Libyan Journal of Public Health Practices (LJPHP)

Journal homepage:https://journals.uob.edu.ly/LJPHP/index
ISSN (Online) 3008-1467

Research Article

Food Insecurity and Hunger among Internally Displaced Families in Benghazi, Libya

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ARTICLE INFO

Article history:
Received xxxx
Revised xxxx,
Accepted xxxx,
Available online June 2025

keywords:
Food Security
Conflict
Internal Displacement
Benghazi, Libya
COVID-19.

ABSTRACT

Food security (FS) is a critical issue exacerbated by conflict and pandemics. This study investigated FS among internally displaced persons (IDPs) in Benghazi, Libya, during the COVID-19 pandemic. A cross-sectional survey was conducted with 120 IDP families residing in three camps in Benghazi, Libya. The Radimer/Cornell Hunger Scale was used to assess household FS. The findings revealed a high prevalence of food insecurity, with 91.7% of families experiencing some level of food insecurity. Factors such as parental education, paternal employment, and access to food storage and preparation equipment significantly influenced FS levels. The study highlighted disparities in FS between camps, with El-Helis camp showing higher levels of food insecurity. The complex interplay of conflict and pandemic-related disruptions to food systems, employment, and financial stability contributed to these challenges. This research emphasizes the urgent need for targeted interventions to address food insecurity among IDPs in conflict-affected regions. Such interventions should include immediate food assistance, improved distribution systems, and long-term strategies for building self-sufficiency and enhancing access to food resources.

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1. Introduction

Food security (FS) is defined as "when all people, at all times, have physical and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life [1]. There are four main dimensions of FS: (i) food availability, an indicator of food supply, agricultural production and trade; (ii) food accessibility, influenced by food prices and income; (iii) food utilization, determined by food diversity, preparation, safety, general hygiene and sanitation; and (iv) the stability of the previous three dimensions over time [2]. FS is demonstrably compromised in households residing in regions experiencing drought, floods [3, 4] and armed conflicts [5].

Since 2014, there has been a steady increase in overall food insecurity worldwide, and during 2019, it was estimated that more than one-quarter (25.9%) of the global population, that is 2 billion people, experienced food insecurity [6]. In 2020, COVID-19 restrictions disrupted food production and access in many countries, particularly low- and middle-income countries, worsening global hunger [7]. The State of Food Security and Nutrition in the World report indicates that global hunger worsened significantly in 2020, with the number of people categorized as food insecure increasing by more than the increase in the previous five years combined. This means that nearly one-third of the world's population (2.37 billion) lacked adequate food in 2020 [8].

According to the World Food Programme (WFP), the Arab world experienced a significant increase in food insecurity. In 2021, approximately 53.9 million individuals faced extreme food insecurity, representing a 55% increase compared to 2010. Furthermore, the number of people experiencing moderate to severe food insecurity was also on the rise, with projections indicating that 154.3 million individuals were affected in 2021 [9] A substantial body of research has investigated food insecurity within the Middle East and North Africa (MENA) region, encompassing countries such as Yemen [10], Palestine [11], Syria [12], and Lebanon [13]. These studies consistently demonstrate the widespread prevalence of food insecurity and hunger across the MENA region.

Violent conflicts exacerbate food insecurity through disruptions to food production, market functionality, and infrastructure [14]. According to the FSIN and Global Network Against Food Crises, 99.1 million people faced food insecurity due to violent conflict in 2020 in 23 countries [15]. The 2011 revolution in Libya resulted in a period of significant political and social instability. The country went through waves of armed conflicts that had a devastating effect on civilians in several ways, such as loss of life and injuries, disruption of basic services, limited access to healthcare, and psychological trauma [16]. A large number of people fled their homes due to violence or insecurity, and by 2020, there were still more than 392,000 internally displaced persons (IDPs) in Libya [17]. Fighting and instability have also disrupted food production, markets, and transportation, leading to food shortages and rising prices [18]. This worsened hunger and malnutrition, especially among vulnerable groups, such as IDPs, refugees, and migrants [17].

A survey was conducted in 2018 to compare the living conditions of IDP camps with those of the general population. The survey included 162 internally displaced families from around the Benghazi camps and revealed that people are living in poor conditions. They have lower education and healthcare rates, they live in cramped and unfinished buildings and tents, they have less nutritious food and they rely on negative coping mechanisms [19]. The typical jobs of the IDPs were in the informal sector, including daily labor in construction, agriculture, and services such as car washing or street vending. Hence, lockdowns and travel limitations caused by COVID-19 restrictions led to job losses and reduced income in people working in the private sector. With limited savings and social safety nets, IDPs are at

greater risk of the negative economic impacts of COVID 19 [20].

Prolonged political instability, outbreaks of violence and the risk of kidnapping among international workers have limited the ability of international organizations to work in Libya [17]. Moreover, COVID-19 restrictions imposed in 2020 constrained the methods of recruitment for proper data collection to assess the situation. Remote methods such as online surveys and phone interviews may have affected the precision of the data, and the recruited samples may not have been statistically representative [21].

Therefore, this study aimed to (i) assess the FS level in Libyan families that were displaced due to the conflict and settled in Benghazi city and (ii) explore whether there was a difference in FS levels between the camps during the pandemic period. This study's findings will contribute to a deeper understanding of the complex factors influencing FS among IDPs in conflict settings and pandemics, which can inform future research and interventions in similar contexts and could also contribute to the development of more effective policies and programs to address FS among IDPs in conflict-affected regions.

2. Methodology

This cross-sectional study was conducted in Benghazi city between February and March 2021. The IDPs in Benghazi are distributed over four camps around the city, known as El-Helis, Turkish Company, Bohdema and Garyounis. The management group of the Bohdema camp refused to cooperate with the researchers; therefore, the families were recruited from the following camps: El-Helis, Turkish Company and Garyounis. Face-to-face interviews were carried out with an adult representative for each household by the researchers (AA, AAA, ME).

A questionnaire was developed by the research team to achieve the aims of this study. It was divided into three sections as follows:
Sociodemographic section: Contains questions on the number of family members, number of children under 18 years of age, parents' education level, employment status, and total household income
Settlement date, number of years in the refugee center and external support received; questions about food storage and cooking facilities; and type and frequency of received aid.

Household FS: The validated Radimer/Cornell Hunger Scale was used to assess household FS [22]. The scale consists of 10 questions. Each question had three possible answers: “not true,” “sometimes true,” or “often true”, and participants were asked to answer according to the previous 12 months. According to the responses to the questions, the households were categorized into one of the following four categories: (i) food secure (negative response to all the questions), (ii) food insecure (at least one positive response to questions 1–4 but not 5–10), (iii) adult food insecure with hunger (a minimum of one positive response to questions 5–8) or (iv) food insecure with child hunger (a minimum of one positive response to questions 9 and 10). The questionnaire was previously translated into the Arabic language and used by a team of researchers at Oslo Metropolitan University, who kindly provided the translated version to be used in this study [23].

The University of Benghazi Review Board approved the study design, and a written consent form in the Arabic language was signed by a proxy adult from each household who agreed to participate in the study. The interviewers received training before commencing the data collection. Each family was informed that participation was voluntary and anonymous and that they had the right to withdraw from the study at any point without giving justification. Participants were given the opportunity to ask questions, and it was clarified for each family that this assessment was not directly related to receiving help from humanitarian organizations or access to government support.

The Statistical Package for the Social Sciences version 26.0 was used to store and analyze the data. For descriptive analysis, demographic and socioeconomic characteristics are presented as ranges or numbers and

percentages according to FS category. Pearson chi-square tests with 95% confidence intervals were used to assess the associations between demographic and socioeconomic characteristics and the level of FS. The Kruskal–Wallis H test was used to assess whether there was an association between living in one of the IDP camps and the answers provided to the questions. All p values <0.05 were considered to indicate statistical significance.

3. Results

One hundred and twenty Libyan families participated in this study, providing data from El-Helis, Turkish Company, and Garyounis camps. The majority of the interviews (82.5%) were conducted with senior males.

3.1 Demographic characteristics of the included families: The number of family members ranged from 2 to 13 person. One hundred families (83%) had at least one child (< 18 years). Education level differed between parents, with more than 12% of the mothers and 6% of the fathers lacking formal education. However, fathers were more likely to be employed, with 87.5% reporting having a job compared to 20.8% of the mothers. In general, 82.5% of the families reported a total monthly income of less than 1000 Libyan Dinar (approximately $220).

More than 75% of the families reported living in camps since 2011, 20.8% did not provide arrival information, and the rest of the families arrived between 2012 and 2015. Sixty-five percent of the families experienced shortages in equipment such as refrigerators (17.5% lacking) and cookers (23.3% lacking) or inadequate cooking and storage equipment. Only 32 families (26.6%) reported receiving humanitarian food assistance from local charities and international organizations. They reported receiving fresh fruits and vegetables, canned food, dried wheat and legumes (Table 1).

3.2 Food security level and associations with other factors

The Radimer/Cornell hunger and food insecurity scale indicated that 91.7% of the families experienced a degree of food insecurity in the past 12 months, 20.8% of whom experienced food insecurity without hunger, 33.3% of whom experienced food insecurity with hunger and 37.5% of whom experienced food insecurity with child hunger (Figure 1).

The analysis revealed that FS was significantly associated with fathers' and mothers' education levels (p<.05), fathers' employment status (p=.001) and total family income (p=.03). A significant association was also detected between the FS level and the availability of food preparation and storage equipment (p<0.05). However, the analysis revealed no significant association between the FS level and the size of the family or mothers' employment status. The demographic characteristics of the families according to their FS level are presented in Table 1.

3.3 Food security status in each camp

The Radimer/Cornell hunger and food insecurity scale revealed differences in FS status among the camps. The figure shows that more food insecure families with hunger lived in El-Helis camp, followed by the Garyounis camp, and the Turkish company camp had the least hunger (Figure 2).

A comparison analysis of the answers to the questions of the Radimer/Cornell hunger and food insecurity scale indicated a significant difference between the camps in answering six of the ten questions, as shown in Table 2. For example, the percentage of participants who provided a positive response to the question "I ran out of the food that I needed to put together a meal and I did not have money to get more food" was 41.3% for families recruited from El-Helis camp, which is significantly greater than that for the Turkish company camp (32%) and the Garyounis camp (26.7%) (p=.03).

Table 1: Background characteristics at each food security level of the 120 internally displaced families recruited from three camps in Benghazi city and included in the analysis.

	Total	Food secure		Food insecure		*p*
			without hunger	with hunger	with child hunger	
No. (%) of families	120	10 (8.3)	25 (20.8)	40 (33.3)	45 (37.5)	
Refugee camp name						
Turkish Company	40	4 (10)	12 (30)	10 (25)	14 (35)	
Garyounis	40	4 (10)	9 (22.5)	16 (40)	11 (27.5)	
El-Helis	40	2 (5)	4 (10)	14 (35)	20 (50)	
Range of family members	2-13	2-9	2-12	3-12	2-13	.168
No.(%) of family with children (<18years)	100 (83.3)	8 (8)	22 (22)	33 (33)	37 (37)	
Education level of the mother						
None	15 (12.5)	2(13.3)	1(6.7)	6 (40)	6 (40)	.014
0-9 year	39 (32.5)	3 (7.7)	3 (7.7)	13 (33.3)	20 (51.3)	
>9 years	66 (55)	5 (7.6)	21(31.8)	21(31.8)	19 (28.8)	
Education level of the father*						
None	8 (6.7)	2 (25)	0	1(12.5)	5 (62.5)	.025
0-9 year	46 (38.3)	0	10 (21.7)	12 (26.1)	24 (52.2)	
>9 years	64 (53.3)	8 (12.5)	15 (23.4)	27 (42.2)	14 (21.9)	
No answer	2 (1.7)	0	0	0	2 (1.7)	
Employment status (Mother)						
Housewife	95 (79.2)	8 (8.4)	17 (17.9)	31(32.6)	39 (41.1)	.117
Employed	25 (20.8)	2 (8)	8 (32)	9 (36)	6 (24)	
Employment status (Father)						
Employed	78 (65)	8 (10.3)	22 (28.2)	26 (33.3)	22 (28.2)	.023
Freelance	27 (22.5)	0	2 (7.4)	7(25.9)	18 (66.7)	
Retired	15 (12.5)	2 (13.3)	1 (6.7)	7 (46.7)	5 (33.3)	
Monthly income **< 1000 LD	99 (82.5)	5 (5.1)	20 (20.2)	34 (34.3)	40 (40.4)	.005
Monthly income **> 1000 LD	21 (17.5)	5 (23.8)	5 (23.8)	6(28.6)	5 (23.8)	
Receiving humanitarian food assistance	32 (26.6)	2 (6.25)	10 (31.25)	9 (28.1)	11 (34.4)	.39
Food storage and preparation equipment not available						
Cooker	28 (23.3)	0	3 (10.7)	8 (28.6)	17 (60.7)	.017
Fridge	21 (17.5)	1 (4.8)	2 (9.5)	3 (14.3)	15 (71.4)	.006
Food preparation equipment	21 (17.5)	0	3 (14.3)	2 (9.5)	16 (76.2)	.001

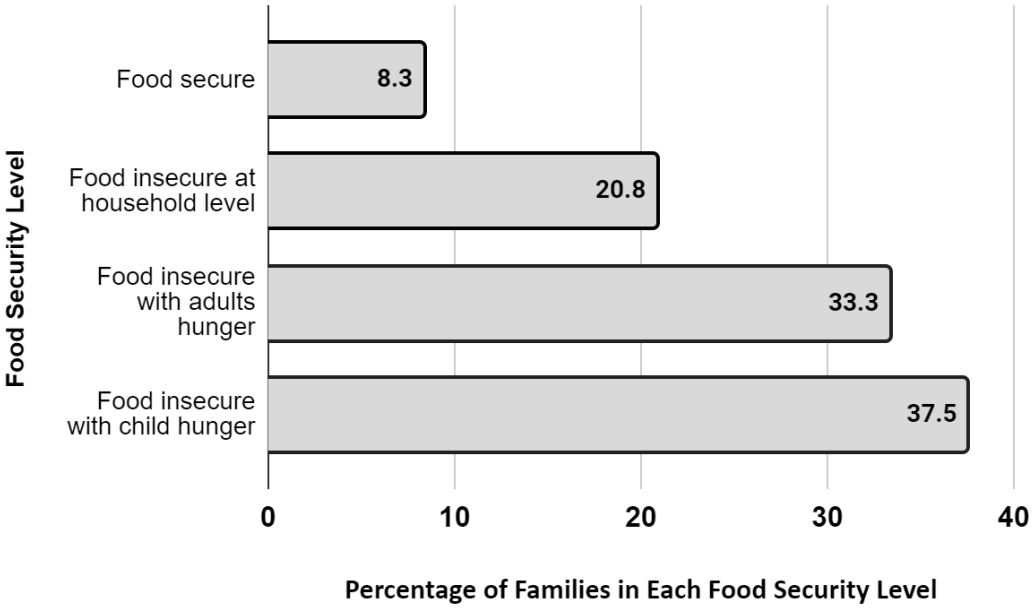

Figure 1: The percentage of families at each food security level (n=120 family).

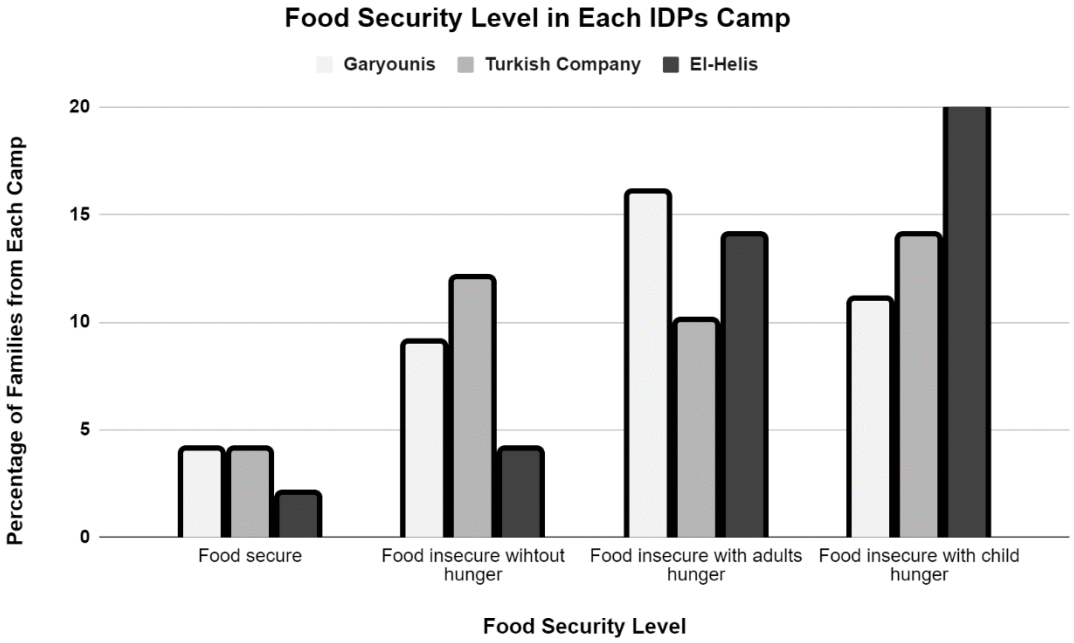

Figure 2: The percentage of families at each food security level at each IDP camp**.**

Table 2: Comparison of positive responses to the Radimer/Cornell Hunger Scale food security test for families recruited from each camp (n = 120)

	Number and percentage of positive response for all families and from families from each camp				
	All	Turkish Company	Garyounis	El-Helis	*p*
Food insecurity without hunger					
I worry whether my food will run out before I get money to buy more.	95 (79.2)	29(30.5)	30 (31.6)	36 (37.9)	0.114
We eat the same thing for several days in a row because we only have a few different kinds of food on hand and do not have money to buy more	98(81.7)	32 (32.7)	32 (32.7)	34 (34.7)	0.800
The food that I bought just did not last, and I did not have money to get more	85 (70.8)	28 (32.9)	26 (30.6)	31 (36.5)	0.468
I ran out of the food that I needed to put together a meal and I did not have money to get more food	75 (62.5)	24 (32)	20 (26.7)	31 (41.3)	0.037
Food insecurity with hunger					
I am often hungry, but do not eat because I cannot afford enough food	55 (45.8)	16 (29.1)	13 (23.6)	26 (47.3)	0.009
I eat less that I think I should because I do not have enough money for food	73 (60.8)	20 (27.4)	23 (31.5)	30 (41.1)	0.063
I cannot afford to eat properly	77 (64.2)	21 (27.3)	24 (31.2)	32 (41.6)	0.030
I cannot give my child (ren) a because I balanced meal, I cannot afford that	55 (45.8)	14 (25.5)	14 (25.5)	27 (49.1)	0.003
Food insecurity with child hunger					
My child (ren) is/are not eating enough because I just cannot afford enough food	43 (35.8)	13 (30.2)	10 (23.3)	20 (46.5)	0.057
I know my child (ren) is/are hungry sometimes, but I just cannot afford more food	41 (34.2)	14 (34.1)	9 (22)	18 (43.9)	0.104

4. Discussion

This study investigated FS during the COVID-19 pandemic among 120 Libyan families displaced from their original homeland and settled in Benghazi IDP camps. The analysis revealed high prevalence of food insecurity during 2020 among the explored camps. It also highlighted a disparity in FS levels between the explored camps. An association was found between FS and the educational levels of the parents, the employment status of the fathers and the availability of food storage and preparation equipment.

In this study, we observed a significant decline in the proportion of families categorized as food secure in 2018, the percentage decreased from 60% in 2018 [19], to less than 10% according to this study. This observation can be explained by two factors. The first is the complex impact of conflict and pandemics, both of which have exerted profound effects on (i) disruptions to food systems, supply chains, agricultural production, and distribution networks and (ii) employment and financial conditions: families within this vulnerable group have faced job losses, reduced income, and financial instability due to these dual crises [7],[14]. The second could be related to the use of different FS

assessment tools. Consequently, direct comparisons between the results cannot be straightforward. However, despite this methodological difference, our study highlights a critical concern: 37.5% of families experienced food insecurity with child hunger. Such severe conditions have far-reaching implications for children's development, health, and overall well-being [24]. Contrary to previous findings [25],[26], no significant association was detected between family size and FS level in our study. This divergence might be explained by the differing assessment contexts. While our data were collected during a period of instability, impacting access to food for families of all sizes and potentially masking the influence of family size on FS, the other two assessments by Curran's and Akbar likely took place under stable conditions.

Regarding the association between parental employment and FS, our findings partially align with those of Akbar [25]. The positive association observed with paternal employment is consistent with the traditional Libyan societal structure, where fathers are often the primary breadwinners. However, the lack of a significant association with maternal employment might be related to the complex relationship between mother employment and FS. While employed mothers may contribute to increased household income, balancing work and childcare responsibilities can limit the time available for food preparation, meal planning, and feeding children. Work-related stress can also negatively impact parenting practices and food choices [27].

In the Libyan context, the traditional gender roles, where fathers typically assume the primary breadwinner role, may further mitigate the direct impact of maternal employment on household FS. Future research could delve deeper into these nuances and explore the interplay of cultural factors, socioeconomic conditions, and maternal employment on food security outcomes.

Concerning the type of fathers' employment, our analysis revealed that 66% of families with self-employed fathers fell into the category of food insecurity with child hunger. Although we have no information about the status of these families before COVID-19, there is a high probability that COVID-19 worsened their situation. Previous research by Büyüksoy et al. revealed that food insecurity among self-employed households increased by 2.5-fold during the COVID-19 pandemic [28]. Families with self-employed fathers were likely more vulnerable to food insecurity due to the combined effects of reduced client demand and the inherent financial volatility of private businesses during the pandemic. Unlike salaried positions, private businesses often experience income fluctuations and lack steady income streams [29]. This financial insecurity directly translates to difficulties affording enough food for their families.

The limited access to food preparation and storage facilities corroborates the concerning situation of these families that was documented in the Multi-Sector Needs Assessment in Selected IDP in Benghazi, Libya in 2018 [19] and underscores the challenging living conditions faced by this vulnerable group. As highlighted by Oakley et al. in 2019 [30], a clear association exists between FS and the availability of food preparation and storage equipment. These tools are fundamental for ensuring food availability and usability. They prevent food waste and promote efficient food processing and preservation, ultimately contributing to a more secure and nutritious diet. The reasons behind the limited access to food aid for families in the IDP camps remain unclear. However, this might be a result of resource constraints faced by aid organizations or problems within the distribution system. The Conflict Sensitive Manual for Libya, published by The Peaceful Change initiative [31], highlights a significant challenge faced by these organizations in Libya. Armed groups or other actors steal aid supplies, including food, medicine, and shelter materials, from various locations for their use or resale on the black market. Disrupted transportation routes and security concerns for aid workers likely hinder effective distribution efforts.

The analysis also revealed disparities in FS between camps with the El-Helis camp (which

located on the outskirts of the city) facing more severe conditions. The Food and Agriculture Organization (FAO) of the United Nations has published a report in (2023) titled "Reducing inequalities for FS and nutrition" [32], it highlights the impact of place and space on FS inequalities. The report noted that remote people face structural inequalities that can lead to higher rates of food insecurity. Remote locations often face compounding challenges due to limited aid access, scarce markets, and limited opportunities for income generation for IDPs, all of which play a role in shaping FS.

This study offers unique insights into the FS challenges faced by IDPs in Benghazi, Libya, a population rarely examined in such detail. To ensure methodological rigor, the research employed a validated, culturally appropriate tool (the Radimer/Cornell Hunger Scale) and trained local researchers for data collection. Recruitment across three IDP camps enhances representativeness, while the study design goes beyond describing FS variations between camps and factors influencing food utilization within them, providing a nuanced understanding of IDPs' dietary challenges.

However, the generalizability of this study is limited by its methodological design. The cross-sectional approach hinders the establishment of cause-and-effect relationships. Using a longitudinal research design and employing a mixed methods approach may provide valuable insights for developing effective interventions. Nonprobability sampling methods may introduce selection bias, and relying on one respondent per household and not exploring coping mechanisms in detail are further limitations that call for future research with a more robust design to gain a deeper understanding of IDPs' experiences.

This study provides valuable insights for understanding and addressing food insecurity in other conflict-affected and crisis-prone regions. By understanding the specific challenges faced by these vulnerable populations, we can develop more effective interventions and programs to ensure their access to safe, nutritious food.

Implications for Policy and Practice

The findings of this study have significant implications for understanding and addressing food insecurity among displaced populations worldwide. A multi-sectoral approach is essential to tackle the complex challenges associated with food insecurity in conflict-affected and non-conflict settings.

Recommendations

- Education, Employment, and Financial Support: Invest in education and skills training programs to empower individuals and families. Implement effective social protection and financial assistance programs to reduce the impact of shocks.
- Infrastructure and Basic Services: Invest in infrastructure development and provide essential household items such as food storage and preparation facilities.
- Market Access and Supply Chains: Stabilize markets, improve transportation infrastructure, and promote local food production.
- Humanitarian Assistance: Prioritize food security as a central focus of humanitarian responses to vulnerable groups, including IDPs and refugees.
- Building Local Capacity: Empower communities to manage their own food systems by providing support to local farmers and promote sustainable agricultural practices.
- Collaboration and Data-Driven Decision-Making: Strengthen information systems to inform evidence-based policies and programs and regularly monitor and evaluate food security conditions among the vulnerable groups.
- Conflict Resolution and Peacebuilding: Address the root causes of conflict and promote dialogue to create a stable environment for food production and distribution.

By integrating these recommendations into their strategies, policymakers and humanitarian organizations can develop more effective approaches to address food insecurity and promote sustainable food systems in both conflict-affected and non-conflict settings.

5. Conclusions

In conclusion, this study revealed alarming food insecurity among IDPs in Benghazi, Libya, during the COVID-19 pandemic, with 37.5% of families experiencing child hunger. The combination of conflict and COVID-19 affected all aspects of FS: availability, accessibility, utilization, and stability. We recommend multiple approaches for solutions in similar situations. Immediate food assistance, improved distribution, storage/preparation facilities, and long-term income generation programs for this vulnerable group. Finally, we recommend further research to gain a deeper understanding of IDPs' experiences and coping mechanisms.

Acknowledgment
We would like to thank Professor Sigrun Henjum and her team at Oslo Metropolitan University for kindly providing the translated version of the Radimer/Cornell Hunger Scale. We also extend our thanks to all the families who participated in this study and the management teams of the camps for their cooperation and support in facilitating this research.

Conflict of interest
The authors reported no conflicts of interest.

References

1. World Food Summit. The Rome Declaration on World Food Security. *Popul Dev Rev* 1996; 22: 807–809.
2. FAO. *An Introduction to the Basic Concepts of Food Security*, www.foodsec.org (2008, accessed 17 February 2022).
3. Devereux S. *The impact of droughts and floods on food security and policy options to alleviate negative effects*. 2007.
4. Israel D, Briones R. Impacts of Natural Disasters on Agriculture, Food Security, and Natural Resources and Environment in the Philippines, https://www.econstor.eu/handle/10419/126912 (2012, accessed 17 February 2022).
5. Teodosijević SB. Armed Conflicts and Food Security, www.fao.org/es/esawww.fao.org/es/esa (2003, accessed 17 November 2021).
6. FAO, IFAD, UNICEF, et al. *In Brief to The State of Food Security and Nutrition in the World 2020*. FAO, WHO, IFAD, WFP, UNICEF, 2020. Epub ahead of print April 2020. DOI: 10.4060/ca9699en.
7. Kakaei H, Nourmoradi H, Bakhtiyari S, et al. Effect of COVID-19 on food security, hunger, and food crisis. *COVID-19 and the Sustainable Development Goals* 2022; 3–29.
8. FAO, IFAD, UNICEF, et al. *The State of Food Security and Nutrition in the World 2021*. FAO, IFAD, UNICEF, WFP and WHO. Epub ahead of print 12 July 2021. DOI: 10.4060/cb4474en.
9. World Food Programme. UN report warns of accelerating food insecurity in the Arab region due to global crises, https://www.wfp.org/news/un-report-warns-accelerating-food-insecurity-arab-region-due-global-crises (2023, accessed 7 May 2025).
10. Kabbani N. *Survey Results on Hunger and Food Insecurity in Yemen*, http://www.luc.edu/orgs/meea/ (2005).
11. Palestine | World Food Programme, https://www.wfp.org/countries/palestine (accessed 7 May 2025).
12. Fao. Syrian Arab Republic - FAO in the 2021 humanitarian appeals.
13. Food insecurity deepens in Lebanon following conflict, new report shows | World Food Programme, https://www.wfp.org/news/food-insecurity-deepens-lebanon-following-conflict-new-report-shows (accessed 7 May 2025).
14. Messer E, Cohen MJ. Conflict, Food Insecurity and Globalization. *Food Cult Soc* 2007; 10: 297–315.
15. FSIN, Global Network Against Food Crises. *Global Report on Food Crises*. Rome, 2021.
16. Jesenský M. Libya: What Went Wrong in 2011? In: *The United Nations under*

Ban Ki-moon: Give Diplomacy a Chance. Cham: Springer International Publishing, pp. 103–117.
17. OCHA. *LIBYA December Humanitarian Bulletin 2020: A Year in Review*. 2020.
18. reliefweb. Libyan crisis threatens food security, https://reliefweb.int/report/libya/libyan-crisis-threatens-food-security (2011, accessed 13 April 2024).
19. ACTED. *Multi-sector Needs Assessment in Selected IDP: Camps and Informal Settlements, Benghazi Libya*. 2018. Epub ahead of print 2018. DOI: 10.6%.
20. Maurer P. Impact of COVID-19 on Vulnerable Populations (IDPs, Refugees, Migrants).
21. Hensen B, Mackworth-Young CRS, Simwinga M, et al. Remote data collection for public health research in a COVID-19 era: ethical implications, challenges and opportunities. *Health Policy Plan* 2021; 36: 360–368.
22. Kendall A, Olson CM, Frongillo EA. Validation of the Radimer/Cornell measures of hunger and food insecurity. *J Nutr* 1995; 125: 2793–2801.
23. Henjum S, Morseth MS, Arnold CD, et al. 'I worry if I will have food tomorrow': A study on food insecurity among asylum seekers living in Norway. *BMC Public Health* 2019; 19: 1–8.
24. Pai S, Bahadur K. The Impact of Food Insecurity on Child Health. *Pediatr Clin North Am* 2020; 67: 387–396.
25. Akbar M, Niaz R, Amjad M. Determinants of households' food insecurity with severity dimensions in Pakistan: Varying estimates using partial proportional odds model. *Health Soc Care Community* 2020; 28: 1698–1709.
26. Curran M, Hartley RP. Discussion Paper Series Food security and policy effects by family size: How does quality of well-being depend on quantity of children, http://ukcpr.org/research. (2021).
27. Crepinsek MK, Burstein NR. Maternal Employment and Children's Nutrition Volume I, Diet Quality and the Role of the CACFP. 2004; 7–20.
28. Büyüksoy GDB, Çatlker A, Özdil K. Food Insecurity and Affecting Factors in Households With Children During the COVID-19 Pandemic: A Cross-Sectional Study. *Disaster Med Public Health Prep* 2022; 16: 2528–2533.
29. Rahman A, Maio M Di. *The Private Sector amid Conflict The Case of Libya*. 2020.
30. Oakley AR, Nikolaus CJ, Ellison B, et al. Food insecurity and food preparation equipment in US households: exploratory results from a cross-sectional questionnaire. *Journal of Human Nutrition and Dietetics* 2019; 32: 143–151.
31. The Peaceful Change initiative. *CONFLICT SENSITIVITY MANUAL FOR LIBYA*, https://www.peacefulchange.org/resources (June 2022).
32. HLPE. *REDUCING INEQUALITIES FOR FOOD SECURITY AND NUTRITION*. Rome, www.fao.org/cfs/cfs-hlpe (2023).