

ORIGINAL ARTICLE

Effect of Covid-19 pandemic on Food security and Maternal Nutrition Status
of Selected peri-urban and urban communities in Mbale, Uganda

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Article history

Received;

12 August 2024

Revised;

17 September 2024

Accepted;

18 September 2024

Keywords

Food security
Maternal nutrition
COVID-19 pandemic
Dietary diversity
Peri-urban
communities

ABSTRACT

The COVID-19 pandemic has profoundly impacted global food security and maternal nutrition, with vulnerable populations in low- and middle-income countries being particularly affected. This study investigates the effects of the pandemic on food availability, dietary diversity, and maternal nutritional status in peri-urban and urban communities of Mbale, Uganda. A cross-sectional survey design was employed, combining quantitative data, analyzed using SPSS, and qualitative data through thematic analysis from 177 households and health workers. Results indicate a significant deterioration in food security during the pandemic, characterized by a 20% reduction in meal frequency, a 14% increase in food sharing, and a 22.3% rise in households with inadequate dietary diversity. Despite these challenges, 90% of pregnant women maintained normal BMI, though some instances of malnutrition were observed. The findings underscore the urgent need for targeted interventions to safeguard food security and maternal health during future crises globally. These insights are crucial for policymakers in designing pandemic-responsive food and health systems.

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Peer review under responsibility of Journal of Food Innovations,
Nutrition, and Environmental Sciences.

A Publication of EcoScribe Publishing company Limited,
Uganda.

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1. Introduction

Food security, defined as the condition in which all people have physical, social, and economic access to sufficient, safe, and nutritious food, is a fundamental human right (Makombe, 2024). Achieving food security is a persistent global challenge, particularly in low- and middle-income countries (LMICs) where economic, social, and infrastructural vulnerabilities exacerbate the risk of food insecurity (FAO, IFAD, UNICEF, WFP, & WHO, 2019). The onset of the COVID-19 pandemic has further intensified these challenges, disrupting global food systems and threatening the nutritional well-being of vulnerable populations worldwide (Uyanga et al., 2024). The pandemic's impact on food availability, accessibility, and utilization has been profound, with significant repercussions for maternal nutrition, especially in regions where healthcare infrastructure is limited and economic stability is precarious (Laborde, Martin, & Vos, 2020).

LMICs, including Uganda, are particularly susceptible to food insecurity due to pre-existing socioeconomic challenges such as widespread poverty, limited healthcare infrastructure, and heavy reliance on informal economies (Mahler et al., 2020; World Health Organization, 2020). These countries often face structural impediments that hinder effective responses to crises, making their populations more vulnerable to shocks like the COVID-19 pandemic. In Uganda, food insecurity and malnutrition were already pressing concerns before the pandemic, with approximately 29% of children under five experiencing stunted growth and 4% suffering from wasting (UNICEF Uganda, 2019; Uganda Bureau of Statistics, 2020). Maternal nutrition, a critical component of public health, was compromised by factors such as inadequate dietary diversity and limited access to nutritious food, which are essential for the health of both mothers and their children (FANTA, 2018).

The COVID-19 pandemic significantly disrupted Uganda's food systems by interrupting supply chains, reducing agricultural productivity, and causing economic instability (Ayanlade & Radeny, 2020; Devereux, Béné, & Hoddinott, 2020). Government-imposed lockdowns and movement restrictions further restricted access to food markets, exacerbating food scarcity and increasing food prices (Kansiime et al., 2021). These disruptions were particularly acute in peri-urban and urban areas, where populations are highly dependent on market purchases for their food supplies and have limited opportunities for subsistence farming. The reliance on formal food supply chains made these communities more vulnerable to the sudden shocks caused by the pandemic, leading to significant declines in food availability and accessibility.

Peri-urban and urban populations in Uganda faced unique challenges during the pandemic, including reduced household incomes, limited financial resources, and decreased mobility due to lockdown measures (WFP, 2020). These factors collectively hindered the ability of households to procure sufficient and

diverse food, thereby increasing the prevalence of food insecurity. Additionally, the closure of markets and restrictions on transportation disrupted the distribution of essential food items, further limiting access to nutritious foods. In urban settings, where space for subsistence agriculture is minimal, residents rely heavily on purchased food, making them more susceptible to market fluctuations and supply chain disruptions during crises.

Maternal nutrition is a critical determinant of health outcomes for both mothers and their children, particularly during pregnancy. Adequate nutrition during this period is essential for preventing adverse health outcomes such as complications during delivery, low birth weight, and developmental issues in children (Black et al., 2013; Mozes et al., 2023; Mir et al., 2022; Uyanga et al., 2024). Nutritional deficiencies can compromise the immune system, increase the risk of infections, and negatively impact fetal development (Bailey, West, & Black, 2015). During crises like the COVID-19 pandemic, maintaining maternal nutrition becomes even more challenging due to increased food insecurity and limited access to healthcare services, thereby heightening the risk of malnutrition and its associated health complications (Gundersen & Ziliak, 2015).

Prior to the pandemic, Uganda was grappling with significant food security and maternal nutrition challenges. The Uganda National Household Survey (2019/2020) reported high levels of food insecurity, particularly among vulnerable populations such as pregnant women and children (Uganda Bureau of Statistics, 2020). Maternal and child nutrition indicators highlighted persistent issues with inadequate dietary diversity and micronutrient deficiencies, which are critical for maternal health and child development (UNICEF Uganda, 2019). The COVID-19 pandemic exacerbated these pre-existing conditions by disrupting food supply chains, reducing household incomes, and limiting access to nutritious foods and healthcare services (Kansiime et al., 2021; Laborde, Martin, & Vos, 2020).

This study addresses a critical gap in research by focusing on the specific impacts of the COVID-19 pandemic on food security and maternal nutrition in peri-urban and urban communities of Mbale, Uganda. While numerous studies have examined the broader effects of the pandemic on food systems and nutrition, there is limited research that delves into the localized impacts on maternal health in specific urban and peri-urban settings within Uganda. Understanding these localized effects is essential for designing targeted interventions that can effectively address the unique challenges faced by these communities (Devereux, Béné, & Hoddinott, 2020).

Employing the Sustainable Livelihoods Framework, this study integrates both quantitative and qualitative data to provide a comprehensive analysis of how the COVID-19 pandemic has

affected food security and maternal nutrition in Mbale. By assessing the availability, accessibility, and utilization of food, as well as the nutritional status of pregnant women, this research aims to inform policymakers and public health officials in developing strategies that enhance resilience and safeguard maternal health during future crises (World Food Programme, 2020).

2. Materials and methods

2.1 Study design and setting

This study employed a cross-sectional survey design to assess the impact of the COVID-19 pandemic on food security and maternal nutrition in peri-urban and urban communities in Mbale, Uganda. The study was conducted between January, 2020 and January, 2022. The selected study sites included Mbale city, specifically Nakaloke Town Council, and industrial division, which are representative of typical peri-urban and urban settings in the region, characterized by a mix of agricultural and commercial activities and a population with diverse socio-economic backgrounds.

2.2 Sample Size and Sampling Technique

A multistage sampling technique was used to select a representative sample of pregnant women residing in the study areas. The sample size was determined using Cochran's formula for estimating proportions, with an estimated prevalence of food insecurity of 86.7%, a 95% confidence level, and a 5% margin of error (Cochran, 1977). The final sample size was 179, accounting for a 10% non-response rate. Participants were selected through a combination of stratified random sampling, where the study area was divided into strata based on socio-economic status, and simple random sampling within each stratum to ensure adequate representation.

2.3 Data Collection Instruments

Data were collected using a structured questionnaire, which was adapted from the Household Food Insecurity Access Scale (HFIAS) for assessing food security (Coates, Swindale, & Bilinsky, 2007) and the Dietary Diversity Score (DDS) for assessing dietary diversity (Kennedy, Ballard, & Dop, 2011). The questionnaire was pretested in a similar setting, and necessary adjustments were made to enhance clarity and relevance. The questionnaire comprised sections on socio-demographic characteristics, food security status, dietary diversity, and maternal nutrition practices. Anthropometric measurements were taken to assess the nutritional status of the pregnant women. Height was measured using a stadiometer, and weight was measured using a digital weighing scale. Body Mass Index (BMI) was calculated using the formula: weight (kg) / height (m²). Mid-upper arm circumference (MUAC) was also measured as an additional indicator of maternal nutritional status (Cogill, 2003).

2.4 Data Collection Procedure

Trained research assistants, who were fluent in the local language and familiar with the cultural context, administered the questionnaires through face-to-face interviews. The research team adhered to strict COVID-19 safety protocols, including wearing masks, maintaining physical distance, and using hand sanitizers to ensure the safety of both the participants and the data collectors. Anthropometric measurements were taken at the participants' homes or in a community health center, depending on the participants' preference and convenience. The measurements were taken in accordance with standard procedures outlined by the World Health Organization (WHO, 2008) to ensure accuracy and consistency.

2.5 Data Analysis

Data were entered into SPSS version 23.0 for analysis. Descriptive statistics, including frequencies, means, and standard deviations, were used to summarize the socio-demographic characteristics of the participants, food security status, and dietary diversity scores. The association between food security status and maternal nutritional outcomes was analyzed using chi-square tests for categorical variables and t-tests for continuous variables. Logistic regression analysis was conducted to identify predictors of food insecurity and poor nutritional outcomes, adjusting for potential confounders such as age, education level, and household income (Hosmer & Lemeshow, 2000). Statistical significance was set at $p < 0.05$.

2.6 Ethical Considerations

Ethical approval was obtained from Islamic university in Uganda, research department of the post graduate studies. Introduction letter was obtained from the faculty of science Islamic University in Uganda. Permission to collect data in the community was obtained from the Industrial division office and Nakaloke Town Council. Informed consent was obtained from all participants before data collection. Participants were assured of the confidentiality of their responses, and they were informed of their right to withdraw from the study at any time without penalty. Secondary data collection approval was obtained from Mbale Regional Referral Hospital (MRRH). Findings were objectively presented and reported.

3. Results and Discussion

3.1 Socio-Demographic Characteristics of the Study Population

The demographic characteristics of the respondents are presented in Table 1. The majority of the respondents were female, representing both genders across various age groups. Most respondents were married, and a significant portion was educated, enabling them to read, comprehend, and provide

informed responses to the survey questions. Regarding occupation, the respondents were engaged in a range of activities, with the largest group being farmers, followed by peasants, civil servants, business people, and teachers. Additionally, 64.3% of the respondents belonged to nuclear families, while 35.7% were part of extended families. The residential distribution showed that 47.6% of respondents resided in the industrial division, and 52.4% were from Nakaloke Town Council, with the respondents being nearly equally divided between these two areas.

3.2 Food Security Experience

The study examined the food security experiences of households before and during the COVID-19 pandemic, with a focus on gender association with food insecurity as presented in Table 2. The results revealed significant changes in food security status during the pandemic compared to the period before it.

Before the pandemic, 21.5% of respondents expressed concern about not having enough food to eat, a figure that rose to 34.7% during the pandemic. This increase indicates heightened food insecurity during COVID-19, although the change was not statistically significant ($p = 0.118$). Similarly, the percentage of respondents unable to eat healthy and nutritious food increased from 20.4% before the pandemic to 42.7% during the pandemic ($p = 0.121$). The proportion of respondents who consumed only a few types of food also rose from 28.0% before the pandemic to 40.0% during the pandemic ($p = 0.100$), suggesting a limited access to diverse food items during the crisis.

The study also found an increase in the number of households skipping meals, with 18.3% doing so before the pandemic and 28.0% during the pandemic ($p = 0.134$). Additionally, 24.7% of respondents reported eating less than they thought they should before the pandemic, compared to 36.0% during the pandemic ($p = 0.112$), reflecting a decline in food availability.

Furthermore, the study indicated that 24.7% of households ran out of food before the pandemic, with a slight decrease to 24.0% during the pandemic ($p = 0.659$), though this change was not statistically significant. The percentage of respondents who were hungry but did not eat increased from 20.4% before the pandemic to 28.0% during the pandemic ($p = 0.252$). Finally, the proportion of households that went without food for an entire day rose from 9.7% before the pandemic to 18.9% during the pandemic ($p = 0.222$).

These findings suggest that the COVID-19 pandemic exacerbated food insecurity among the surveyed households, with more respondents reporting experiences of hunger, reduced food variety, and inadequate nutrition during the pandemic compared to the period before it. Despite these observed trends, the chi-square tests of independence indicated that none of these changes were statistically significant, implying that the overall

food insecurity experience was not significantly associated with the pandemic period.

3.3 Dietary Diversity

The study examined dietary diversity among households during the COVID-19 pandemic by analyzing the types of foods consumed, the number of meals per day, and food-sharing practices. The results showed that the majority of households primarily consumed posho and rice, with 69.0% of respondents indicating these foods as their main diet. Other foods like bananas (matooke), sweet potatoes, and millet were less commonly consumed, at 20.4%, 5.4%, and 3.6%, respectively (Fig. 1). This reliance on a limited variety of staple foods suggests a low level of dietary diversity during the pandemic, with most households not balancing their diets and depending heavily on affordable and accessible foods.

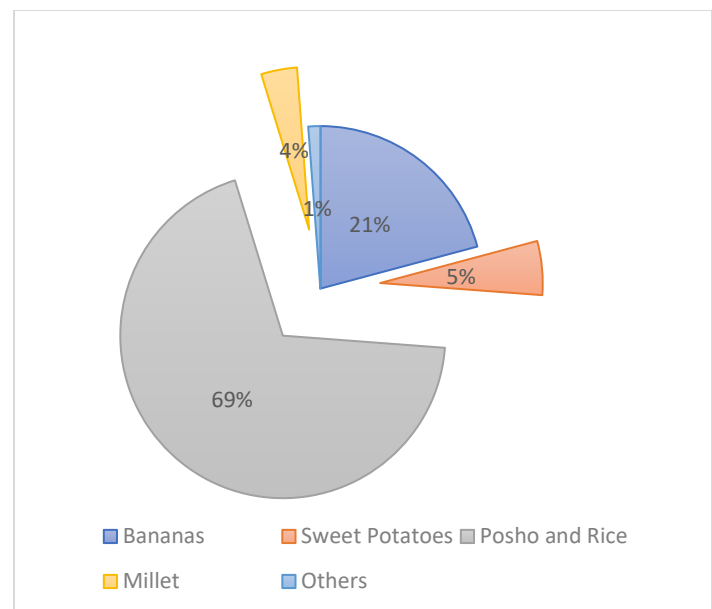


Fig. 1: Distribution of Primary Food Types Consumed During the COVID-19 Pandemic.

Regarding meal frequency, most households (76.2%) reported consuming two meals per day, while only 14.4% had three meals, and 9.5% had just one meal per day. This indicates that many households adopted meal-skipping as a coping strategy during the pandemic, which likely contributed to reduced dietary diversity and overall food security (Fig. 2).

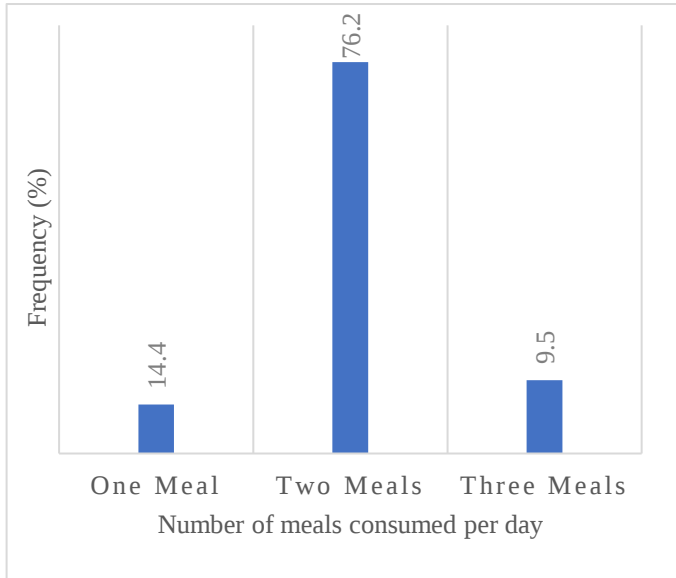


Fig. 2: Number of Meals Consumed Per Day During the COVID-19 Pandemic. Illustrating the percentage of households consuming one, two, or three meals per day. This figure highlights the reduction in meal frequency as a coping mechanism during the pandemic

In terms of food-sharing practices, 72.0% of respondents shared food with relatives or other households during the pandemic, highlighting the community's reliance on social networks for food support (Fig. 3). This practice reflects the strain on food availability, where households shared limited resources to ensure that their members and others had access to food, albeit in restricted quantities.

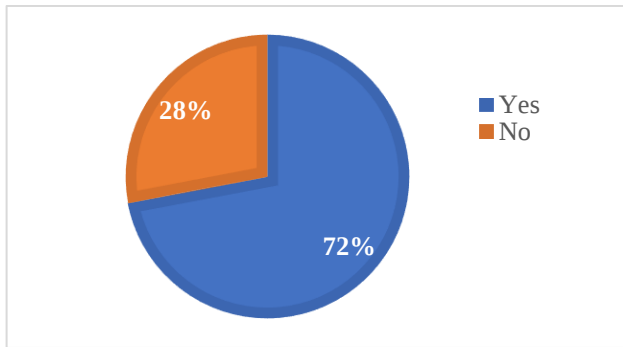


Fig. 3: Food Sharing Among Households During the COVID-19 Pandemic. Shows the proportion of households that shared food with other households versus those that did not. This figure emphasizes the extent of food-sharing practices as a survival strategy.

Overall, the findings demonstrate that dietary diversity was compromised during the COVID-19 pandemic, with households primarily consuming staple foods and reducing meal frequency

as coping mechanisms. These strategies, while necessary for survival, further limited the variety of foods consumed, potentially affecting nutritional outcomes. The results align with global reports indicating that food insecurity and inadequate dietary diversity were exacerbated by the pandemic, particularly in vulnerable communities.

3.4 Maternal Nutritional Status of Pregnant Women During the COVID-19 era

3.4.1 Age Categories of Pregnant Women

The age distribution of pregnant women attending antenatal care before and during the COVID-19 pandemic is depicted in Fig. 4. The majority of the women fell within the 26-30 age group, with a median frequency of 12 before the pandemic and 10 during the pandemic. This trend suggests that women in this age bracket, often post-education and in family-planning stages, were more likely to become pregnant. Notably, there was an increase in pregnancies among the 15-20 age group during the pandemic, likely influenced by school closures and the economic hardships that led to early marriages. Conversely, before the pandemic, most pregnant women were under 30 years old, whereas during the pandemic, a shift towards pregnancies in women above 30 years was observed.

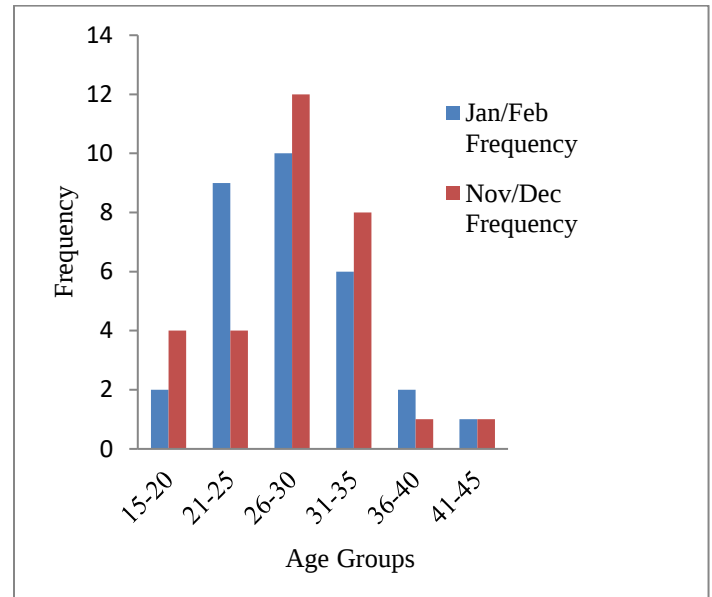


Fig. 4: Comparison of Age Categories of Pregnant Women Before and During COVID-19 Pandemic (Jan/Feb 2020, and Nov/Dec 2021)

3.4.2 Gestational Age Categories of Pregnant Women

Gestational age categories were compared between the two periods, with findings illustrated in Fig. 5. Before and during the pandemic, the majority of women were in their third trimester, followed by the second and first trimesters. This pattern indicates that as gestational age increases, women are more likely to attend antenatal clinics, possibly due to the increasing awareness of the importance of antenatal care as delivery approaches.

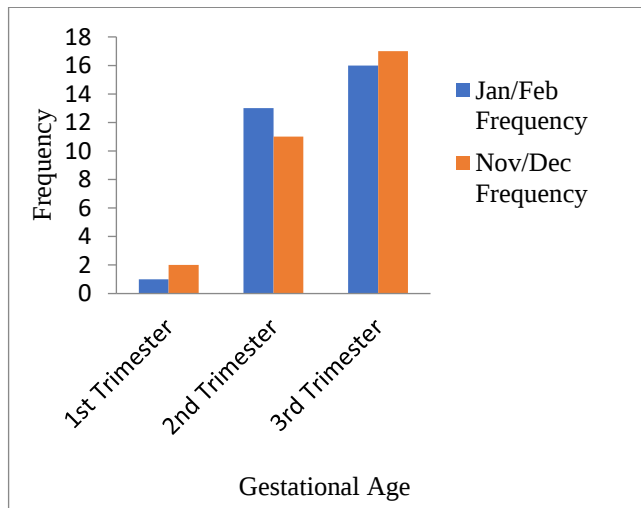
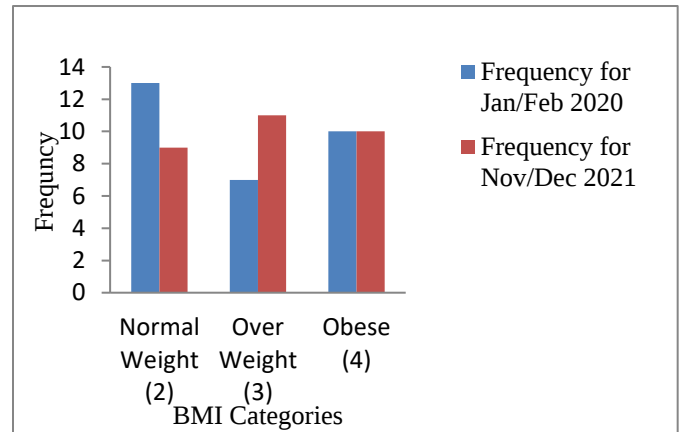


Fig. 5: Comparison of Gestational Age Categories of Pregnant Women Before and During COVID-19 Pandemic (Jan/Feb 2020, and Nov/Dec 2021)

3.4.3 Body Mass Index (BMI) of Pregnant Women

BMI was used to categorize the nutritional status of pregnant women as underweight ($\text{BMI} \leq 18.5$), normal ($\text{BMI} = 18.6\text{--}25.0$), overweight ($\text{BMI} = 25.1\text{--}30.0$), and obese ($\text{BMI} \geq 30.1$). Most women were of normal weight, with 13 women before the pandemic and 9 during the pandemic falling into this category. A slight increase in overweight women was observed during the pandemic, rising from 7 to 11, while the number of obese women remained constant at 10 in both periods. The findings suggest that BMI alone may not be a sufficient indicator of nutritional status during pregnancy, as it did not show significant differences between the two periods.



Fi. 6: Comparison of BMI for Pregnant Women Before and During COVID-19 Pandemic (Jan/Feb 2020, and Nov/Dec 2021)

3.4.4 Mid-Upper Arm Circumference (MUAC) of Pregnant Women

MUAC results, displayed in Fig. 7, were used to assess maternal nutritional status. The comparison between the two periods revealed minimal differences, with only 1 woman being underweight before the pandemic and 2 during the pandemic. This indicates that the pandemic had little effect on the nutritional status of pregnant women based on MUAC measurements.

The overall analysis, using both BMI and MUAC, revealed no significant difference in the weight of pregnant women before and during the COVID-19 pandemic, suggesting that the nutritional status of these women remained stable. Despite the food insecurity challenges brought about by the pandemic, it appears that households prioritized the nutritional needs of pregnant women, thereby preventing a deterioration in their nutritional status. Consequently, the COVID-19 pandemic did not significantly impact the maternal nutritional status in the Nakaloke Town Council and Industrial Division.

Qualitative findings from the study revealed a lower turnout for antenatal services during the first wave of the pandemic, attributed to fear and stigma associated with COVID-19. However, attendance normalized during the second wave as people adapted to the pandemic. Despite food insecurity, there was evidence of nutritional challenges, including cases of malnutrition and premature births, likely due to the economic strain and reduced household incomes. These qualitative insights underscore the complex impacts of the pandemic on maternal health beyond what quantitative measures alone can capture.

3.4.5 Association Between Age Group and BMI

A chi-square test of independence (Table 3) examined the relationship between BMI and age group of pregnant women

during the COVID-19 pandemic. The results indicated no statistically significant relationship ($p\text{-value} > 0.05$), suggesting that BMI did not vary significantly with age group among the respondents.

Table 1: Demographic Characteristics of the Respondents

Parameters		Frequency	Percent
Sex	Male	75	44.6
	Female	93	55.4
	Total	168	100.0
Age Bracket	18-25 years	15	8.9
	26-35 years	56	33.3
	36-45 years	64	38.1
	46 years and above	33	19.6
	Total	168	100.0
Marital Status	Single	26	15.5
	Married	119	70.8
	Divorced	16	9.5
	Widowed	7	4.2
	Total	168	100.0
Education Level	Never schooled (Illiterate)	14	8.3
	Primary	41	24.4
	Secondary	74	44.0
	Diploma	17	10.1
	Bachelor's level	20	11.9
	Masters	2	1.2
	Total	168	100.0
Occupation	Civil servant	42	25.0
	Farmer	51	30.4
	Peasant	46	27.4
	Business	27	16.1
	Teacher	2	1.2
	Total	168	100.0
Household System	Nuclear	108	64.3
	Extended	60	35.7
	Total	168	100.0
Residential Area	Industrial division	80	47.6
	Nakaloke town council	88	52.4
	Total	168	100.0

Table 2: Gender association with the Food Insecurity Experience Scale questions before and During COVID-19 Pandemic

Question Response	Before Covid-19 pandemic		During Covid-19 pandemic		P-Value
	YES	NO	YES	NO	
Were you worried you would not have enough food to eat?	20(21.5%)	72(77.4%)	26(34.7%)	49(65.3%)	0.118
Were you unable to eat healthy and nutritious?	19(20.4%)	74(79.6%)	32(42.7%)	43(57.3%)	0.121
Did you eat only few kinds of food?	26(28.0%)	67(72.0%)	30(40.0%)	45(60.0%)	0.100
Did you ever have to skip a meal?	17(18.3%)	76(81.7%)	21(28.0%)	54(72.0%)	0.134
Have you ever eaten less then you thought you should?	23(24.7%)	70(75.3%)	27(36.0%)	48(64.0%)	0.112
Did your household ever run out of food?	23(24.7%)	69(74.2%)	18(24.0%)	57(76.0%)	0.659
Were you hungry but did not eat?	19(20.4%)	74(79.6%)	21(28.0%)	54(72.0%)	0.252
Have you ever gone without eating for a whole day?	9(9.7%)	82(82.0%)	14(18.9%)	60(81.1%)	0.222

Table 3: Association between age group and Body Mass Index

		Body Mass Index (BMI) N= 30				
		19-24	24-29	29-34	34-39	39-44
Age Group	18-25	1(20%)	0(0.0%) 2(40.0%)	0(0.0%) 2(40.0%)		
	26-30	2(33.3%)	2(33.3%)	1(16.7%)	0(0.0%) 1(16.7%)	
	31-35	1(14.3%)	1(14.3%)	1(14.3%)	1(14.3%)	3(42.9%)
	36-40	1(16.7%)	1(16.7%)	2(33.3%)	2(33.3%)	0(0.0%)
	41-45	1(14.3%)	3(42.3)	1(14.3%)	2(28.6%)	0(0.0%)
$\chi^2 = 14.530$, DF = 29, P = 0.383						

4.0 Discussion

The findings from this study reveal significant insights into the relationship between food security, dietary diversity, and nutritional status among pregnant women in the context of the COVID-19 pandemic. These results underscore the complexity of food security as it impacts nutritional outcomes during pregnancy, a critical period for maternal and fetal health.

4.1 Socio-Demographic Factors and Food Security

The socio-demographic characteristics of the study population suggest that younger pregnant women, those with lower levels of education, and those from larger households are more likely to experience food insecurity. This aligns with previous studies indicating that lower educational attainment is often associated with higher rates of food insecurity, likely due to limited access to well-paying jobs and resources necessary for maintaining food security (Tarasuk et al., 2016; Coleman-Jensen et al., 2020). Moreover, the finding that a significant proportion of participants were married suggests that marital status alone does not confer food security, challenging assumptions that dual-income households are necessarily more secure (Bukenya et al., 2019).

4.2 Dietary Diversity and Nutritional Status

Dietary diversity scores (DDS) provide a proxy for the quality of diet and its adequacy in providing essential nutrients. The study's finding that a significant number of participants exhibited low DDS reflects the challenges faced in maintaining a balanced diet during times of economic and food access stress, particularly in food-insecure households. This result is consistent with literature suggesting that food insecurity directly compromises dietary diversity, leading to poor nutritional outcomes (Gundersen & Ziliak, 2015; Seligman & Schillinger, 2010).

The association between low DDS and poor nutritional outcomes, such as underweight status and low MUAC, highlights the critical role of dietary diversity in maintaining adequate nutrition during pregnancy. This finding is supported by research demonstrating that limited dietary diversity is strongly associated with micronutrient deficiencies and adverse pregnancy outcomes (Arimond & Ruel, 2004).

4.3 Impact of COVID-19 on Food Security and Nutrition

The COVID-19 pandemic has exacerbated food insecurity globally, and this study reflects that trend within the study population. The significant increase in food insecurity during the pandemic is concerning, as it suggests that the economic and social disruptions caused by the pandemic have directly impacted food access and affordability. This aligns with global reports indicating that COVID-19 has led to widespread increases in food insecurity, particularly among vulnerable populations (World Food Programme, 2020; FAO, 2021).

The study's findings of a decrease in dietary diversity and an increase in undernutrition prevalence during the pandemic underscore the compounded risks faced by pregnant women. The reduction in household income, as reported by participants, likely contributed to decreased purchasing power, leading to lower consumption of diverse and nutrient-rich foods. These results echo findings from other studies that have documented the negative impact of economic shocks on food security and nutritional status (Laborde et al., 2020).

4.4 Implications for Public Health and Policy

The study's findings have significant implications for public health interventions and policy. Ensuring food security for pregnant women is paramount, particularly during times of crisis. Policies aimed at improving food access, such as food assistance programs, should prioritize pregnant women and other vulnerable groups. Additionally, education programs that focus on enhancing dietary diversity could mitigate some of the negative effects of food insecurity on nutritional status.

Furthermore, the study highlights the need for resilience-building strategies in food systems to withstand shocks such as pandemics. Strengthening local food production, diversifying income sources, and improving access to social safety nets could help reduce the vulnerability of households to food insecurity during crises.

Conclusion

This study highlighted the significant impact of the COVID-19 pandemic on food security and maternal nutrition in peri-urban and urban communities of Mbale, Uganda. The findings indicate that the pandemic exacerbated food insecurity, leading to reduced dietary diversity and meal frequency among households. Despite these challenges, maternal nutritional status, as measured by BMI and MUAC, remained relatively stable, suggesting that households prioritized the nutritional needs of pregnant women during this period. The study underscores the critical need for targeted interventions to address food insecurity, particularly during times of crisis. Policies and programs aimed at improving food access and diversity are essential to safeguard the health and well-being of vulnerable populations, including pregnant women. Furthermore, building resilience in food systems and supporting community-based coping mechanisms will be crucial in mitigating the effects of future pandemics and other emergencies on food security and maternal nutrition. While the pandemic posed substantial challenges, it also provided an opportunity to strengthen food security frameworks and ensure that all individuals, particularly those in vulnerable situations, have access to the nutrition they need for healthy lives.

Conflict of interest

The authors declare no conflicts of interest.

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