



# Forced Migrants' Experiences of Food Insecurity and Health During Transit and First Reception: A Scoping Review

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Received: 5 June 2025 / Accepted: 5 February 2026  
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## Abstract

Food insecurity (FI) is a critical global health challenge and an essential component of the right to an adequate standard of living, as recognised in UN Sustainable Development Goal 2 (Zero Hunger). Refugees and forcibly displaced migrants are disproportionately affected by FI due to legal and economic constraints, inconsistent support systems, and the cumulative impacts of poverty, violence, and unstable food environments. These pressures may be even greater among displaced women whose experiences and coping strategies are further compounded by gendered socioeconomic vulnerabilities. Despite these challenges, the intersection between FI and health during transit and first reception remains underexplored. This scoping review explores relationships between FI and health among forced migrants during transit and first reception. Using the Preferred Reporting Items for Systematic reviews and Meta-Analyses extension for Scoping Reviews, 28 studies were analysed. A description of study design, sample, and location is followed by a thematic discussion of the interplay between FI, health outcomes, and coping mechanisms. Findings show forced migrants face significant challenges in the availability, access, utilisation, and stability of food, with coping strategies often exacerbating adverse health outcomes. Notably, there is a lack of research addressing FI and health outcomes as co-constructing phenomena, limited longitudinal studies across migration stages, and unexplored gendered impacts. A novel conceptual framework is proposed to address these gaps and capture the bidirectional and gendered relationships between FI and health. This timely study informs future research and policy aimed at mitigating FI and improving health outcomes among forcibly displaced women and wider migrant populations.

**Keywords** Food insecurity · Forced displacement · Transit · First reception · Health · Gender

## Introduction

Food insecurity (FI) is a global health challenge and a key component of the human right to an adequate standard of living, as stated in UN Sustainable Development Goal 2 ('Zero Hunger'). FI is a complex process characterised by

inadequate or limited physical, social, or economic access to sufficient, safe, and nutritious food to meet dietary needs and preferences for an active and healthy life [1]. FI represents a significant global burden, with approximately 30%, or 2.4 billion people in 2022, defined as moderately or severely food insecure. Of those, 900 million were severely insecure, meaning individuals potentially go without food for 1 + day(s) [2].

FI is especially prevalent among forced migrant populations. There are currently over 281 million forced migrants worldwide, many of whom are women and children who have no choice but to leave their countries due to armed conflict, violence, violations of human rights, natural disasters or famine [3–5]. Forced migrants are extremely vulnerable to FI, which can influence their coping strategies, mental and physical health and prospects for safe, sustainable resettlement [6–8]. For refugees and asylum seekers settled in high-income countries (HICs), high levels of FI

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are associated with legal and economic constraints, lack of information about accessing food services, language and religious challenges, and social norms associated with food consumption [9–11].

Yet, FI during transit and first reception remains underexplored, despite the heightened risks of hunger, poverty, gendered violence, and malnutrition along migration routes and in temporary settlements [5, 12]. The rise in conflicts, climate change, and disease outbreaks highlights the urgent need to address the challenges faced during forced displacement, especially those during transit or in temporary settlements [13]. FI is also a migratory ‘push’ factor, driven by and contributing towards conflict, poverty, and human rights abuses [6, 14–17]. Furthermore, while several studies address FI among migrants in HICs [18, 19], its severity in low-middle-income countries (LMICs), where poverty and inequality are pervasive, is underexplored. The specific impact on forcibly displaced women’s and children’s health also receives little attention [20] despite frameworks (i.e., New York Declaration) [17] prioritising nutrition for women and girls.

This review contributes new perspectives by highlighting critical gaps and providing a foundation for future empirical research on FI dynamics during transit among forcibly displaced migrants. We also recognise how heightened risks for forced migrant women from hunger, poverty, and gender-based violence lead to difficult choices during displacement [5, 21, 22]. As caregivers, they often bear responsibility for dependents under dire conditions, with limited access to resources [23, 24]. Restrictive migration policies and precarity in settlement also affect the health and rights of displaced women and girls [5]. However, research on the specific challenges of FI for displaced women remains limited. This study is also motivated by exploratory research conducted by the authors in Central and South America, where FI among migrants in transit manifested along the journey and in settlement [25].

Drawing on intersectional analyses of migration governance [26, 27], the review situates the relationships between FI and health as both a manifestation and consequence of systemic inequalities, highlighting the distinct barriers faced by migrant women, girls, and other marginalised groups during transit and at first reception. We also build on existing work to develop a novel conceptual framework that shows how FI impacts, and is influenced by, physical and mental health through multiple channels; nutrition, psychological distress, and behavioural coping mechanisms [28].

This study conducts an in-depth review of the link between FI and health among forced migrants during transit and first reception. Building from migration studies, we define transit as the passage of migrants through or within a country (or countries) that is neither their country of origin

nor their final destination, often involving irregular and unsafe routes [29]. Points of first reception refer to camps, reception centres, shelters or temporary housing provided by governments or humanitarian actors [30]. The review asks, ‘*how do FI and health interact during forced migration, and how are these dynamics shaped by gender during migration transit and first reception?*.’ In responding to this research question, this study aims to;

- Explore forced migrants’ experiences of FI during transit and first reception.
- Identify links between FI, health outcomes, and behaviours, including coping mechanisms.
- Examine how these dynamics differ for displaced women and girls.

The paper first conceptualises the different pillars of FI, before outlining the methodology and presenting the findings. Discussions are centred around the novel conceptual framework, which links FI, health and gender to address three key research gaps: (i) inadequate attention to all FI dimensions, (ii) the bidirectional FI-health relationship, and (iii) the gendered challenges of FI during transit. The paper concludes with research and policy recommendations.

## Addressing the Pillars of Food Insecurity

Understanding FI and health among displaced groups during transit and first reception requires attention to FI’s four interdependent pillars: availability, access, utilisation, and stability (Table 1). Capturing these different elements is essential for developing a holistic understanding of the food security challenge, avoiding trade-offs, and targeting positive health outcomes. Insufficiencies in any of the pillars, as we later analyse, undermine the ability to maintain an active and healthy life [31].

## Methods

The search protocol was drafted using the Preferred Reporting Items for Systematic reviews and Meta-Analyses extension for Scoping Reviews (PRISMA-ScR) framework [32]. A checklist of the preferred reporting items is presented in Appendix A.

## Eligibility Criteria

The Joanna Briggs Institute (<https://jbi.global/>) recommend that scoping reviewers structure their search strategy using

**Table 1** Four pillars of FI adapted from FAO [2]) and Orjuela-Grimm et al. [20]

Pillar	Sub-dimension	Description
Availability		Physical presence of food, including production, reserves, markets, transportation, and wild foods.
Access		Access to adequate resources (a set of commodities over which a person can establish command given the community's legal, political, economic and social arrangements) for acquiring appropriate foods for a nutritious diet.
	Economic	Food is available but unaffordable due to limited financial resources or high costs.
	Physical	Food is available, yet unable to be physically accessed. For example, in remote areas or confined spaces during transit (i.e., travelling by cargo train).
Utilisation	Social	Despite adequate physical and financial access, individuals are deprived of food due to their membership in a particular group or social role. 'Social access' can explain different food security experiences of migrants belonging to priority groups, the LGBTQ + community, or other vulnerable groups.
		Maximising the consumption of adequate nutrition and energy. Sufficient energy and nutrient intake by individuals result from good care and feeding practices, food preparation, dietary diversity and intra-household distribution of food, and access to clean water, sanitation and healthcare.
Stability		Consistency of the other pillars over time, ensuring continuous food security.

the categories Populations, Concept and Context (PCC). Before the review, we conducted a preliminary search of key literature, identifying relevant terms, authors, and journals from our previous work on migration, gender and health, and a rapid online search to develop the PCC framework and search strategy.

- Population: Forcibly displaced migrants.
- Concept: Food insecurity and health.
- Context: During transit or first reception (in camps, reception centres, shelters or temporary housing provided by governments/humanitarian actors).

This scoping review covers literature from 1 January 2014 to 17 June 2024, maintaining the customary 10-year period

commonly adopted in the PRISMA-ScR framework. To be eligible, articles were required to be peer-reviewed, reference FI and health at first reception (i.e., migrant camps or shelters) or have migrants discuss their transit experiences retrospectively. This approach avoided imposing an arbitrary threshold on the duration of 'transit' or 'settlement', which can vary from months to years [33]. Articles including evidence from service providers on FI and health among migrants were also eligible. Conversely, articles that focused on individuals with residence in their host country were not eligible. Journal rankings did not determine eligibility.

## Search Strategy

The literature search was conducted on ESBCO, PubMed, and Web of Science for peer-reviewed articles in English (see Appendix B for an example of the search strategy). The search terms used were variations of 'food insecurity', 'displacement', 'forced migrants' and 'health outcomes'. The most recent search was conducted on 17/06/2024. As per PRISMA-ScR, we conducted a hand search (a manual search of individual journal websites) for articles potentially excluded from abstracting services. Key journals were identified by examining the publication sources of the reviewed articles. This yielded another ten papers, four of which were incorporated in the final review. All references were downloaded into a literature review matrix on Excel. Once all duplicates ( $n = 377$ ) had been removed, the reviewers screened the titles, abstracts, and keywords to determine whether they aligned with the eligibility criteria. Here, papers ( $n = 855$ ) were excluded if they did not refer to the PCC or were not original research articles. Most of the papers were excluded because they did not discuss migrants in transit ( $n = 220$ ) or the relationships between food and health ( $n = 274$ ). We sorted the first 10% together as a research team to confirm the reliability of the inclusion/exclusion criteria. The articles were then divided evenly between reviewers and categorised as included/excluded/undecided, with a brief justification for the decision. A random sample was cross-checked to ensure inter-reviewer reliability. Reviewers met frequently to discuss the 'undecided' papers, and final decisions were made by reviewing the PCC criteria and articles collectively to reach a consensus.

## Data Charting

A data charting matrix was developed and tested using information from the initial literature scan conducted before the search. The articles used a variety of methods, and there is no prominent or validated quality-assessment tool that would assist in answering our research questions, which were primarily exploratory rather than focused on improving

quality. Therefore, we decided not to conduct a critical appraisal. The same division of labour and checks mirrored the selection process above. Information from the selected papers was coded deductively using the themes listed below, including the four FI pillars and gender-specific challenges. Once completed, the reviewers examined the charted data and identified key themes from each variable.

The data items abstracted onto the matrix included:

- Methods.
- Sample (country of origin, age, camp type).
- Receiving Country.
- Key finding.
- Discusses availability.
- Discusses access.
- Discusses utilisation.
- Discusses stability.
- FI Impact on Health.
- Health impact on FI.
- Coping Mechanisms.
- Gender differences in FI & health.

## Results

This section outlines the study characteristics, as required by the PRISMA-ScR protocol, and summarises the key findings across the main themes identified in the data matrix. Results focus on the four FI pillars, the bidirectional relationship between FI and health, coping mechanisms, and gendered experiences during transit and first reception.

### Characteristics of Selected Studies

Overall, the search yielded 956 articles, 28 of which were included in the final review (Fig. 1). Data were manually charted in Excel following PRISMA-ScR guidelines, with no automation tools used to remove articles. A complete version of the matrix is presented in Appendix C.

The 28 articles included studies across various countries and migrant populations using quantitative and qualitative methods (Appendix C). Seventeen studies used qualitative methods, such as semi-structured interviews and focus groups, six used quantitative modelling and exploratory analysis, and five used mixed-method approaches. While all four FI pillars were discussed, coverage varied: ‘access’ ( $n=24$ ), ‘utilisation’ ( $n=20$ ), ‘availability’ ( $n=19$ ), and ‘stability’ ( $n=17$ ). Only eight papers examined all four pillars.

The studies incorporated forcibly displaced groups from multiple locations. Several papers ( $n=12$ ) incorporated migrants from multiple locations within a single study;

countries of origin frequently referenced included Honduras, Mexico, Iraq, and Rwanda. One study did not explicitly note the country of origin of the sample, whereas two other studies incorporated service providers or visitors to U.S. centres. The remaining studies explicitly referenced migrants’ countries of origin: Afghanistan ( $n=1$ ), Myanmar<sup>1</sup> ( $n=4$ ), Syria ( $n=2$ ) and Ukraine ( $n=1$ ), while five studies incorporated internally displaced groups from Bangladesh, Ethiopia, India, Libya and the Philippines. The selected articles focused on various receiving countries; the most frequent were the U.S. ( $n=5$ ), Mexico ( $n=4$ ) and Bangladesh ( $n=3$ ). Two studies incorporated multiple receiving sites: Israel & U.S. ( $n=1$ ) and Kenya & Malaysia ( $n=1$ ).

This review focused on forcibly displaced populations during transit and first reception. Different terminology was used across the articles to define the transitory sites. Eleven articles refer to relocation or resettlement camps, with two specifically mentioning Bhasan Char relocation camp (Bangladesh). Four studies referred to state-led reception centres, while three included U.S. Customs and Border Patrol resettlement or detainment facilities. Four studies referred to ‘shelters’, with two of these articles also explicitly discussing the transit journey. The remaining articles included individuals accessing refugee health clinics retrospectively discussing the transit process ( $n=1$ ), humanitarian agencies ( $n=1$ ), ‘tented’ communities ( $n=1$ ), temporary community-based locations for internally displaced people (IDP) ( $n=2$ ), and one national telephone survey targeting IDP.

Most studies focused on experiences in temporary settlement locations rather than transit journeys. Despite incorporating heterogeneous demographic samples, few studies specifically explored the experiences of displaced women or adolescents. Additionally, the varying contextual settings highlight inconsistencies in the support provided to forced migrants, and the security and protection standards in camps and centres.

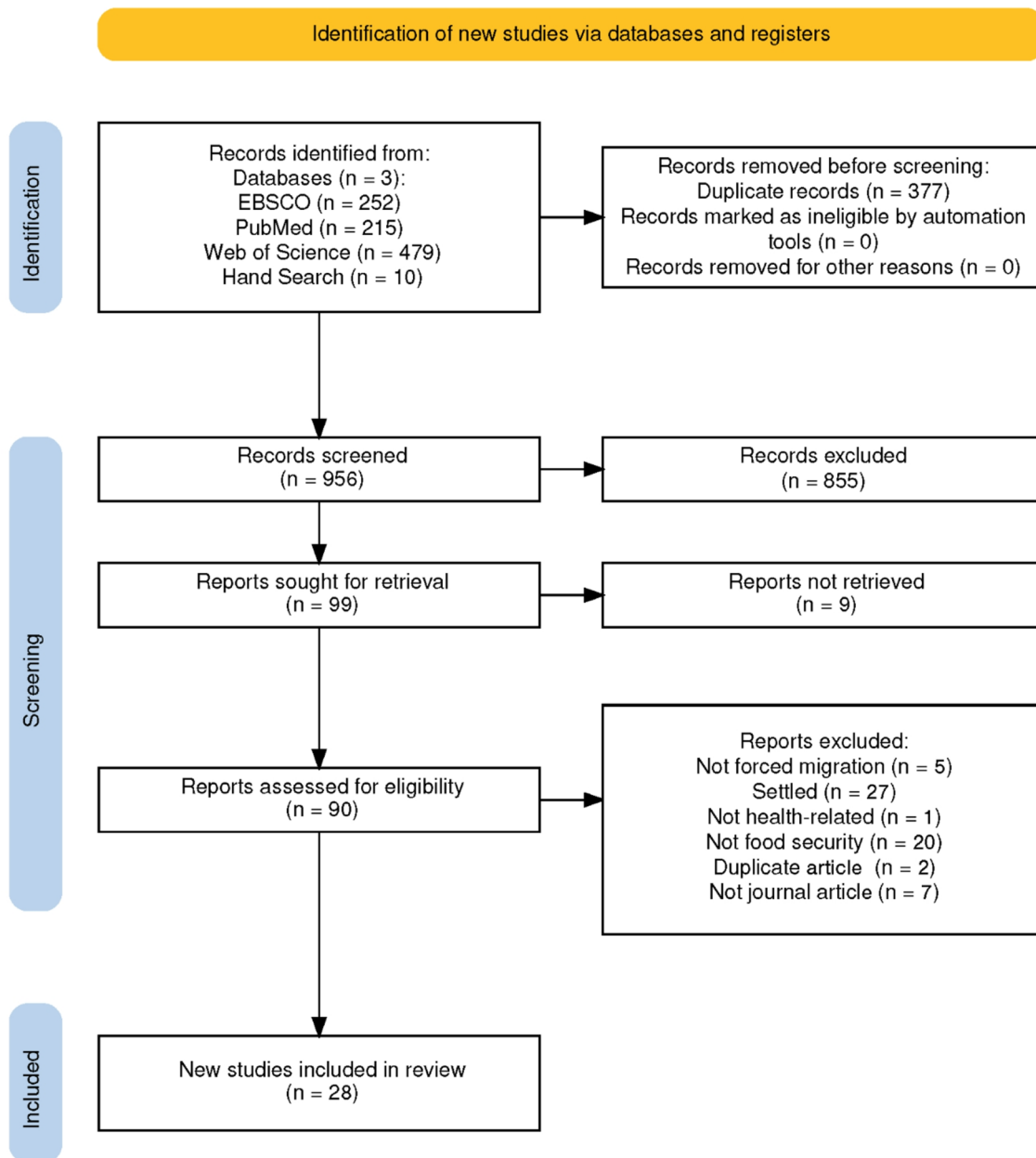
## Key Findings

### Addressing the Pillars of Food Insecurity in Migration Studies

Our findings reveal uneven attention to the four FI pillars: while ‘access’ dominated, ‘stability’ was rarely examined. Only 28 studies explored FI during transit or first reception, with just eight addressing all four pillars.

**Pillar I: Availability** Our findings show that food availability often depended on the actors providing it at first settlement locations. Migrants in military-run camps or state detention

<sup>1</sup> The country name Myanmar is used to ensure consistency with the UN member state classification.



**Fig. 1** Chart demonstrating the process for selecting articles included in the review [34]

facilities had less food than those in camps run by humanitarian actors and social services [35–37]. Food availability varied widely; some migrants saw camps and reception centres as spaces of improved availability [35, 38–41], while others found limited food during transit [42, 43], and in camps [44–48] and reception centres [49].

**Pillar II: Access** Many migrants experience FI due to various barriers, with low income identified as a major factor [41, 50]. A key restriction to economic access was the high cost of fresh, nutritious food in settlement locations [35, 36, 50–

52]. Cash transfers in reception areas were often insufficient to meet food needs [45, 53]. Migrants relying on smugglers during transit noted inadequate resources for food due to payment demands [54]. Furthermore, Tellez et al. [37] reported migrants in detention centres were sometimes required to purchase additional food for specific dietary needs.

A major social challenge was finding food that met migrants' religious, cultural, and nutritional preferences [36, 37, 40, 43, 45, 49, 55]. Some migrants lacked nutritional education about new diets in settlement areas [35, 49]. Unfamiliar foods decreased appetite, with children

refusing food that was 'too spicy' [43] or 'bland' [36, 45]. Accessing halal food was also difficult, with reports of mislabelled products [36]. Mercado et al. [48] also found that some migrants would rather go hungry than beg for food due to humiliation.

Physical barriers to food accessibility included long waiting times for meals in camps, with many migrants queuing for 1 + hour(s) [46]. Reliance on camp food posed a barrier for those during transit [56], while stowaways faced restricted access due to prolonged confinement [52]. Migrants with disabilities also faced physical barriers [57], whereas patients on antiretroviral therapy (ART) had little time to eat due to the time required to travel to clinics and prepare camp food [58].

**Pillar III: Utilisation** 'Utilisation' emerged as a key challenge, encompassing food quality, safety, preparation spaces, and culturally appropriate diets. The ability to utilise food to meet nutritional needs was most affected by access to hygienic conditions for food preparation. Inadequate hygiene in transit centres [41], expired or mouldy food in detention centres [37], and limited access to facilities for washing formula bottles [43] all contributed to FI. In camps, overcrowding further worsened hygiene and sanitation conditions [45].

Migrants often lacked the equipment to prepare meals [41, 46, 48, 55, 57, 59]. Food was often delivered and reheated, preventing migrants from preparing food in ways that met their needs [35, 40]. The absence of basic facilities, such as hot water or heating equipment during transit, further exacerbated the challenges and contributed to distinct health issues [43].

Nutritional utilisation also emerged as a key aspect of FI, with many migrants relying heavily on carbohydrates due to a lack of protein and fresh produce [38, 40, 41, 44, 45, 57, 59, 60]. In U.S. detention centres, Valdez et al. [54] found processed foods worsened dehydration, exacerbated by limited knowledge of potable water, and led to sickness.

Food quality varied greatly across shelters, with some offering low-quality pre-packaged food [39, 41], and others serving reheated meals [40]. Lack of variety, poor quality, and unfamiliar foods often led to uneaten meals [36, 43, 49]. Yet in some settlement locations, migrants expressed an active interest in learning how to use unfamiliar foods [40, 49]. However, migrants with health conditions required more nutritious diets; for example, those with diabetes [40, 52] or pregnant women [53, 59] often faced particular challenges. Tellez et al. [37] reported a case where a migrant, allergic to nuts and strawberries, was repeatedly given these foods and consequently hospitalised.

**Pillar IV: Stability** Multiple articles noted the difficulties forced migrants face in accessing stable, nutritious diets during transit and first reception. Migrants experienced inconsistent mealtimes [45, 48, 59], with many mentioning that meals were not always available daily at first reception [42–47, 56, 58]. Journeying through different countries, climates and cultures also influenced stability, as actors had to adjust to new conditions and available diets [35]. During transit, migrants' food was often provided by multiple actors, leading to inconsistencies [43]. For example, temporary aid provision caused fluctuations in basic needs access [36], or migrants reliant on smugglers going days without food due to abuse or confinement when hiding to avoid detection [54].

The inconsistency in the provision of food across different camps and agencies, within and between countries, highlights the absence of set standards for service providers or governments [36, 45, 48]. The disparity between sites is further highlighted by other studies showing how individuals benefit from temporary camps. For example, Haley et al. [49] and Deschak et al. [56] demonstrated that camps can provide a stable, consistent food supply, compared to the uncertainties of transitory journeys.

#### Impact of Food Insecurity on Physical and Mental Health during Displacement

FI affects physical and mental health through three main channels: nutrition, psychological distress, and behaviour (including coping mechanisms) [28]. Firstly, FI notably impacts health through malnutrition and starvation [39, 41, 43, 49–51, 60]. Insufficient food access or availability leads to weight loss, wasting, and stunting [36, 61]. Key nutrients such as iron, folate, vitamin D, and protein are often difficult to obtain due to limited dietary diversity [38, 40, 51, 60]. Lack of nutrition can also cause fatigue and exhaustion [40, 48], and increase the risk of infection or disease [35, 37, 42]. The provision of processed and/or frozen ready meals also contributed towards dehydration [54] and worsened health outcomes [35]. Additionally, two studies found both underweight and obesity among migrants, illustrating the double burden of poor access and utilisation [38, 60].

Poor food storage and preparation conditions increased the risk of disease and accidents [35]. Unhygienic conditions during transit [41], and in detention centres [37] and camps [46] were linked to gastrointestinal illness and diarrhoeal disease [53, 56]. In a Greek migrant camp, Gordon et al. [46] reported that those who prepared their own food were 1.48 times more likely to experience diarrhoea, while burns and injuries from makeshift stoves were also noted.

This underscores how limited resources for safe food preparation and storage elevate health risks.

FI affects health outcomes differently for vulnerable groups, including women, children, the elderly, persons with disabilities, and those with long-term health conditions. Special concern was raised about meeting the nutritional needs of children [39, 53], and pregnant or breastfeeding women [51, 59] to support healthy development. Food provided in shelters was crucial in limiting child malnutrition [39, 43]. However, migrants with diabetes reported inadequate nutrition to manage their condition [40, 52]. Food scarcity was also cited as a disruption to ART for people living with HIV, causing adverse side effects when medication was taken on an empty stomach [47, 58].

FI also impacts both physical and mental health by contributing towards psychological distress. As a traumatic experience, FI, combined with the trauma of displacement, travel, and abuse or discrimination, is linked to anxiety and post-traumatic stress disorder [54, 62, 63]. These mental health issues were exacerbated if migrating parents felt their children were suffering [48] or if they felt guilty about leaving others behind in dangerous conditions with limited resources [35].

Migrants often experience a loss of dignity during transit due to inhumane living and eating conditions [37] or the feeling of being a burden, which can worsen mental health [36, 45, 57]. Restricted autonomy due to the reliance on smugglers, limited control over food, or disruptions in daily routines is also linked to depression [40, 45, 51, 52].

Food is integral to many cultural practices, and the inability to maintain these rituals in reception centres can negatively affect emotional and mental health [35, 40, 55]. The stress of FI, especially for those responsible for providing for the household, can increase tensions within families, sometimes leading to anger or violence. The psychological effects can be compounded by other cumulative hardships, such as limited access to education, leading to depression and suicidal thoughts among some displaced groups [36, 64].

### Coping Mechanisms To Mitigate Food Insecurity and Health Outcomes

This section explores how FI-related coping behaviours affect health. Coping strategies are grouped as consumption, financial, or social responses [56]. Nine studies did not explicitly examine coping strategies.

**Changing Patterns of Consumption** Several studies noted displaced individuals coped with food shortages by ‘buffering,’ reducing the number or size of meals to ensure enough food for the household [36, 44, 45, 49, 50]. Although this

helps stretch limited food resources, it increases the risk of malnutrition, vitamin deficiencies, hunger, and other health issues. Buffering is commonly associated with mothers prioritising their children’s needs over their own wellbeing. However, other group members also practised buffering when supporting children [56]. Alongside reduced food intake, transit groups may consume contaminated food due to limited options, leading to physical health problems [36, 56]. Some also foraged for food when resources were scarce [49], with children particularly at risk from eating unsafe items and developing illnesses such as diarrhoea [53]. Furthermore, organised crime along migratory routes led Central American migrants to avoid carrying food or money to prevent theft, and reject offers of food and water due to fear of kidnapping [56]. Additionally, cultural factors were important, as the consumption of unfamiliar foods can disrupt cultural identity, negatively impacting physical and mental health [36, 40, 55].

Dawson-Hahn et al. [44] also highlight how the abundance of food in certain transitory sites can lead to negative coping mechanisms, in which parents sometimes force their children to eat due to past malnutrition. While this ensures children consume enough, it may contribute to eating disorders and obesity. These coping strategies highlight the complex, interwoven traumas faced by displaced individuals.

**Financial Coping Mechanisms** Financial coping included using limited resources or income generation to mitigate FI [56]. Scarce monetary resources among some displaced groups led individuals to target low-cost food products at the expense of nutritional value [36]. The need for financial capital to afford food also resulted in migrants undertaking informal work, which created risks of exploitation and abuse [36], or taking out informal loans [41, 65], which can result in indebtedness, low financial autonomy, stress, and adverse mental health outcomes [66]. The low quality or inappropriateness of food in camps forced some to reject free resources in favour of purchasing from external stores, potentially exacerbating financial stress and health pressures [46].

Due to the competing interests faced by travelling groups, food may also be traded for other products. For example, Kemei et al. [51] noted how Ethiopian IDPs traded food aid in return for hygiene products; however, this inevitably increased the risk of malnutrition, particularly amongst children. In the other direction, other studies show how prioritising food resources can result in other basic needs being neglected. Using limited financial resources on food reduces the monetary capital available to afford transport, with mobility a key component of subjective wellbeing,

mental health outcomes [67], and healthcare access; subsequently increasing disease risk throughout the transitory journey [36, 50, 56].

**Social Coping Mechanisms** We found that many forced migrants coped with FI by creating or accessing social resources, including humanitarian aid and support from family, friends, and fellow migrants [41, 43, 56]. These resources can be understood as different types of social capital: ‘bonding’ within close communities, ‘bridging’ between similar socioeconomic or religious groups, and ‘linking’ with government or institutional actors [68]. However, when facing FI, accessing social resources becomes challenging. For example, Kemei et al. [51] noted that hunger prevented children from attending school and socialising, harming mental health and limiting available social support.

Social coping strategies included begging, which often leads to discrimination and violence [56]. Begging can damage an individual’s pride and contribute to mental health challenges [48]. Some also resorted to stealing, which can violate personal moral standards and increase feelings of shame [56]. In some cases, migrants turned to illegal substances to cope with hunger, disrupting social norms and leading to physical and mental health issues [42].

Additionally, in the context of survival sex (exchanging sex for food, shelter, or protection), displaced women face increased physical risks, such as sexually transmitted diseases (STDs) and trauma [21]. The breakdown of family networks during migration, whether due to resource constraints or the separation of family members for employment, can further exacerbate mental health challenges [36].

### Impact of Health on Food Insecurity During Transit and in First Reception

Strikingly, most of the reviewed articles did not address how health affects FI (Appendix C). Disabilities, such as mobility impairments or dementia, hindered access to food and complicated food preparation [56, 57]. Caregiving for individuals with health conditions also limited the ability to seek food, as migrants often cannot leave their companions alone [42]. Additionally, migrants with existing health conditions, such as diabetes or pregnancy, often faced unmet food needs [37, 38, 40, 45, 51–53, 59].

Migrants with physical health issues often faced competing priorities for survival, with FI being one of many challenges [52]. Many prioritised food over healthcare, with some reducing medical expenses for non-urgent health issues [36, 52]. Furthermore, older migrants sometimes hid symptoms to avoid impacting family food budgets [57], while migrants on ART sometimes forewent meals on clinic

days due to time constraints [58]. Contrarily, some studies found FI led to increased ART adherence [47].

Mental health also impacts FI. Past trauma, such as war, reduced appetite, while higher happiness levels increased it [35]. Many migrants who experienced stress and trauma struggled with trust and were reluctant to seek food [63]. For example, Ukrainian refugee mothers attributed stress from fleeing to a loss of breast milk, leading to FI among their children [43].

### The Gendered Dimension of Food Insecurity in Displacement

FI in forced migration is deeply gendered. Women faced greater risks, including increased exposure to violence and heightened caregiving burdens [5, 21, 22]. Mothers bore additional emotional stress, especially if separated from their children [23] or if hunger contributed towards child labour as families struggled to survive [24, 69]. Restrictive policies pushed some women into coping mechanisms that can exacerbate risks of abuse, extortion and violence [21, 70]; all further affecting physical and mental health.

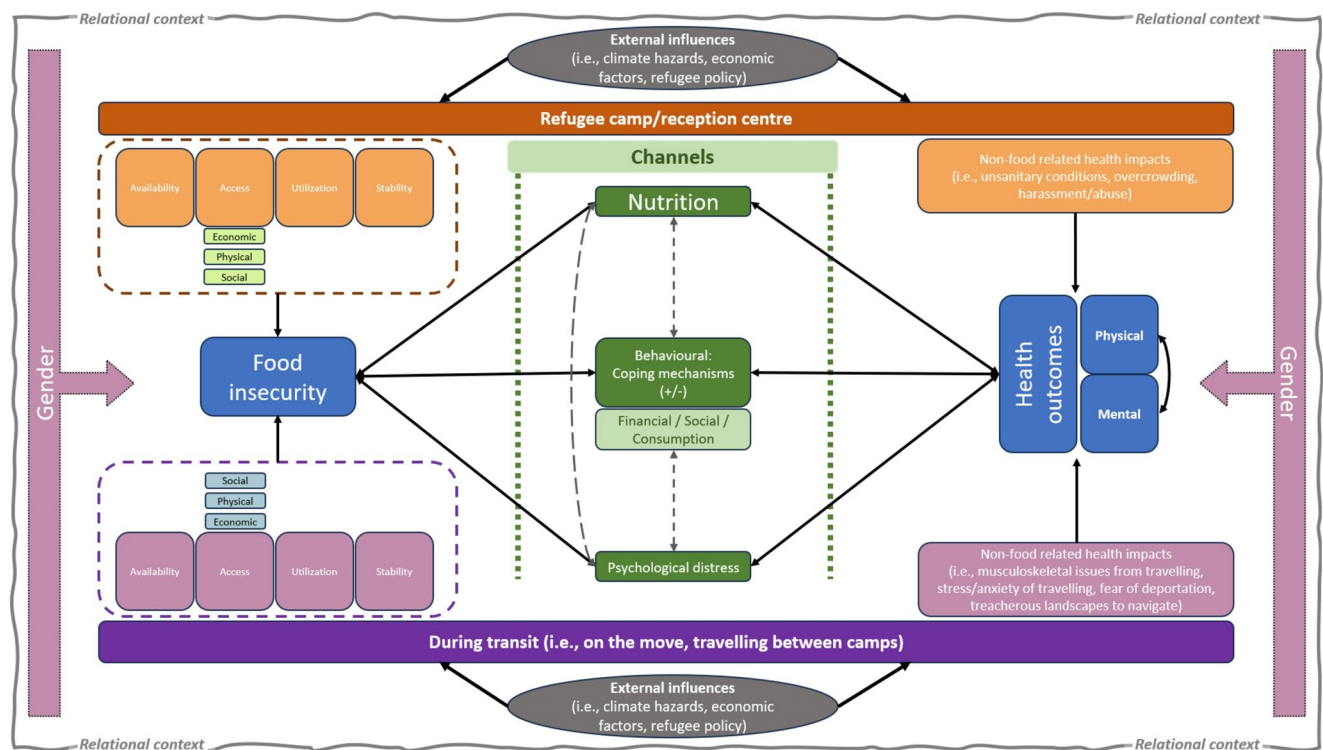
Gender was not discussed in seven reviewed articles (Appendix C). Two articles primarily included male samples (73% and 69%) [42, 65], whereas O’Laughlin et al. [58] highlighted their limited inquiry into gender-based violence (GBV) as a research limitation. In contrast, studies in Bangladesh [38, 60] and Ukraine [43] explicitly focused on women or girls. Some studies mentioned insufficient gender-specific services, such as gynaecological care [55], or inadequate nutrients for pregnant and lactating women, raising concerns for children’s development and health [35, 37, 38, 45, 51, 59]. These examples show that services frequently used by women were often unavailable.

Only one study examined the intersection of age and gender, with Das et al. [60] noting that older adolescent girls (15–17 years old) faced more severe health issues from limited nutrition than younger girls (11–14 years old). Children were also shown to take on increased household chores as both parents worked to provide food [51].

FI creates differential risks for women and girls. Rawal et al. [53] and Mercado et al. [48] report increased rape and GBV. Likewise, Gordon et al. [46] found that unaccompanied women and girls in camps were 5.41 times more likely to experience sexual GBV than those with families. Women were also more likely to engage in coping strategies such as transactional sex, increasing risks of STDs [56].

Family roles also shape FI and health outcomes. Unaccompanied men, who lack the food-preparation skills culturally assigned to women, frequently relied on processed food, leading to poorer health outcomes [35]. Collado [36] further noted that unfulfilled expectations for husbands to





**Fig. 2** Conceptual framework of the bidirectional relationship between food insecurity and health, highlighting gendered dynamics during transit and first reception

provide for the family can lead to frustration among women and family separations. Mothers also expressed concerns about providing culturally familiar foods for their children to maintain cultural continuity [35, 40, 43], while Deschak et al. [56] noted caregiving, regardless of gender, determined food 'buffering', with food rationing shared more equally among caregivers.

## Discussion

This section outlines the main theoretical insights from the review. We introduce a conceptual framework that captures the interconnections between FI and health during transit and at first reception, and identifies relationships warranting further investigation. Finally, we summarise practical implications for research and policy.

### A Framework for Understanding Food Insecurity and Health During Displacement

We propose a framework (Fig. 2) to capture the three key research gaps identified in this review: (i) uneven attention to all four FI pillars, (ii) limited exploration of the bidirectional FI–health relationship, particularly in LMICs, and (iii) the gendered nature of FI. The framework adapts Weiser et

al. [28] and Beyene's [71] general models of FI and health to create a gendered approach applicable to forced migrant populations in transit or at first reception. The framework can be applied at the individual and group levels, acknowledging that FI may also be experienced collectively [42, 72]. The model illustrates the dynamic interaction between FI and health during displacement and provides a foundation for future research on the experiences of forced migrants.

### The four Pillars of Food Insecurity

The uneven focus across FI dimensions in the literature reflects both conceptual and methodological limitations in the study of forced migrant populations [73]. While the four pillars are conceptually interdependent, research has largely prioritised 'access', leaving critical dimensions such as 'stability' underexplored. This pattern suggests that the field has favoured measurable elements, captured using quantitative tools such as the Food Insecurity Experience Scale (FIES), at the expense of more complex, qualitative, and temporal aspects. Consequently, the severity, cyclicity, and cumulative effects of FI among displaced and undocumented groups are likely underestimated, which has implications for both research and policy interventions [42, 56, 74].

The observed variations in food availability and access across locations further highlight the context-specific and

dynamic nature of FI. Settings with reliable provision coexist alongside sites facing persistent shortages shaped by economic, social, and physical barriers [35, 38–41, 44–49]. Therefore, FI cannot be understood solely in terms of institutional or structural provision; individual coping strategies, mobility, and intersecting vulnerabilities mediate how FI is experienced. Moreover, the absence of ‘utilisation’ from several papers, encompassing food quality, safety, preparation facilities, and cultural appropriateness, may further illustrate the limitations of purely quantitative approaches in capturing displaced populations’ lived realities [74].

A further pattern concerns the stages of displacement studied. Most research focuses on (re)settled migrants in HICs, examining food costs or diet-related non-communicable diseases [72, 75–77]. In contrast, only 28 studies addressed FI during transit and first reception. This emphasis risks overlooking the acute vulnerabilities and rapid fluctuations in food security occurring earlier during displacement.

The framework developed from this review responds to these gaps by integrating the four FI pillars and situating them within broader political, environmental, and policy contexts, including climate shocks, market volatility, conflict, and refugee policy. The framework, therefore, encourages future research to take a holistic approach to exploring how FI interacts with health and gender dynamics across displacement settings. By distinguishing between FI drivers during transit and in camps or shelters, the framework underscores that access to nutritious food depends not only on supply and distribution but also on mobility, protection regimes, and the temporal conditions of displacement.

## Food Insecurity and Health

FI affects physical and mental health through three interlinked channels: nutrition, behaviour (including coping strategies), and psychological distress [28, 56] (Fig. 2). The relationship is bidirectional; poor health conditions such as diabetes heighten vulnerability to FI, while FI contributes to malnutrition, stress, and depression [36–40]. Feedback effects between mental and physical health are also evidenced [36, 37], and shown to be intensified by trauma, unsafe living conditions, and the instability inherent to displacement settings.

Most studies concentrated on access to food, particularly in HICs, while few examined the broader health consequences of FI, especially in LMIC contexts. This gap is especially critical in South–South migration, where migrants often move through or settle in regions already affected by food scarcity, poverty, and weak health systems [14, 20]. Across contexts, FI disproportionately affects vulnerable groups, including women [51, 59], children [39, 53], older

adults, persons with disabilities [57], and those with chronic illnesses [52].

Coping mechanisms were often linked to negative health outcomes. Common strategies, including reducing meal size or frequency [36, 44, 45, 49, 50], selling or exchanging food for other essentials [51], or resorting to begging and theft [48, 56], can compromise long-term health and dignity. In some cases, migrants prioritised food over healthcare [36, 52, 57], illustrating how FI reshapes survival trade-offs and exacerbates cumulative vulnerability. Yet, despite these challenges, several studies also highlighted the resilience and adaptive capacity of displaced communities [54].

Together, these findings reinforce FI as both a determinant and a consequence of poor health. The framework situates this within a cyclical process, where deteriorating health limits the capacity to secure food, and FI in turn undermines physical and mental health. Breaking this cycle requires integrated interventions that combine nutrition support with healthcare access, particularly for women, children, and other high-risk groups.

## Gendered Challenges

Gender dynamics strongly shape how FI and health are experienced during forced migration. Across the reviewed studies, gender differences in FI and health were most frequently discussed in relation to women’s caregiving responsibilities, reproductive health, gender norms, and household food management. Many studies also incorporated ‘gender’ as an explanatory variable [42, 65], without engaging with how FI during forced migration is deeply gendered, with women facing greater risks through differentiated labour roles, exposure to violence, and unequal access to resources and healthcare [5, 21, 22]. This limited perspective reduces the potential for transformative insight and obscures how intersecting inequalities of class, race, ethnicity, religion, and legal status influence women’s and girls’ experiences of displacement.

The review also found that while caregiving responsibilities affected eating behaviours, the wider social relationships and contexts in which these responsibilities were embedded remained underexplored. Few studies examined how power relations within families, communities, or humanitarian systems shape women’s ability to access and utilise food.

To address these gaps, the framework incorporates a ‘relational context’ [78, 79] that situates FI and health outcomes within migrants’ social, structural and temporal environments. This lens recognises that the pathways between FI and health differ depending on migration stage, previous trauma, and the food environments of both origin and destination. Specific attention is given to ‘gender’ as a key factor in shaping how FI is experienced, the pathways linking FI

to health, and the resulting health outcomes (Fig. 2). Gender operates as one of several intersecting contextual factors, alongside class and age for example, that condition how FI and health interact during transit and first reception. By embedding gendered processes within this broader relational context, the framework offers a flexible tool for analysing how FI and health are co-constructed through displacement across different contexts and actors. The framework underscores the need for future research to move beyond documenting women's vulnerability towards understanding how gendered power relations and social networks shape FI, health outcomes, and the coping mechanisms used across different stages of migration.

Overall, the conceptual framework offers valuable insights for researching the unique challenges faced by forced migrants during transit and in places of first reception. It highlights the need for further research to explore the dynamic relationship between FI and health across different stages of displacement, filling a critical gap in understanding the compounded vulnerabilities these populations experience.

### Future Research and Policy Recommendations

This review highlights the dynamic and bidirectional links between FI and health during forced displacement, revealing how precarity, limited access to resources, and gendered inequalities compound risks across different migration stages. To address the persistent fragmentation between FI and health research [65], future studies and policies should adopt a systems perspective to address both challenges simultaneously; recognising the relational and complex interdependence between all FI pillars, the structural and temporal dimensions of forced displacement, and the gendered inequalities. This approach can also help avoid policy trade-offs between nutrition, health, and protection goals.

Despite the growing recognition of FI as a global crisis, research on forcibly displaced populations remains geographically and thematically uneven. Most existing evidence focuses on comparing resettled populations to host populations in HICs where formal welfare systems and structured aid frameworks may mitigate the most severe risks. Yet over 70% of refugees reside in LMICs [80], where informal settlements, limited social protection, and systemic exclusion expose displaced migrants to more severe and prolonged FI. Future research must therefore adopt a context-sensitive approach, focusing on LMICs where displaced populations face overlapping vulnerabilities. Research should also incorporate displaced groups in transit or temporary accommodation, such as camps and reception centres, to achieve a more holistic understanding of forced migrants' context-specific journeys and experiences. Furthermore, as

cross-sectional approaches overlook temporal fluctuations and cumulative effects, longitudinal and mixed-method studies are particularly needed to trace how FI and health evolve across migration stages, and to identify how coping mechanisms shift over time.

A stronger gendered lens is essential. FI is not gender-neutral. Displaced women and girls face unique risks, including inadequate nutrition during pregnancy, exploitation, psychosocial distress, and restricted food access, yet these dimensions remain underexplored [70, 81]. Adolescent migrants, often highly vulnerable to FI and poor health, also require focused attention. Research should therefore integrate intersectional analyses that reflect the "feminisation of migration" [70] and the differentiated experiences of women and girls across regions.

Methodologically, developing adaptive measures of FI is critical. Existing tools, such as FIES, fail to capture displacement-specific challenges like consecutive days without food or fluctuating resource availability. A standardised, context-sensitive instrument would enable more accurate comparison across sites and inform global guidance for humanitarian actors, with reviewed studies illustrating inconsistency in the effectiveness of different camps and actors in alleviating FI.

Few studies incorporated all four FI pillars, suggesting most research captures only partial aspects of FI among displaced populations. Future research must move beyond static, 'access-focused' assessments and consider FI holistically as a dynamic, multidimensional, and contextually embedded phenomenon. Doing so will generate the insights needed to design targeted, stage-sensitive interventions that address immediate and cumulative food security challenges. A continued focus on 'availability' and 'access' risks portraying generalised food aid as sufficient, while overlooking the need for timely, targeted interventions [82]. Interventions must move beyond food distribution to include safe cooking facilities, timely deliveries, diverse and culturally appropriate diets, and nutritional education.

Humanitarian and policy responses should also explicitly address the gendered nature of FI. This includes ensuring nutritional support for pregnant and lactating women, integrating GBV prevention in food aid delivery, and expanding cash and voucher programmes to improve financial access. Additionally, supporting equitable food systems for both migrants and host communities can help reduce tensions and promote social cohesion [83].

## Limitations

There are some important limitations to address. Forced displacement is a complex, fluid phenomenon that does not fit neatly into discrete categories, and the terms ‘transit’ and ‘first reception’ lack universally accepted definitions. Furthermore, ‘first reception’ may be misleading, as migrants may be uncertain about whether they will settle or continue their journey towards a ‘final’ destination. Nevertheless, the review identified boundaries (see Introduction) to ensure consistency. Additionally, this scoping review was only conducted in English. Therefore, we acknowledge that some articles may not have been captured.

## Conclusion

This review examined the relationship between FI and health outcomes during forced displacement, with particular attention to experiences during transit and at first reception. The study makes three key contributions to research on FI, public health, and migration. First, it illuminates the challenges faced by displaced populations, including insufficient food availability, access, utilisation, and stability, especially among pregnant and lactating women, and adolescent girls. Variations in the effectiveness of aid distribution practices in camps and the absence of standardised regulations exacerbate these challenges, often resulting in migrants adopting coping strategies that, while demonstrating agency, may have detrimental long-term physical and mental health consequences.

Second, the review identifies critical research gaps. These include the limited examination of the cumulative and bidirectional relationship between FI and health over time, and how gendered experiences are underexplored beyond demographic comparisons. In particular, limited attention has been given to the differential impacts of FI on the health of women and girls, and how coping strategies are shaped by social norms, caregiving responsibilities, and other gendered constraints.

Third, the review proposes a novel conceptual framework that maps the complex intersections of FI, health, displacement, and gender. Building on existing models [28, 71], the framework highlights multiple channels through which different dimensions of FI and health interact, and serves as a guide for future empirical research on the relationships between FI, coping mechanisms, and health, particularly for displaced women and girls in LMICs.

Given the growing number of forcibly displaced people globally, this analysis underscores the need for holistic, gender-sensitive, and contextually informed research and policy interventions that address the multifaceted nature of

FI and its impacts on health. By identifying key gaps and offering a conceptual tool, the study aims to inform strategies that improve both food security and health outcomes for the most vulnerable populations.

## Appendix

Please find appendices in the Online Supplementary Material.

**Supplementary Information** The online version contains supplementary material available at <https://doi.org/10.1007/s10903-026-01873-4>.

**Acknowledgements** To Rebecca Russell for their continuous support and encouragement. To the Department of Politics and International Relations, University of Southampton for funding this work. For the purpose of open access, the author has applied a CC by public copyright licence to any Author Accepted Manuscript version arising from this submission.

**Author Contributions** All authors contributed towards developing the conceptual foundation of the paper. L.C and H.H undertook the data analysis and wrote the main manuscript text. H.H prepared Figure 1 and L.C prepared Figure 2.

**Funding** Department of Politics and International Relations, University of Southampton.

**Data Availability** No datasets were generated or analysed during the current study.

## Declarations

**Competing Interests** The authors declare no competing interests.

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