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Culturally appropriate food in local food systems and associated health impacts among immigrants living in high-income countries: A scoping review

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Abstract

While health research typically centers on nutritional value and clinical health outcomes, research on food (in)security among immigrants emphasizes the crucial need for culturally appropriate food, necessitating a holistic approach that accounts for food's cultural and social meanings. Immigrants' participation in community-based food production and preparation, such as through immigrant-led farming and gardening, highlights the potential for inclusive local food movements to advance cultural food security. Understanding the health impacts of access to preferred local foods among immigrants is also essential to guide evidence-based public health interventions. Thus, a scoping review was conducted to synthesize current evidence that examines the alternative food networks, or AFNs, that facilitate access to locally grown, culturally appropriate food for immigrants from low/middle-income countries living in high-income countries

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and the associated health impacts. Three databases and Google Scholar were searched for studies published between 2000 and 2025, resulting in a total of 267 articles, of which 21 were eligible for this review. Results of the synthesis indicate that so far, access to culturally appropriate food is largely supported through non-market–based strategies such as home or community gardening and foraging, rather than other access points such as farmers markets. While many studies reported positive impacts on diet, exercise, mental and social well-being, their predominantly descriptive designs made it difficult to determine the impact of culturally appropriate food on immigrants' dietary patterns or food security. From a food sovereignty perspective, our understanding of immigrants' access to culturally appropriate food remains incomplete. Greater attention to immigrant foodways within AFNs is critical for advancing inclusive local food movements and designing interventions that promote cultural food security and health equity.

Keywords
immigrants, refugees, diet, culturally appropriate foods, food security, food access, alternative food networks, local food systems, dietary acculturation

Introduction

Globally, nearly two-thirds of international migrants lived in high-income countries in 2019 (United Nations, 2020), making their food-related experiences highly relevant to research on food security and health equity. Because they face linguistic, social, and economic barriers in accessing food in their new food environments, immigrants[1] face a higher risk of food insecurity compared to citizens born in the host country (Liu et al., 2024; Sharareh et al., 2023). Despite the central role immigrant communities play in the food system labor force (Meierotto & Som Castellano, 2020; United Nations Network on Migration, n.d.), they have long reported difficulties in accessing fresh, high-quality, and culturally appropriate food after arrival (Berggreen-Clausen et al., 2022; Lanham et al., 2022; Lee & Lee, 2024; Zheng, Alam, et al., 2025). Immigrants also experience dietary acculturation, the process by which immigrants adapt to new food environments, often resulting in shifts toward typical Western dietary patterns that are high in fat and low in fruits and vegetables (Satia-Abouta et al., 2002). While post-immigration dietary changes are complex and influenced by factors such as age at immigration, education, and admission status (Okafor et al., 2014), structural barriers such as food cost, time constraints, and transportation access likely impact these nutrition transitions (Berggreen-Clausen et al., 2022). These patterns contribute to existing health disparities, as evidenced by elevated risk for obesity, diabetes, and cardiovascular diseases among immigrants (Agyemang et al., 2024; Berkowitz et al., 2016; Mulugeta et al., 2018). Despite these structural issues, food security initiatives in the Global North often fail to meaningfully consider the foodscapes and foodways of immigrants (Bonnevera, 2025).

The concept of food sovereignty offers a broad vision and framework for research and practice to address immigrant communities' lack of access to culturally appropriate food. Food sovereignty is defined as "the right of peoples to healthy and culturally appropriate food produced through ecologically sound and sustainable methods, and their right to define their own food and agriculture systems" (Declaration of Nyéléni, 2007, p. 1; La Via Campesino, 2008). This concept goes beyond food security to emphasize the cultural importance of food and traditional foodways and farming systems, broadening the scope to a community's autonomy over their food choices (Minkoff-Zern et al., 2024). Food sovereignty movements emphasize restoring traditional foodways and farming systems to reduce community reliance on highly processed and nutritionally poor foods (Jernigan et al., 2023). In the context of immigrant communities in high-income countries, food sovereignty brings attention to structural issues such as lack of access to land, and wage disparities that limit immigrants' ability to access culturally appropriate food.

Seeing food sovereignty as part of the food

[1] Throughout this paper, the term *immigrants* is used broadly to refer to foreign-born individuals. When studies specifically examined *refugees* or *asylum seekers*, we retain the authors' terminology to reflect those populations specifically.

security agenda (Clapp, 2014), we argue that it is important to study the intersection of food access and food production. While culturally appropriate food as a concept remains poorly standardized, here we interpret it as "a dynamic and negotiated process" (House et al., 2024, p. 863) to help leverage immigrants' agency in dietary acculturation and provide a more "bottom-up" (House et al., p. 874) view of food system governance. For this study, we adopt a working definition of cultural appropriateness as "the qualification of particular food as appropriate to eat, in a particular manner, in a particular context" (House et al., p. 875), with an emphasis on its cultural significance. Given the calls for greater attention to the cultural importance of food, scholars have started to examine foodways and advocate for culturally appropriate food in clinical and community settings (Crusan et al., 2025; Nemec, 2020; Song et al., 2010). While the lack of access to culturally appropriate food among immigrants has been well-recognized in food security discussions, the public health literature offers limited investigation into strategies that may address these needs.

Recent initiatives have explored access to culturally appropriate food through alternative food networks (AFNs). AFNs typically involve short supply chains with one or no intermediary between producers and consumers, and are positioned as alternatives to highly industrialized, corporate-dominated food systems (Edwards, 2016; Gori & Castellini, 2023; Kessari et al., 2020). AFNs provide a potential strategy to advance food sovereignty for immigrant communities. For instance, Adekunle et al. (2011) found that immigrants of Afro-Caribbean descent are willing to pay a premium for ethnic vegetables that are high in quality and flavor, indicating a promising opportunity for local food systems. In parallel, some community gardens and farmers markets initiatives have supported immigrant farmers and gardeners through training support and land access initiatives (e.g., Grubbström & Joosse, 2021; Harvest Against Hunger, 2021). These efforts reflect growing recognition of immigrants' nutritional and agrarian knowledge in the context of resettlement and climate change (Brons et al., 2020; Klocker et al., 2018; Mazar & Mares, 2020). They also help respond to critiques of cultural "whiteness" in the local food movement and exclusivity within AFNs, such as farmers markets (Alkon & McCullen, 2011; Guthman, 2008; Slocum, 2007).

Despite the growing interest in exploring cultural considerations for sustainability and health, research on immigrant foodways, foodscapes and health have largely remained siloed, limiting a holistic understanding of their interconnected impact on food security and food systems transformation. Previous review studies have established the relationship between community garden participation and health among vulnerable communities (Burt et al., 2021; Malberg Dyg et al., 2020; Onyango et al., 2025; Ramburn et al., 2023). However, the narrow focus on community gardens in urban agriculture may obscure nuanced market-based activities, such as community-supported fisheries (Young et al., 2023), and emerging professional development programs to support immigrant farmers in sustainable agriculture (Koshere, 2018; Ochieng & Ajayi, 2023; Rasul, 2019). Moreover, while studies on dietary acculturation (e.g., Lanham et al., 2022; Mycek et al., 2020; Okafor et al., 2014) and consumer preference for ethnic foods exist (e.g., Goto et al., 2016; Govindasamy & Puduri, 2011), they have not been synthesized to examine the potential health benefits of locally grown, culturally appropriate food. Therefore, to guide inclusive food policy planning and public health interventions, an important step is to synthesize what is known about immigrants from low/middle-income (L/MI) countries living in high-income countries regarding their access to culturally appropriate food through AFNs and the associated health implications.

To address these issues, we conducted a scoping review to map and characterize the existing evidence on the accessibility of culturally appropriate food in local food systems and its associated health impacts among immigrants from L/MI countries living in high-income countries. This review also aims to identify gaps in research and provide implications for future policy and research. The research question guiding our review is: What does the available evidence show about food access through AFNs and the health impacts of locally grown, culturally appropriate food among immigrants from L/MI countries living in high-income countries?

Methods

The study follows the methodological framework outlined by Arksey and O'Malley (2005) and further developed by Levac et al. (2010). A scoping review protocol was registered with the Open Science Framework on March 30, 2025 (Zheng, Ge, et al., 2025), in line with best practices to enhance transparency of reporting (Tricco et al., 2018). In summary, the study has five key phases: (a) identifying the research question, (b) identifying relevant studies, (c) study selection, (d) charting the data, and (e) collating, summarizing, and reporting the results. This paper follows PRISMA Extension for Scoping Review guidelines (Tricco et al., 2018).

Identifying Relevant Studies and Study Selection

As described in the registered scoping review protocol (Zheng, Ge, et al., 2025), we performed a literature search of peer-reviewed articles in PubMed, Web of Science, PsycINFO, and Google Scholar to identify relevant studies on food access through AFNs and health impacts of locally grown, culturally appropriate food in high-income countries. The search strategy was developed in consultation with a librarian at the University of New Hampshire. Our specific search strategy was detailed in the scoping review protocol (Zheng, Ge, et al., 2025; see also Appendix Table A1) and included keywords such as "culturally significant food" and "alternative food networks." The search strategy defined a search period between 2000 and 2025 to capture recent migration patterns, food system localization, and the rising discussion of cultural appropriateness. Eligible criteria for article inclusion were:

(a) Original studies published between January 1, 2000, and March 13, 2025, examining locally grown, culturally appropriate food and its health impacts (e.g., dietary intake, mental well-being) among adolescent and/or adult immigrants (including refugees, asylum seekers, permanent residents, naturalized citizens, etc.) living in high-income countries based on the World Bank classification;
(b) Study populations included immigrants (either exclusively or as part of the study population) for whom results were reported separately by at least one of the following: race, ethnicity, and region or country of origin;
(c) Study participants were identified as people originating from lower and middle-income countries;
(d) Study results included information about locally sourced, culturally appropriate food in regional and local food systems; and
(e) Study designs were quantitative, qualitative, or mixed methods.

Studies were excluded based on these criteria: (a) the study did not specifically report results for immigrants among multiethnic populations, (b) the study was published in a language other than English, (c) the study did not report on health impacts, and/or (d) the study did not report on local food sources.

Title/abstract and full-text review were conducted using Covidence (Covidence.org, Melbourne, Australia). Covidence enabled independent screening, duplicate removal, resolution of reviewer disagreements, and tracking of exclusion reasons. Title/abstract and full-text review were completed in a team-based approach, with two reviewers independently assessing each study (LZ, GG, and/or SW). Any conflicts were resolved by the leading investigator (LZ). No critical appraisal was carried out because scoping reviews that aim to provide an overview of the evidence do not usually include this step (Munn et al., 2018).

Charting the Data

A Google Form was created to organize the data extracted from all the included studies. The following information was extracted from each article: author name(s), year of publication, title of the article, objective(s) or aim(s), study location, study design, data collection methods, study sample characteristics, food access through AFNs, and key outcome contributed to the study. Two team members (LZ, GG, and/or SW) completed independent blinded data extraction, and the results were compared to improve accuracy. Disagreement between reviewers was discussed and resolved by a third team member.

Collating, Summarizing, and Reporting the Results

First, we tallied the temporal and geographical distribution of the studies. The charted data on demographics and study outcomes were summarized in tables. To help synthesize key findings on health impacts, we adopted the World Health Organization (WHO)'s definition of health, which states: "Health is a state of complete physical, mental, and social well-being and not merely the absence of disease or infirmity" (WHO, n.d.). Drawing on this definition, we organized the reported health impacts into four overarching categories: diet, physical activity, mental outcomes, and social outcomes. In alignment with the "food as medicine" philosophy (Academy of Nutrition and Dietetics, n.d.), we further classified the use of edible plants for therapeutic purposes under diet outcomes.

A total of 267 results were identified in the initial search, of which 8 duplicates were removed. During title and abstract screening, 259 records were reviewed; 221 were excluded based on the criteria above and one was identified as a duplicate, resulting in 37 studies eligible for full-text screening. In full-text screening, 16 studies were excluded, leaving 21 studies that met the inclusion criteria (Figure 1, next page). Appendix Table A2 summarizes the included studies across the charted dimensions described above, providing the foundation for the results that follow.

Results

The 21 studies included in this review were published between 2003 and 2024. Between one and four studies were published each year, with a small increase over time (Figure 2).

Table 1 provides an overview of study aims, design, locations and country of origin of participants for each study in the review.

Study Design, Approach, Location, and Participants

Of the 21 included studies, 16 used qualitative methods, including two critical case studies (Table 1). The remaining five used a mixed-methods approach. Data collection methods in the qualitative studies included interviews, observations, focus groups, and archival records. Quantitative data in the mixed-method studies were collected through survey tools such as the Food Frequency Questionnaire (FFQ) (Gichunge et al., 2016; Park et al., 2011), Refugee Health Screener (Gangamma et al., 2024; Minkoff-Zern et al., 2024), and the United States Department of Agriculture (USDA) Food Security Survey (Minkoff-Zern et al., 2024).

Figure 3 maps the study locations by country. Geographically, nearly half of the included studies were conducted in the United States, followed by Australia. All other countries were represented by only one or two studies, spanning Europe and Asia.

Figure 2. Frequency of Publications Examining Locally Grown, Culturally Appropriate Food Published between 2003 and 2024

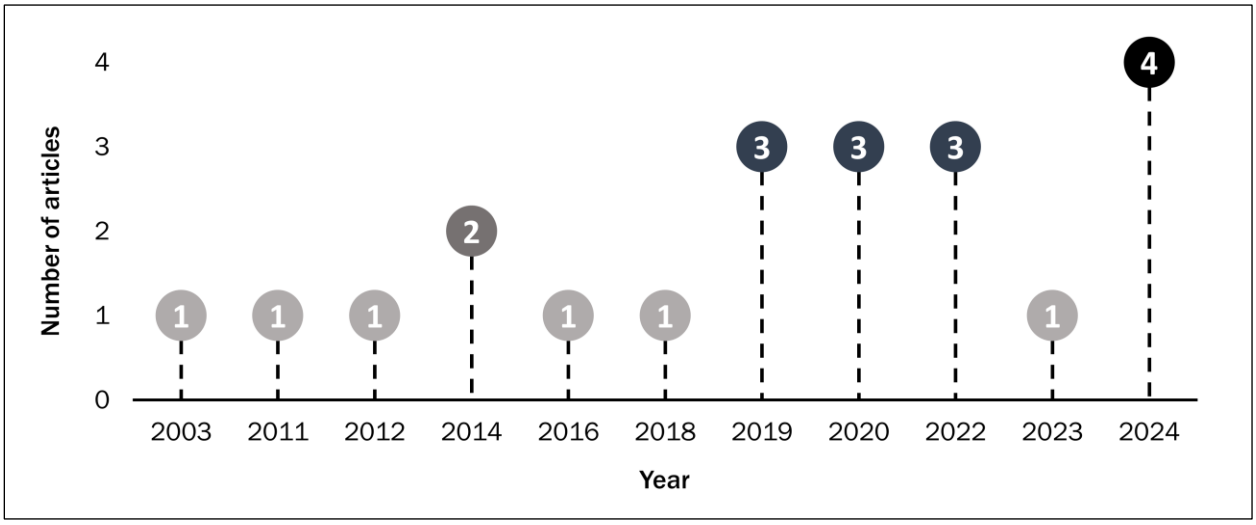
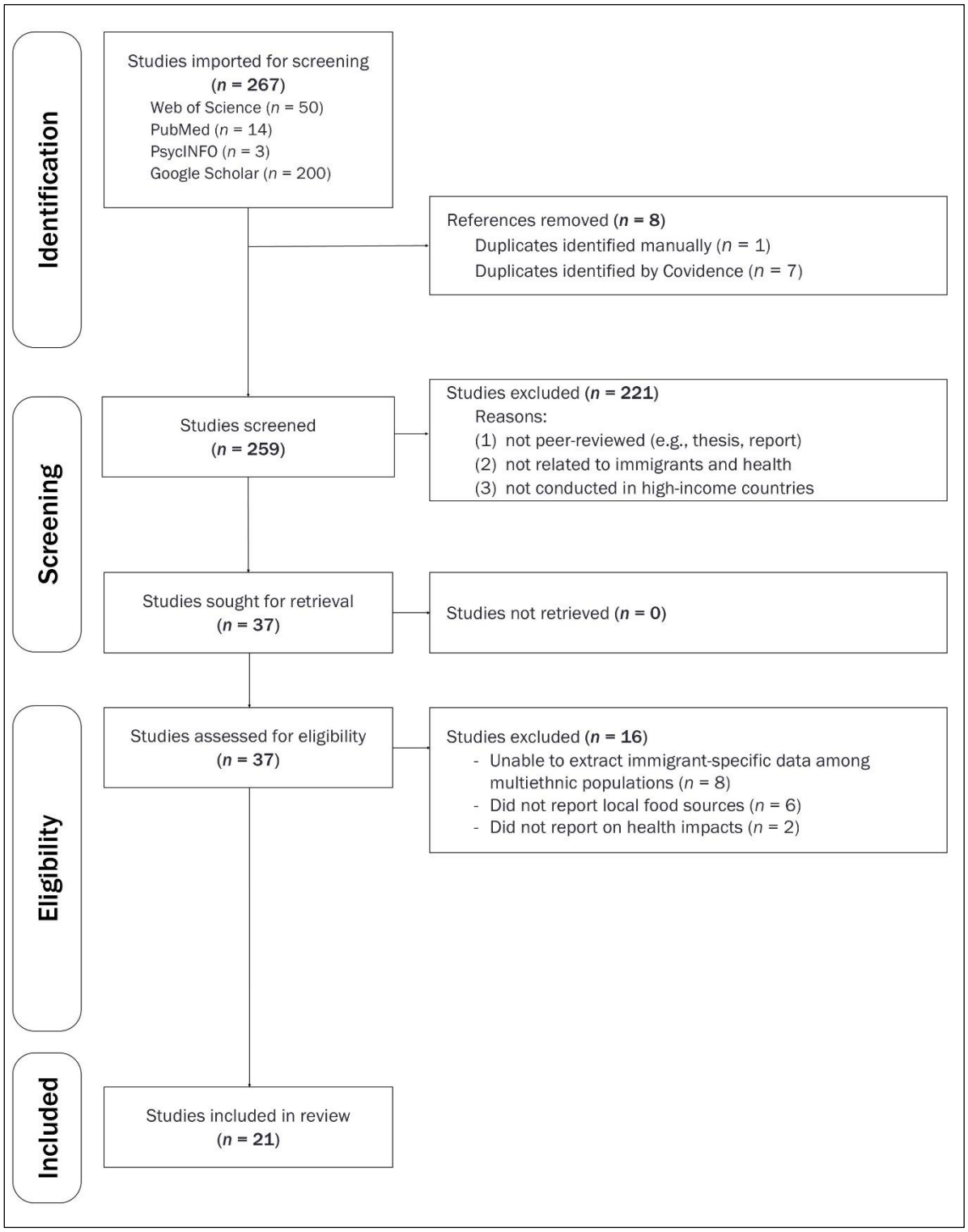


Figure 1. PRISMA Diagram for the Literature Review



PRISMA: Preferred Reporting Items for Systematic Reviews and Meta Analyses

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Table 1. Studies that Evaluated Food Access through Alternative Food Networks and Health Impacts of Locally Grown, Culturally Appropriate Food among Immigrants in High-Income Countries (*n* = 21)

Authors, Year	Aims/Objectives	Country of origin	*N*[a]	Host country	Study Design	Data collection methods
Alkon & Mares, 2012	To investigate on-the-ground processes through which food sovereignty articulates with the work of food justice and community food security activists.	Mexico, Peru, Honduras, El Salvador, Guatemala, Cuba, Nicaragua, and Ecuador	*N* = 46	United States	Qualitative (Ethnographic research)	Participant observation, ethnographic interviews, and archival research
Bloom et al., 2018	To understand the potential for immigrant and refugee communities to maintain the health benefits of traditional food production and preparation practices in acculturation. To identify needs to expand and strengthen bridging social capital between immigrant and refugee communities and Cooperative Extension.	Nigeria, Egypt, Somalia, South Africa, and Burma	*N* = 13	United States	Qualitative (CBPR)	Asset mapping and community meetings, evaluative interviews
Brons et al., 2020	To understand how inclusiveness regarding healthy and sustainable food works within a multi-ethnic urban context.	Syria	*N* = 26	Netherlands	Qualitative (exploratory)	In-depth semi-structured life-history interviews, participant observation
Charles-Rodriguez et al., 2023	To provide relevant and timely feedback to inform program adaptation and development on a community garden for immigrants.	Bhutan, Mexico, Sudan, India, Congo, Eritrea and Pakistan	*N* = 14	Canada	Qualitative (CBPR)	Surveys, focus groups and semi-structured interviews.
Corlett et al., 2003	To determine species raised by Hmong immigrants and their nutritional composition. To explore ways community gardens function in Hmong social and family life. To examine gardens as urban landscape features.	Laos	*N* = 18	United States	Mixed method	Interviews and garden checklists
Dinh, 2024	To explore migrants' motivations for foraging and the dynamics of co-creating environmental and culinary knowledge in new socio-ecological milieus.	Vietnam	*N* = 36	Japan and Germany	Qualitative	Semi-structured interviews and participant observations
Gangamma et al., 2024	To examine whether gardening influences mental health, food security, and economic well-being.	Bhutan, Syria, Somalia, Sudan, Burundi, Congo, Cuba, and Nepal	*N* = 29	United States	Mixed method (cross-sectional, descriptive, concurrent)	Semi-structured interviews and surveys
Gichunge & Kidwaro, 2014	To examine the role of gardening as a component of resettled African refugees' food environment.	Burundi, the Democratic Republic of Congo and South Sudan	*N* = 13	Australia	Qualitative	In-depth interviews, demographic survey

continued

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Authors, Year	Aims/Objectives	Country of origin	N[a]	Host country	Study Design	Data collection methods
Gichunge et al., 2016	To examine the association between household availability and consumption of traditional African vegetables among resettled African refugees residing in Southeast Queensland, Australia.	Burundi, Congo and Rwanda	*N* = 71	Australia	Mixed methods (cross sectional sequential explanatory)	In-depth interviews, survey (including a FFQ)
Gingell et al., 2024	To explore key roles in refugee-background communities to understand why they were important and how they facilitate cultural food security.	Sudan, Syria, Bhutan, Cambodia, and Afghanistan	*N* = 5	Australia	Qualitative	Interviews
Goralnik et al., 2022	To describe the refugee and immigrant community gardening experience in three urban gardens with high refugee and immigrant enrollment.	Burma, Bhutan, Congo, Haiti, Kenya, Malawi, and Nepal	*N* = 11	United States	Qualitative	Observations and interviews
Guo et al., 2022	To explore if and how access to seeds and seed systems enables refugee gardeners to grow essential crops, which might be otherwise difficult to obtain, to produce foods reminiscent of their homelands.	Bhutan	*N* = 30	United States	Qualitative	Semi-structured interviews
Harris et al., 2014	To explore how involvement in a community food garden supports African humanitarian migrant connectedness with their new country.	Not specified	*N* = 12	Australia	Qualitative (single critical case study)	Semi-structured interviews
Head et al., 2019	To understand how different groups of people understand broader human–environment relations, albeit in a context where food growing is something they have in common.	Burundi, Democratic Republic of Congo, Afghanistan, Vietnam, and Tonga	*N* = 30	Australia	Qualitative	Semi-structured interviews
Hughes, 2019	To understand the social and cultural factors that influence food choices in an unfamiliar environment.	Myanmar	*N* = 12	Australia	Qualitative (focused ethnography and PAR)	Semi-structured interviews
Lucas, 2020	To learn about the benefits and challenges of community gardening in the context of a garden for immigrants and refugees.	Not specified	*N* = 14	Canada	Qualitative	Semi-structured interviews
Minkoff-Zern et al., 2024	To bring a comprehensive food sovereignty framework to the research on immigrant and refugee gardening and to add a nuanced and necessary perspective on how to address the related issues of forced displacement, mental health, and food security.	Bhutan, Syria, Somalia, Sudan, Burundi, Congo, Cuba, and Nepal	*N* = 29	United States	Mixed method (cross-sectional, descriptive, and concurrent)	Semi-structured interviews and surveys

continued

Authors, Year	Aims/Objectives	Country of origin	*N*[a]	Host country	Study Design	Data collection methods
Park et al., 2011	To better specify the role of Hispanic immigrants' beliefs about, and preferences for, healthy foods in linking food access to dietary patterns.	Mexico, the Dominican Republic	*N* = 28	United States	Mixed method (convergent)	Survey (FFQ) and interviews
Sandoval & Rodine, 2020	To investigate the relationships between immigrant integration and agricultural, environmental sustainability.	Mexico	*N* = 14	United States	Qualitative (critical case study)	Interviews
Strunk & Richardson, 2019	To understand how urban gardens are used and experienced by residents and city officials.	Not specified	*N* = 27	United States	Qualitative	Interviews, field notes, and participant observation
Tareau et al., 2022	To improve the state of general knowledge on contemporary Haitian phytotherapies. To better understand how plant-based practices adapt and change in different urban, migratory, legislative, and climatic contexts.	Haiti	*N* = 18	France (French Guiana)	Qualitative	Semi-structured interviews

Abbreviations: CBPR: community-based participatory research; FFQ: Food Frequency Questionnaire; PAR: participatory action research.
[a] Results presented in this table represent the individual foreign-born immigrant participants only.

Figure 3. Country-Level Distribution of Study Locations in the Included 21 Studies

Across the 21 studies, participants included refugees, immigrants, asylum seekers, and seasonal workers. Sixteen studies explicitly involved participants with forced migration. Most participants were adult women. Agrarian experience varied widely, ranging from lifelong farming to limited or intergenerational exposure through family members. Among diverse migrant groups, Bhutanese and Burundian participants were included across multiple host countries. North American studies most often focused on Latin American, Bhutanese, and African participants. Australian studies featured African and Southeast Asian groups. European studies were more geographically targeted, such as those on Syrians in the Netherlands (Brons et al., 2020). The study that spanned Japan and Germany focused on Vietnamese migrants (Dinh, 2024). In French Guiana, a study explored the experiences of Haitian migrants (Tareau et al., 2022). Additional sociodemographic profiles for each study are presented in the Appendix (Table A2).

Food Access Through AFNs

Food access through AFNs (Appendix Table A3) was composed of both market and non-market-based options. Most studies investigated gardening practices (n = 19). Market-based sources included farmers markets (Alkon & Mares, 2012; Gichunge et al., 2016; Park et al., 2011), livestock markets (Park et al., 2011), farms (Brons et al., 2020; Gingell et al., 2024), slaughterhouses (Brons et al., 2020), and ranches (Sandoval & Rodine, 2020). Non-market-based sources included home gardens (Bloom et al., 2018; Brons et al., 2020; Gangamma et al., 2024; Gichunge & Kidwaro, 2014; Head et al., 2019; Hughes, 2019; Minkoff-Zern et al., 2024; Tareau et al., 2022), community gardens (school-based or urban) (Alkon & Mares, 2012; Bloom et al., 2018; Charles-Rodriguez et al., 2023; Corlett et al., 2003; Gangamma et al., 2024; Gichunge & Kidwaro, 2014; Goralnik et al., 2022; Guo et al., 2022; Harris et al., 2014; Head et al., 2019; Lucas, 2020; Minkoff-Zern et al., 2024; Strunk & Richardson, 2019), a nonprofit incubator farm (Bloom et al., 2018), and foraging sites (Dinh, 2024; Tareau et al., 2022).

Health Impacts

Studies included in this review covered four dimensions of health impacts: diet, exercise, and mental and social well-being. From a holistic public-health perspective, these health findings are summarized together in the Appendix (Table A3) for each study. Each outcome is described in greater detail below, and an overview of the frequency of each outcome is provided in Table 2.

Diet Outcome

All included studies (n = 21) reported findings on diet that are related to food access, food intake,

food quality, and/or food security. Length of stay was reported to affect diet outcomes. For example, compared to short-term migrants, long-term Syrian migrants were more likely to grow culturally important plants at home and visit local farms for specific products (Brons et al., 2020). Similarly, other sociodemographic factors may influence diet-related behaviors; for instance, elderly Hmong women grew more plants in the garden for food and medicinal purpose than younger women (Corlett et al., 2003). The impact of migration status, however, was unclear due to the participants' mixed immigration backgrounds and the absence of a comparative study design.

Food access: Access to plants with medicinal benefits was prominent (Charles-Rodriguez et al., 2023; Corlett et al., 2003; Dinh, 2024; Tareau et al., 2022). This underscored migrants' unique health strategies and a holistic understanding of food and health. Gardening mainly provided access to fresh and culturally familiar vegetables and herbs that are expensive or hard to find. One study showed that Bhutanese refugee gardeners extended their access by freezing some of their harvest and eating parts of the plant not commonly eaten in their home countries (Guo et al., 2022). In addition to traditional food, immigrant gardeners adapted their foodways by growing local foods, such as pumpkin and strawberry (Harris et al., 2014), and re-appropriating native plants in host countries for phytotherapy (Tareau et al., 2022). Besides fresh produce, a few studies found that immigrants sourced dairy and meat products locally (Brons et al., 2020; Park et al., 2011; Sandoval & Rodine, 2020). For example, meat products from Mexican-immigrant owned ranches was preferred to make cultural foods such as "chicharrónes" (marinated pork and crispy pork skin) (Sandoval & Rodine, 2020).

Food intake: While garden-grown produce improves access to culturally appropriate food in a

Table 2. Overview of the Health Outcomes of Locally Grown, Culturally Appropriate Food in All Included Studies (*n* = 21)

Authors, Year	Diet outcome (*n* = 21)	Exercise outcome (*n* = 6)	Mental outcome (*n* = 7)	Social outcome (*n* = 14)
Alkon & Mares, 2012	x			
Bloom et al., 2018	x	x		x
Brons et al., 2020	x			x
Charles-Rodriguez et al., 2023	x	x		x
Corlett et al., 2003	x		x	
Dinh, 2024	x	x		x
Gangamma et al., 2024	x		x	x
Gichunge & Kidwaro, 2014	x	x	x	x
Gichunge et al., 2016	x			
Gingell et al., 2024	x			x
Goralnik et al., 2022	x	x		
Guo et al., 2022	x			x
Harris et al., 2014	x		x	x
Head et al., 2019	x	x	x	x
Hughes, 2019	x		x	
Lucas, 2020	x			x
Minkoff-Zern et al., 2024	x		x	
Park et al., 2011	x			
Sandoval & Rodine, 2020	x			x
Strunk & Richardson, 2019	x			x
Tareau et al., 2022	x			x

cost-effective manner, its impact on food intake was found to be neutral. Of the three studies that explored self-reported food consumption changes, two indicated that participants received insufficient produce from their gardens to affect the intake of fresh fruit and vegetables in their overall diet (Bloom et al., 2018; Charles-Rodriguez et al., 2023). Farming experience and limited ownership of land and garden space were identified as barriers to immigrants' food self-sufficiency through gardening. For example, Bloom et al. (2018) reported that only Karen refugee participants with extensive farming skills were able to achieve food self-sufficiency on a nonprofit incubator farm. At the same time, market access was shown to improve diet quality; a statistical analysis showed that the presence of a farmers market within the neighborhood was associated with higher servings per day of fruit, vegetables, and juice, and the presence of a farmers market and/or a livestock market was associated with increased servings per day of meat (Park et al., 2011).

Food quality: The quality of locally produced food is highly appreciated and preferred, as participants described it as fresh, organic, safe, chemical-free, and good tasting. Foraging wild plants seasonally exemplifies a cultural preference for freshness (Dinh, 2024). Hazara participants living in Australia considered fruit and vegetables from their gardens to have a better flavor (Head et al., 2019). Similarly, food from Mexican-immigrant owned rural ranches was considered fresh and organic (Sandoval & Rodine, 2020).

Food security: Food security was explored at the household and community level. When measured by USDA's Adult Food Security Survey Module, household food security among gardeners was found to be not significantly different from that of non-gardeners (Minkoff-Zern et al., 2024). Perceived community food security improved when immigrants started to harvest and distribute culturally appropriate food and share seeds and agroecological knowledge across social networks (Bloom et al., 2018; Gingell et al., 2024; Guo et al., 2022).

Exercise Outcome

The benefit of increased physical activity level was only associated with two food acquisition activities: gardening (Bloom et al., 2018; Charles-Rodriguez et al., 2023; Gichunge & Kidwaro, 2014; Goralnik et al., 2022; Head et al., 2019) and foraging (Dinh, 2024). None of the studies measured physical activity quantitatively. The perceived exercise benefits were particularly emphasized among Vietnamese foragers (Dinh, 2024) and the Bhutanese community (Charles-Rodriguez et al., 2023).

Mental Outcome

All seven studies that reported mental health outcomes indicated an indirect positive relationship between garden-produced, culturally appropriate food and mental well-being. Two studies reported happiness (Harris et al., 2014; Minkoff-Zern et al., 2024) and another three showed reduced mental distress (Corlett et al., 2003; Gangamma et al., 2024; Gichunge & Kidwaro, 2014). The remaining two studies concluded that there were overall mental benefits without specifying specific aspects (Head et al., 2019; Hughes, 2019).

Social Outcome

Fourteen of the 21 included studies had information pertaining to social and community well-being outcomes. Except for two studies that explored market-based food sources (Brons et al., 2020; Sandoval & Rodine, 2020), all studies discussed the impact of gardening (n = 11) and foraging (n = 2). Common themes related to social outcomes included community sharing, social connectedness, and belonging. By sharing seeds, knowledge, and food across social networks (e.g., friends, food bank), immigrants were able to strengthen their social connectedness and exercise their agency in this community sharing processes (Bloom et al., 2018; Charles-Rodriguez et al., 2023; Dinh, 2024; Gangamma et al., 2024; Gingell et al., 2024; Guo et al., 2022; Harris et al., 2014; Head et al., 2019; Lucas, 2020; Strunk & Richardson, 2019). Better integration into host countries through community garden participation was another notable social outcome (Gichunge & Kidwaro, 2014; Lucas, 2020). However, the social impact of gardens was constrained by the lack of ownership of

land and space, as well as individuals' work schedules and other obligations, such as parenting (Charles-Rodriguez et al., 2023). At the community level, ethnic food needs motivated the establishment of informal and formal small-scale sustainable agriculture businesses among immigrant communities (Gingell et al., 2024; Sandoval & Rodine, 2020). Immigrants also supported local farmers and butchers by purchasing niche products, such as Syrian labneh and special meat cuts for kibbeh and kebab (Brons et al., 2020).

Discussion

The purpose of this scoping review was to examine access to locally grown, culturally appropriate food through AFNs and the resulting health impacts for immigrants living in high-income countries. The 21 studies highlight a paucity of research from countries other than the U.S. and a noteworthy lack of investigation on market-based AFNs. Studies focused on diet and social outcomes; less than half of the included studies reported exercise and mental health outcomes.

The strong representation of Australia and U.S.-based studies in the review aligns with the discussions focused on cultural appropriateness in these two countries, as identified in a global systematic literature review (House et al., 2024). The popularity of gardening, particularly community gardens, as a means of accessing culturally appropriate food is not surprising, given its affordability and autonomy (Meenar & Hoover, 2012). In contrast, food foraging practices and immigrants' engagement in collective and small-scale enterprises in AFNs are underexplored. The review found limited evidence of localizing culturally appropriate food access through market-based models. As demonstrated in the case of ranchitos (Sandoval & Rodine, 2020), it may be possible that sales through informal markets exist, but they would be difficult for scholars to study and report. This gap between market- and non-market-based models likely reflects the challenges that immigrant farmers face in entering the agricultural sector in their host countries. Immigrant farmers face even greater structural barriers than those well-documented for new and beginning farmers, including land access, social capital, and technical support to get established (Ackoff et al., 2022; Minkoff-Zern, 2019; Smithers & Sethuratnam, 2013). Therefore, the intersection of food access and food production is essential for understanding and addressing ways that the barriers to land access for displaced people impact their dietary acculturation and associated health outcomes.

Dietary outcomes in this review were related to fruit, vegetables, herbs, dairy, and meat. While community gardening offers promising access to culturally appropriate food, its effect on dietary intake at the household and community levels may be limited. This finding is consistent with a systematic review by Burt et al. (2021), which found a neutral impact of community garden participation on diet. Scholars have noted limited year-round production capacity and unstable financial support as barriers to sustaining gardens, raising concerns about the long-term contribution of urban agriculture projects to community food security (Meenar & Hoover, 2012). In this review, some groups with extensive agrarian knowledge, such as the Nepali Bhutanese refugee gardeners (Guo et al., 2022), were found to participate more actively in local food provision. However, the descriptive design of these studies makes it difficult to determine if intergroup differences and causal relationships exist. Encouragingly, a nascent body of research indicates a positive relationship between ethnic produce and health. For example, a cross-sectional study found that exposure to ethnic produce was significantly associated with increased overall fruit and vegetable consumption among Latino, Hmong, and white children ($p < 0.01$) (Chen et al., 2015). A pilot study on a culturally specific community supported agriculture (CSA) program, using a pre-post design, reported higher vegetable intake measured via skin carotenoid scores among Asian American adults (Chan et al., 2025). These findings highlight the potential of AFNs to promote immigrant health. Special attention to urban foraging is recommended in dietary research to better address the complex, structural forces that impact immigrant health (Ali et al., 2023). In parallel, future immigrant-focused research is needed to identify opportunities and barriers for expanding engagement in AFNs beyond gardening.

Exercise benefits synthesized in this review

were associated with both gardening and foraging, whereas mental health benefits were exclusively linked to gardening. Physical and mental well-being are critical components of immigrant health, as first-generation migrants have higher odds of physical inactivity (Juárez et al., 2022) and may be at increased risk of mental illness (Close et al., 2016; Das et al., 2025). Although most of the included studies lacked quantitative measures of physical activity and mental health, the findings suggest that gardening and foraging may offer meaningful health benefits.

The summarized social benefits also demonstrate a promising synergy between local food systems and immigrant health promotion. The placemaking efforts in immigrants' social, economic, and cultural interactions through food provisioning highlight the importance of participation in food production to advance food sovereignty for these communities. The control over food production is explicit in our review of gardening-related studies, while the relations of care, trust, and commitment become essential in understanding market-based activities. A study among Somali immigrants confirms the critical role of active stakeholders in the value chain of culturally appropriate food and shows a strong affinity for ethnic food outlets, such as Somali-owned small businesses, in shaping cultural food preference (Adekunle et al., 2022). Indeed, creating clearer pathways for immigrants to participate in alternative food spaces is an often overlooked step toward building a more sustainable and healthier food system (Minkoff-Zern et al., 2020). Moving forward, centering cultural food security would allow food and health activists to move beyond questions of access to a more comprehensive focus on the control over where culturally appropriate food comes from. This shift would require a critical assessment of norms within AFNs and could inspire innovative strategies to promote culturally appropriate food production and consumption through local food systems. For example, some scholars have examined emerging market opportunities for culturally meaningful seeds in the U.S. (Burke et al., 2024).

When accessing culturally appropriate food, *locally produced food* is not the only factor influencing food purchasing decisions and behavior. For instance, Somali refugees in Canada prefer to shop at local Somali stores, particularly when they know the products are imported from their home country (Adekunle et al., 2022). The importance of transnational food networks is also evident in the Haitian diaspora, where Haitian shop owners import dried medicinal plants to meet high community demand (Tareau et al., 2022). Meanwhile, Afro-Caribbean immigrants in the Greater Toronto Area of Canada primarily prefer to obtain vegetables from supermarkets, including Chinese ethnic supermarkets (Adekunle et al., 2011). These examples illustrate that *local* is a culturally situated concept for transnational communities and that cultural appropriateness is dynamic. Reflexivity is critical; scholars and food activists promoting local food movements for public health should be cautious of the "local trap"—the tendency to conflate *local* with ecologically sound and socially just outcomes (Carolan, 2012). To overcome this pitfall, one study posed the following guiding questions to practitioners: "what role do intermediaries play in bringing together local food producers and ethnic food processors? What role might public food procurement for culturally diverse residents (in schools, hospitals etc.) play in the ongoing economic viability of small-scale local producers?" (Landon & Rosol, 2025, p. 938). This shift in focus could create opportunities for immigrant communities and help resist monopoly power in the corporate food regime (Holt-Giménez, 2017, Chapter 1), such as by supporting the development of immigrant-owned farms and businesses. By foregrounding cultural foodways as a counterforce to the commodification and large-scale importation of cultural foods, the discourse on cultural food security will help drive more impactful shifts toward health equity.

Strengths and Limitations

To the best of our knowledge, this is one of the few review studies that synthesizes alternative sources of locally grown, culturally appropriate food and health impacts among immigrants living in high-income countries. In reviewing 25 years of publications, we provide evidence on the relative inclusiveness of local food movements and sustainable agrifood spaces, which helps identify gaps and

pressing issues for food and health activists working to advance food justice. However, despite the broad search terms used, the number of references identified in this screening was relatively small, indicating the possible omission of relevant studies that may have been identified through additional efforts, such as citation chaining. Finally, not all empirical evidence was captured in the review due to the exclusion of non-peer-reviewed publications (conference abstracts, reports, theses, and dissertations) and non-English records. The grey literature that captures grassroots voices and documents local food initiatives could be particularly important in understanding food acquisition experiences among members of immigrant groups. As such, additional insights could be gained by examining global evidence without language constraints and publication bias.

Recommendations for Policy and Research

To increase the potential health impacts of increased access to culturally appropriate food, our findings suggest that future interventions should adopt a more holistic approach and use broader measures of health outcomes. While dietary intake and food security are often prioritized in food initiatives, stakeholders should also consider the physical activity, mental health, and social benefits associated with food production activities, as highlighted in our scoping review. The studies included in this review highlight the significance of cultural food security for both individuals and communities. Future research should address the current knowledge gap of understanding the potential for AFNs to supply immigrant communities with culturally appropriate food. Among immigrant populations, stronger evidence is needed to assess and optimize market-based models, such as produce prescription programs, to support inclusive local food movements and advance food justice. Applying a food sovereignty framework could help center the assets and challenges described by immigrant participants in our review, including access to land, infrastructure, and technical assistance. For instance, interventions and policy support is needed to address structural barriers for immigrant farmers and to improve communities' capacity for participating in market-based AFNs, such as farmers markets, CSAs, and farm stores.

To improve generalizability and the impact of future interventions, researchers are encouraged to incorporate the Reach, Effectiveness, Adoption, Implementation, and Maintenance (RE-AIM) framework, which includes metrics of these five elements (Glasgow et al., 1999). This approach offers practitioners a structured model for supporting immigrants and refugees from different backgrounds as they navigate and adapt to new food environments. Finally, rather than treating dietary outcomes as the "gold standard" indicator of impact, communities, public health departments, and funding organizations should view promoting culturally appropriate food in local food systems as a means to build social capital and community well-being among immigrant communities, thereby advancing a more socially and ecologically sustainable food system.

Conclusion

This review synthesized evidence from a range of studies on food access through AFNs and the health impacts of locally grown, culturally appropriate food among immigrants in high-income countries. The findings point to a predominance of non-market-based strategies, such as home and community gardening for accessing culturally appropriate food. Despite many positive impacts on diet, exercise, and mental and social outcomes, the largely descriptive study designs leave evidence on improvements in food intake and food security inconclusive. From a food sovereignty perspective, our understanding of culturally appropriate food access among immigrants remains incomplete. Given these results, consideration of immigrant foodways in relation to AFNs is key to building inclusive local food movements and designing effective health interventions. Strategies to achieve cultural food security and health equity include supporting immigrant-led gardening and farming initiatives, promoting access to culturally meaningful seeds, and integrating food sovereignty into food security efforts. Additionally, it is important for scholars, food system planners, and policymakers to avoid the "local trap" by recognizing the transnational nature of immigrant foodways.

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Appendix

Table A1. Search Strategy

Database	Search Query
Web of Science	"local*" or "cultur*" or "ethni*" or "ethnocultur*" or "tradition*" (Topic) and "food*" or "crop*" or "produce*" (Topic) and "alternative food network*" or "CSA" or "garden*" or "community supported agriculture" or "farmer* market" or “Community supported fishery” or “CSF" (Topic) and immigrant* or refugee* or migrant* (Topic) and Preprint Citation Index (Exclude – Database) and Article (Document Types) and English (Languages)
PubMed	(Emigrants and Immigrants[Mesh] OR Transients and Migrants[Mesh] OR Refugees[Mesh] OR "Immigrant Communities"[tiab] OR "Migrant Populations"[tiab] OR "Displaced Populations"[tiab]) AND ("Food Security"[Mesh] OR "Food Supply"[Mesh] OR "Food Assistance"[Mesh] OR "Food Sovereignty"[tiab] OR "Food Justice"[tiab] OR "Nutrition Assistance"[tiab] OR "Food Access"[tiab] OR "Food Insecurity"[tiab]) AND ("Cultural Characteristics"[Mesh] OR "Cultural Food Security"[tiab] OR "Culturally Appropriate Food"[tiab] OR "Traditional Foodways"[tiab] or “Ethnic produce” [tiab])
Google Scholar	("ethnic produce" OR "culturally appropriate food" OR "culturally important food" OR "culturally significant food" OR "traditional foodways") AND ("immigrant*" OR "refugee*" OR "migrant*" OR "displaced populations") AND ("local food" OR "locally grown" OR "small farms" OR "regional food system" OR "alternative food networks" OR "direct-to-consumer" OR "community-supported agriculture" OR "CSA" OR "farmers' market" OR "community-supported fishery" OR "CSF") AND ("food access" OR "food security" OR "dietary acculturation" OR "food justice" OR "food sovereignty" OR "nutrition assistance")
PsycINFO	SU(Food Security OR Food Supply OR Food Assistance OR Food Insecurity OR Food Access) AND AB(Immigrants OR Migrants OR Refugees OR Emigration and Immigration OR Transnationalism OR Acculturation) AND AB(Local Food Systems OR Farmers Markets OR Community Gardens OR Urban Agriculture OR Alternative Food Networks OR Community supported fishery OR Garden OR Farm)

Table A2. Studies that Evaluated the Food Access Through Alternative Food Networks (AFNs) and Health Impact of Locally Grown, Culturally Appropriate Food among Immigrants in High-Income Countries (*n* = 21)

Authors, Year	Aims/Objectives	Country of origin	*N*[a]	Study location; Host country	Study design	Data collection methods	Study sample characteristics[b]
Alkon & Mares, 2012	To investigate on-the-ground processes through which food sovereignty articulates with the work of food justice and community food security activists.	Cuba, Mexico, Peru, Honduras, El Salvador, Guatemala, Nicaragua, and Ecuador	46	Seattle, Washington; USA	Qualitative (Ethnographic research)	Participant observation, ethnographic interviews, and archival research	76% Mexican, 7% Peruvian, 4% Honduran, 4% Salvadoran, 2% each Guatemalan, Cuban, Nicaraguan, and Ecuadorian; 80% grew food before migration; most self-reported economic constraints (e.g., inconsistent employment).
Bloom et al., 2018	To understand the potential for immigrant and refugee communities to maintain the health benefits of traditional food production and preparation practices in acculturation. To identity needs to expand and strengthen bridging social capital between immigrant and refugee communities and Cooperative Extension.	Nigeria, Egypt, Somalia, South Africa, and Burma	13	North Carolina; USA	Qualitative (CBPR)	Asset mapping and community meetings, evaluative interviews	Local mosque members: 40% Nigerian, 40% Egyptian, 20% Somalian, 20% South African; 100% women; many highly educated, urban backgrounds with daily market food access; 100% English-speaking; average 10 years in the United States; all but one had children. Burmese (Karen) participants (n = 7): formally resettled refugees; average 5 years in the U.S.; all but one had children.
Brons et al., 2020	To understand how inclusiveness regarding healthy and sustainable food works within a multi-ethnic urban context.	Syria	26	Five cities (Almere, Enschede, Zwolle, Rotterdam, Amsterdam); The Netherlands	Qualitative (exploratory)	In-depth semi-structured life-history interviews, participant observation	73% female; all except one were married with children; most migrated with at least some relatives. Short-term migrants: average stay 3 years; 100% urban residents in Syria; mean age 41; migrated due to the civil war; 36% had university education; 14% employed; 29% lived in a house with a garden. Long-term migrants: average stay 20 years; 83% were rural residents in Syria; mean age 39; migrated due to religious persecution; 25% had university education; 33% employed; all lived in house with a garden.
Charles-Rodriguez et al., 2023	To provide relevant and timely feedback to inform program adaptation and development on a community garden for immigrants.	Bhutan, Mexico, Sudan, India, Congo, Eritrea and Pakistan	14	Lethbridge, Alberta; Canada	Qualitative (CBPR)	Surveys, focus groups and semi-structured interviews.	~75% female; mean age 45; 43% lived >1 year in Canada; 57% immigrants in settlement program; 75% gardened in home countries, 58% in Canada, 27% in transition countries.

continued

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Authors, Year	Aims/Objectives	Country of origin	N[a]	Study location; Host country	Study design	Data collection methods	Study sample characteristics[b]
Corlett et al., 2003	To determine species raised by Hmong immigrants and their nutritional composition. To explore ways community gardens function in Hmong social and family life. To examine gardens as urban landscape features.	Laos	18	Sacramento. California; USA	Mixed method	Interviews and garden checklists	100% female; 33% elderly, widowed or separated; 66% younger, all married with ≥5 children on average; mean age: 70 (elderly), 28 (younger); mean plot numbers: 3 (elderly), 2 (younger).
Dinh, 2024	To explore migrants' motivations for foraging and the dynamics of co-creating environmental and culinary knowledge in new socio-ecological milieus.	Vietnam	36	Five cities (Himeji, Kobe, Kyoto, Hannover, Göttingen, Kassei); Japan and Germany	Qualitative	Semi-structured interviews and participant observations	56% in Japan, 44% in Germany; majority in their 30s; men and women (unspecified %); all lived in host country >1 year; many with foraging/farming experience in Vietnam; wide range of occupations.
Gangamma et al., 2024	To examine whether gardening influences mental health, food security, and economic well-being.	Bhutan, Syria, Somalia, Sudan, Burundi, Congo, Cuba, and Nepal	29	A northeastern resettlement city; USA	Mixed method (cross-sectional, descriptive, concurrent)	Semi-structured interviews and surveys	69% Bhutanese, 10% Somalian; mean age 49.1; mean years since resettlement 7.5; 76% married; 72% with children; 21% fully employed; 63% had gardening/farming experience in home country. Gardeners (n = 19): 47% female; 26% employed; 82% dependent on food assistance programs; 37% with gardening/farming experience in home country; 21% in agricultural training; household income $920–1,020/month (last two months). Non-gardeners (n = 10): 50% female; 30% employed; 100% dependent on food assistance; 50% with gardening/farming experience in home country; household income $980–1,080/month (last two months)
Gichunge & Kidwaro, 2014	To examine the role of gardening as a component of resettled African refugees' food environment.	Burundi, the Democratic Republic of Congo and South Sudan	13	South East Queensland; Australia	Qualitative	In-depth interviews, demographic survey	77% female; 46% unemployed; 54% with high school or above education; 42% with annual household income under $30,000 (AUD).

continued

Authors, Year	Aims/Objectives	Country of origin	N[a]	Study location; Host country	Study design	Data collection methods	Study sample characteristics[b]
Gichunge et al., 2016	To examine the association between household availability and consumption of traditional African vegetables among resettled African refugees residing in Southeast Queensland, Australia.	Burundi, Congo and Rwanda	71	Queensland; Australia	Mixed methods (cross sectional sequential explanatory)	In-depth interviews, survey (including an FFQ)	Survey respondents (n = 71): 89% female; 75% Burundian. Interview participants (n = 15): mean age 36.5; 100% with children; 28% employed; 67% had own vegetable garden.
Gingell et al., 2024	To explore key roles in refugee-background communities to understand why they were important and how they facilitate cultural food security.	Sudan, Syria, Bhutan, Cambodia, and Afghanistan	5	Greater Brisbane; Australia	Qualitative	Interviews	All participants held key community food roles supporting access to cultural food: community leaders (n = 2), farmer (n = 1), market stall owner (n = 1), restaurant owner (n = 1).
Goralnik et al., 2022	To describe the refugee and immigrant community gardening experience in three urban gardens with high refugee and immigrant enrollment.	Burma, Bhutan, Congo, Haiti, Kenya, Malawi, and Nepal	11	Lansing, Michigan; USA	Qualitative	Observations and interviews	27% Bhutanese, 27% Malawian, 18% Kenyan, 9% each Burnese, Congolese, and Haitian; 55% self-identified as refugees; majority lived in the United States for 6–10 years; mean community gardening experience 3.8 years.
Guo et al., 2022	To explore if and how access to seeds and seed systems enables refugee gardeners to grow essential crops, which might be otherwise difficult to obtain, to produce foods reminiscent of their homelands.	Bhutan	30	Chittenden County, Vermont; USA	Qualitative	Semi-structured interviews	67% aged 35–54, 17% aged 18–34, 17% aged 55+; 50% women, 50% men; year of U.S. arrival: 7% (2008–2011), 50% (2012–2015), 3% (2016–2019).
Harris et al., 2014	To explore how involvement in a community food garden supports African humanitarian migrant connectedness with their new country.	Not specified	12	City of Logan; Australia	Qualitative (single critical case study)	Semi-structured interviews	Participant characteristics (besides low socio-economic status) not specified. Gardeners ($n \approx 100$) were mostly women with large families (up to 7–8 children); majority unemployed and attending settlement-related classes (English, life, and employment skills).

continued

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Authors, Year	Aims/Objectives	Country of origin	N[a]	Study location; Host country	Study design	Data collection methods	Study sample characteristics[b]
Head et al., 2019	To understand how different groups of people understand broader human–environment relations, albeit in a context where food growing is something they have in common.	Burundi, Democratic Republic of Congo, Afghanistan, Vietnam, and Tonga	30	The Sunraysia region; Australia	Qualitative	Semi-structured interviews	Burundian group (*n* = 8): 100% refugees; 100% gardened in Sunraysia; 75% were farmers pre-arrival; 1–5 years in Sunraysia. Hazara group (*n* = 6): 33% refugees, 33% asylum seekers, 33% immigrants; 83% owned farms in home country; 100% gardened in Sunraysia; 0.1–10 years in Sunraysia. Vietnamese group (*n* = 7): 29% refugees, 71% immigrants; 7–25 years in Sunraysia; none owned farms in Vietnam; 100% worked as agriculture laborers and had home gardens in Sunraysia. Tongan group (*n* = 9): 11% seasonal workers, 89% immigrants; 33% still owned farms in Tonga; 100% gardeners in Sunraysia.
Hughes, 2019	To understand the social and cultural factors that influence food choices in an unfamiliar environment.	Myanmar	12	Regional city of Coffs Harbour; Australia	Qualitative (focused ethnography and PAR)	Semi-structured interviews	100% refugees.
Lucas, 2020	To learn about the benefits and challenges of community gardening in the context of a garden for immigrants and refugees.	Not specified	14	Winnipeg; Canada	Qualitative	Semi-structured interviews	Most had prior farming or gardening experience before migration.
Minkoff-Zern et al., 2024	To bring a comprehensive food sovereignty framework to the research on immigrant and refugee gardening and to add a nuanced and necessary perspective on how to address the related issues of forced displacement, mental health, and food security.	Bhutan, Syria, Somalia, Sudan, Burundi, Congo, Cuba, and Nepal	29	Central New York; USA	Mixed method (cross-sectional, descriptive, and concurrent)	Semi-structured interviews and surveys	62% Bhutanese, Nepali, or Bhutanese-Nepali; 10% Asian; 21% African, Tutsi, Somali-Mayou, Somali-Bantu, Hutu, or Black; 52% male, 48% female; 73% aged 40–70; 66% self-identified as gardeners; resettled for 5–17 years (average 10 years).

continued

Authors, Year	Aims/Objectives	Country of origin	N[a]	Study location; Host country	Study design	Data collection methods	Study sample characteristics[b]
Park et al., 2011	To better specify the role of Hispanic immigrants' beliefs about, and preferences for, healthy foods in linking food access to dietary patterns.	Mexico, the Dominican Republic	28	New York City; USA	Mixed method (convergent)	Survey (FFQ) and interviews	100% female; all lived in high-poverty neighborhoods in New York City; mean age 31; average 9 years of education. Mexican group (*n* = 14): 71% grew up in the countryside; 36% from high-rise Tract, 36% mid-rise, 29% low-rise. Dominican group (*n* = 14): 50% grew up in the countryside; 29% from high-rise Tract, 36% mid-rise, 36% low-rise.
Sandoval & Rodine, 2020	To investigate the relationships between immigrant integration and agricultural, environmental sustainability.	Mexico	14	Umatilla County and Malheur County, Eastern Oregon; USA	Qualitative (critical case study)	Interviews	100% Latino ranchito owners; few were unauthorized residents.
Strunk & Richardson, 2019	To understand how urban gardens are used and experienced by residents and city officials.	Not specified	27	Rock Island, Illinois; USA	Qualitative	Interviews, field notes, and participant observation	100% had farming experience in country of origin, planting and harvesting for both market and family subsistence.
Tareau et al., 2022	To improve the state of general knowledge on contemporary Haitian phytotherapies. To better understand how plant-based practices adapt and change in different urban, migratory, legislative, and climatic contexts.	Haiti	18	Cayenne; French Guiana	Qualitative	Semi-structured interviews	100% Haitian; lived in host country from a few months to several years.

Abbreviations: AUD: Australian Dollars; CBPR: community-based participatory research; FFQ: Food Frequency Questionnaire; PAR: participatory action research.

[a] Results presented in this table represent the individual foreign-born immigrant participants only.

[b] The study sought to include: Age, gender, income, marital status, education, household dynamics (having children), gardening/farming experience, length of stay etc. whenever available. Only indicators that were available from the study are represented in the column "Study sample characteristics."

Table A3. Summary of the Food Access Through Alternative Food Networks (AFNs) and Health Outcomes of Locally Grown, Culturally Appropriate Food in All Included Studies (*n* = 21)

Authors, Year	Food access through AFNs	Key outcome contributed to the study
Alkon & Mares, 2012	Neighborhood farmers market, urban garden	**Diet outcome:** In the sample, only four participants were currently growing food in the city, and three additional were growing herbs. Only eight mentioned shopping at the farmers markets, although they had very favorable impressions about the quality and variety of produce available. The use of a market-based system (e.g., farmers market) to provide culturally appropriate and nutritious food limits access due to relatively high costs. A translocal connection motivates producing homegrown food as an alternative to meet food needs.
Bloom et al., 2018	School garden, home garden, local nonprofit incubator farm	**Diet outcome:** Most women participants did not produce enough vegetables either at the school garden or at home to affect their consumption of fresh fruits and vegetables. The fact that food grown at the school garden was distributed at the mosque indicates the potential to increase community food access through gardens. By providing the opportunity to grow culturally specific produce varieties, the Karen participants reported completely relying on produce from the farm. **Exercise outcome:** Participants reported increased physical activity by gardening. **Social outcome:** The Karen community not only shares produce across social networks but also shares seeds and knowledge. Bonding social capital through alternative food production can be an asset and a potential barrier towards community organizing.
Brons et al., 2020	Farm or slaughterhouses, home vegetable garden	**Diet outcome:** Long-term migrants purchased directly at farms or slaughterhouses for specific products (milk, cheese and meat). Home-growing is another prevalent acquisitioning practice among long-term migrants. Almost all of them have at least a grapevine in their backyard to make their culturally important dish dolma or yaprak. In contrast, almost none of the short-term migrants engaged in home-growing. **Social outcome:** Migrants' new practice elements were integrated into existing local provisioning practices (a Dutch farmer including Syrian labneh in their offer).
Charles-Rodriguez et al., 2023	Community garden supported by a food bank	**Diet outcome:** Having access to fresh vegetables for their own consumption motivates community garden participation. However, some reported receiving insufficient produce for take-home self-consumption. **Exercise outcome:** Bhutanese community particularly prioritizes physical activity benefits of gardening. **Social outcome:** Immigrants enjoyed the company of other women and learning from each other and their respective cultures, such as medicinal use of plants and recipes. Participants donated significant amounts of produce they have grown to the food bank that organized the garden program. This brings dissatisfaction with insufficient take-home produce and indicates a lack of ownership over space and produce. Work and life schedule and transportation were barriers to increasing garden participation.
Corlett et al., 2003	Community garden	**Diet outcome:** There are 59 Hmong garden species grown at a site in South Sacramento, of which 38 were for food and 36 for medicine. On average, elderly women grew more plants than younger women. There is greater variety of medical plants grown by elderly women than younger women. By gardening, all the Hmong women accessed fresh, familiar produce for their families. Although many could be purchased at Asian markets, the women consider growing their own to be easier, more convenient, and more economical. **Mental outcome:** Particularly for the elderly, gardening helps combat feelings of overdependence and uselessness.

Authors, Year	Food access through AFNs	Key outcome contributed to the study
Dinh, 2024	Foraging sites (public grounds, woodlands, abandoned fields, interstitial areas, and streams)	**Diet outcome:** All participants collected wild plants for culinary and recreational purposes instead of for commercial use. Participants underscored the medicinal and remedial characteristics of wild plants. Wild plants have seasonal uses. Food provision benefits were prioritized by immigrants and temporary migrants. **Exercise outcome:** Immigrants and temporary migrants appear to prioritize foraging for its practical physical exercise benefits. **Social outcome:** Foraging facilitates transnational community network by exchanging ecological and culinary knowledge on forgeable plants. Social benefits (i.e., helping social networks) were more frequently mentioned among long-term migrants than immigrants and temporary migrants.
Gangamma et al., 2024	Home garden, community garden	**Diet outcome:** Fewer gardeners than non-gardeners reported food shortage and food insecurity. Participants reported access to fresh, organically grown vegetables for their own consumption. **Mental outcome:** Regression analysis shows that being a gardener significantly predicted lesser mental health distress. There is difference in mental health symptoms between two groups. More non-gardeners reported symptoms of anxiety and depression, including body pains (44%), sadness (33%), too many thoughts (56%), faintness and restlessness (44%), reliving trauma (33%) and emotional numbness (33%). **Social outcome:** Many participants reported strengthening of connections with family and the community members with whom they gardened.
Gichunge & Kidwaro, 2014	Home garden, community garden	**Diet outcome:** By having access to a vegetable garden, participants were able to access healthy food and utilize familiar and culturally acceptable food. **Exercise outcome:** Gardening helps engage in physical activity. **Mental outcome:** Gardening helps manage stress. **Social outcome**: Gardening helps integrate into the wider Australian community.
Gichunge et al., 2016	Farmers market, home vegetable garden	**Diet outcome:** Those who engaged in vegetable gardening reported higher availability of traditional African vegetables in the home. Compared to supermarkets and ethnic grocery stores, farmers markets were the preferred food outlet in terms of availability and cost. Participants with vegetable garden access reported that African vegetables were available and accessible at no expense.
Gingell et al., 2024	Farms, home garden	**Diet outcome:** A refugee farmer networked with other community members to identify trusted business connections, and new cultural food sources and suppliers (e.g., seeds). A refugee market owner grew food in her backyard and shared with the community. **Social outcome:** Food spaces, such as the locations where food were grown or sold, created a place where community members could connect and nurture their identity and helped create a sense of belonging.
Goralnik et al., 2022	Urban garden	**Diet outcome:** Participants shared that access to healthy or organic food were important drivers of their garden participation. They discussed the importance of growing and sharing culturally relevant produce and recipes within their own cultural community, especially food that are expensive or hard to find in local stores and/or food that are central to traditional ceremonies or gatherings. **Exercise outcome:** Exercise motivates garden participation.

Authors, Year	Food access through AFNs	Key outcome contributed to the study
Guo et al., 2022	Community garden	**Diet outcome:** Engaging in agriculture in Vermont enhances household food security through enabling access to culturally relevant food and also enhances stability in terms of having access to those food beyond just the growing season (for example, freezing some of their harvest and sometimes modifying their consumption practices by eating parts of the plant not commonly eaten in their home countries). Gardeners try various cultivars in search of flavors and textures, and ultimately, the taste of home (e.g., very spicy chilies, and pumpkins that stir-fry well). **Social outcome:** Gardening provided wellness and social benefits. The gardeners shared seeds and knowledge surrounding seeds with their families and the larger Nepali Bhutanese community.
Harris et al., 2014	Campus-based community garden	**Diet outcome:** Gardeners have harvested crops including traditional food such as cassava and maize, and local food such as pumpkins, bananas, tomatoes, and strawberries. **Mental outcome:** Growing and harvesting crops offers the opportunity for achievement and feelings of happiness and success. **Social outcome:** Sharing food with family, friends and community builds trust and mutual reciprocity, further improving community belonging.
Head et al., 2019	Home garden, community garden	**Diet outcome:** Participants relate to food gardens rather than farms as places of pleasure and close engagement. Hazara participants were growing vegetables, herbs, or both because they valued freshness and considered fruits and vegetables from their own gardens to have a better flavor. Vietnamese participants mainly grew vegetables (e.g., bok choy) and herbs (e.g., lemongrass) that reflected their dietary preferences for food from Vietnam. Two were raising chickens. Some Vietnamese participants wished to grow tropical fruits. **Exercise outcome:** Burundian participants were motivated to grow food in Australia to keep active. **Mental outcome:** Burundian participants were motivated to grow food in Australia to promote good mental health, **Social outcome:** Burundian and Tongan migrants associated growing food with their sense of community and culture.
Hughes, 2019	Home garden	**Diet outcome:** Gardening can provide a means to access traditional food. It may also provide an income (e.g., supplying restaurant). **Mental outcome:** Gardening helps engagement with nature and green space as a form of therapy.
Lucas, 2020	Community garden	**Diet outcome:** Gardening provides access to healthy, culturally appropriate food and saves money. **Social outcome:** Gardening provides opportunities for social interaction, which can help migrants in their adjustment into Canadian society.
Minkoff-Zern et al., 2024	Home garden, community garden	**Diet outcome:** No significant differences in household food security between gardeners and non-gardeners. Gardening provides more control over the freshness, chemical additives, and quality of the food refugees consume. **Mental outcome:** Producing own food makes participants feel connected with their home country and increases their happiness. Having access to healthy and culturally appropriate food through gardening had a direct impact on participants' level of overall perceived health, reflecting a comprehensive notion of sovereignty.

Authors, Year	Food access through AFNs	Key outcome contributed to the study
Park et al., 2011	Farmers market, livestock market	**Diet outcome:** Women of rural origin were more likely to describe diets composed of home-grown food; those from urban settings tended to discuss locally sourced food. Nearly all respondents reported that they routinely buy poultry and (less often) other meats in livestock markets where poultry and small animals such as goats and rabbits can be purchased. The presence of a farmers market within the home neighborhood was associated with consumption of more total servings per day of fruit, vegetables, and juice ($p < 0.001$), and the presence of a farmers market and/or a livestock market was associated with consumption of more servings per day of meat ($p = 0.01$).
Sandoval & Rodine, 2020	Ranchitos (Mexican-immigrant owned small rural ranches)	**Diet outcome**: Ranchitos provide fresh food that is organic and relatively inexpensive. Produce and meat from ranchitos were sold mostly based on networks of family, friends, and acquaintance. Ranchitos provide safe, healthy food and contribute to the buy-local movement. **Social outcome:** Ranchitos help keep money in the community and encourage social capital via their business networks. Ranchitos give immigrants more control over their health, by giving them options for eating healthier and less dangerous produce and meats. The placemaking function of ranchitos is a critical component of creating a sense of community and belonging.
Strunk & Richardson, 2019	Community garden	**Diet outcome:** Refugee gardeners used plots to plant culturally significant plants. No refugee gardeners reported shopping at local farmers markets or selling at markets due to linguistic barriers and difficulty in understanding local regulations. All valued gardening as a way to access cheaper and more culturally significant food than what is available in supermarkets and smaller ethnic grocery stores. **Social outcome:** While sharing garden-produced food with friends and family members is common, there have been social divides within the diverse refugee gardener group.
Tareau et al., 2022	Home garden, foraging sites	**Diet outcome:** The tropical climate, relatively similar to that of Haiti, is critical to herbal self-sufficiency. Home gardens provide access to fresh medicinal plants in French Guiana. Some plant species can fulfill other functions, such as for food and magical potions in particular. Gathering activities mainly target wild species growing along paths or in urban wastelands. Migrants report re-appropriation of native continental species in French Guiana in post-resettlement medicinal practices. **Social outcome:** Herbal medicine is a clear cultural marker in Haitian communities that continue to maintain and perpetuate their Haitian identity.