.* (2019) that child undernutrition, a consequence of food insecurity, has a lower occurrence in households with higher income [37]. Thus, it is evident that low household income may result in food insecurity. In

relation, food security status of the household can be also affected by the employment status of both caregivers and household heads. In this present study, there were dual-income households, in which caregivers and household heads were both able to contribute to the household income. This meant a relatively higher income compared to single-income households since these had two sources of income.

*Food Security Status of the Households*

In line with the high proportion of food insecure households, only a small proportion of households were found to be food secure at 4.2%. The households were only classified as food secure when stating that they have never experienced any of the situations posed in the survey questions, excluding having experienced worrying if their household will not have enough food, which an answer of rarely would still classify them as food secure. This number greatly differs from the results of the 2018 Expanded National Nutrition Survey (ENNS) which showed that 53.7% of households in urban residences and 18% of households belonging to poor wealth quintiles were food secure in separate categories [32]. With this, it is evident that food security in the community was significantly low during the pandemic.

*Limitations of the Study*

The results of this study were bounded by several limitations including recall bias, measurement bias, seasonal variations, and insufficient sample size. Pre-testing was done to ensure the validity of the survey tools used. The researchers also underwent training prior to data collection to ensure that proper probing is done to minimize the bias reflected in the survey responses.

Limitations may also arise from the caregivers due to social-desirability bias when the respondents modify their responses to be perceived as more socially desirable or acceptable [38]. To reduce this, the questionnaire was rigorously reviewed to ensure that survey questions are neutral and not leading. Since the study was conducted during the rainy season in the country from August to October 2022, there may also be seasonal variation in terms of food availability. Thus, the study may not necessarily reflect the HFI status of the study site during the dry season, considering that the area being studied has self-sustained community farms and pantries affected by seasonal changes as one source of food resources.

Furthermore, other factors may also contribute to food insecurity other than the pandemic. Rising prices of necessities, seasonal variation, and inflation are some factors that may also have affected the household food insecurity status in the urban poor community [39]. Lastly, as the study was conducted in an urban poor area with resident-run community farms and pantries, it may not be a valid representation of other urban poor communities in the country that do not have the same facilities in place to sustain food security. In terms of generalizability, it is only limited to the surveyed urban poor community. Lastly, correlations between different variables were not measured in this study.

## Conclusion

The prevalence of food insecurity in the surveyed households of the study area was observed to be high with the majority of the households experiencing moderate food insecurity. A large majority of households stated that they worry that they will not have enough food. This can be attributed to very low income of households, wherein majority of the household areas were having Class D with monthly income of PHP 8,001.00 - 15,000.00.). Majority of the household heads were reported to be employed in elementary occupations which can be explained by the low educational attainment of household heads ranging from elementary to secondary education.

Based on the study, food insecurity is still apparent in the urban poor community in Quezon City. As such, it is vital in public health practice to develop and promote programs and policies to address this nutrition-related dilemma. Data obtained on sociodemographic profile and severity of food insecurity in the community can be used by the local government unit, program planners, and local chief executives to address the public health issue. Nutrition training can be recommended and implemented in the urban poor community. Providing mothers and caregivers information and training related to nutrition can help in food security [40].

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