

Urban Food Security in Low- and Middle-Income Countries: A Systematic Literature Review of Challenges, Determinants, and Future Research Directions

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ABSTRACT

Urban food security has become a critical sustainable development issue as rapid urbanisation, economic inequality, and increasing dependence on market-based food systems continue to expose urban populations to food insecurity, particularly in low- and middle-income countries (LMICs). Despite growing scholarly attention, existing evidence remains fragmented across multiple disciplines, limiting a comprehensive understanding of the determinants, challenges, and policy responses associated with urban food security. This study systematically reviews recent empirical evidence on urban food security in LMICs using the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA 2020) framework. A systematic search of Scopus and Web of Science identified 204 records, of which 17 empirical studies published between 2021 and 2024 met the inclusion criteria for qualitative synthesis. The findings reveal six interconnected themes: household food security; food accessibility and affordability; urban agriculture; urban food environment; food governance and policy; and household coping strategies. Household income, employment stability, food prices, rapid urbanisation, and dependence on market-based food systems consistently emerged as the principal determinants of urban food security. The review also highlights the significant contributions of urban agriculture, informal food systems, effective governance, and social protection programmes in strengthening household resilience. However, fragmented governance, socioeconomic inequalities, and unplanned urban expansion continue to constrain sustainable urban food systems. The study concludes that improving urban food security requires integrated, multisectoral policy approaches that combine urban planning, poverty reduction, employment generation, social protection, sustainable food systems, and inclusive governance. By synthesising contemporary empirical evidence, this review contributes to the literature by providing a comprehensive understanding of urban food security in LMICs and offers practical recommendations and future research directions for developing resilient, inclusive, and sustainable urban food systems.

Keywords: Urban food security; food insecurity; low- and middle-income countries (LMICs); urbanisation; food governance; urban agriculture; systematic literature review; PRISMA 2020.

INTRODUCTION

Rapid urbanisation has fundamentally transformed global food systems, making urban food security an increasingly important issue within sustainable development. Although urbanisation has stimulated economic growth and improved access to markets and services, it has simultaneously increased the vulnerability of urban populations to food insecurity, particularly in low- and middle-income countries (LMICs). Unlike rural households that may partially rely on subsistence agriculture, urban households depend primarily on purchased food, rendering them highly susceptible to food price inflation, supply chain disruptions, and economic shocks. These challenges have intensified concerns regarding food availability, accessibility, affordability, and utilisation

in urban settings, positioning urban food security as a key component in achieving Sustainable Development Goal (SDG) 2 (Zero Hunger) and SDG 11 (Sustainable Cities and Communities) (Margolies et al., 2026; World Health Organization [WHO], 2026).

Urban food security is influenced by a complex interplay of socioeconomic, environmental, and institutional determinants. Recent evidence indicates that household income, employment opportunities, education, food affordability, food accessibility, and governance capacity significantly shape food security outcomes among urban populations. In LMICs, these determinants are further compounded by rapid urban expansion, informal settlements, inadequate infrastructure, climate change, and the transformation of urban food environments characterised by the proliferation of supermarkets, informal food vendors, and digital food delivery platforms (Margolies et al., 2026). Moreover, increasing dependence on market-based food systems has heightened the exposure of vulnerable urban households to external shocks, highlighting the need for integrated policy interventions that strengthen food system resilience and equitable food access (WHO, 2026).

Despite the growing number of studies on urban food security, the existing evidence remains fragmented across disciplines such as public health, urban planning, agriculture, nutrition, and development studies. Previous reviews have generally focused on specific issues, including urban food environments, urban agriculture, or individual country contexts, rather than providing a comprehensive synthesis of the challenges, determinants, and policy responses affecting urban food security across LMICs (Margolies et al., 2026). Consequently, there remains limited understanding of the dominant research themes, emerging evidence, and future research priorities within this field. Therefore, this systematic literature review aims to synthesise the current evidence on urban food security in LMICs by identifying its major challenges, key determinants, and policy responses, while proposing future research directions to support the development of resilient, inclusive, and sustainable urban food systems.

LITERATURE REVIEW

CONCEPTUALISING URBAN FOOD SECURITY

Urban food security has emerged as a multidimensional concept that extends beyond the traditional understanding of food availability to encompass food accessibility, affordability, utilisation, and stability within rapidly urbanising environments. In low- and middle-income countries (LMICs), urban food security is increasingly influenced by the interaction between demographic growth, urban expansion, market dependence, and socioeconomic inequalities. Unlike rural populations that may rely partly on subsistence farming, urban households depend almost entirely on commercial food systems, making them particularly vulnerable to fluctuations in food prices, employment instability, and supply chain disruptions. Recent literature also emphasises that urban food security should be understood within a broader food systems perspective, where food environments, governance, infrastructure, and consumer behaviour jointly determine food security outcomes (de Bruin et al., 2021; Margolies et al., 2026).

CHALLENGES AFFECTING URBAN FOOD SECURITY

The literature consistently identifies multiple interconnected challenges that threaten urban food security in LMICs. Rapid urbanisation has increased pressure on food demand while simultaneously reducing local food production capacity through land conversion and environmental degradation. Furthermore, inflation, economic uncertainty, climate change, and disruptions to global food supply chains have significantly reduced food affordability among vulnerable urban households. Informal settlements often experience additional constraints, including inadequate infrastructure, poor food distribution systems, and limited access to nutritious foods. These challenges are further intensified by increasing dependence on informal food markets and highly processed foods, particularly among low-income populations (Hailu et al., 2026; Margolies et al., 2026).

DETERMINANTS OF URBAN FOOD SECURITY

Previous studies demonstrate that urban food security is shaped by a wide range of socioeconomic, environmental, and institutional determinants. Household income remains one of the strongest predictors of food

security because it directly influences purchasing power and food affordability. Other frequently reported determinants include employment status, educational attainment, household size, gender, food prices, transportation accessibility, and social protection mechanisms. At the institutional level, governance quality, policy implementation, and urban planning also play significant roles in ensuring equitable food access. Recent reviews further highlight that these determinants are highly interconnected and vary considerably across different urban contexts, suggesting that urban food security should be analysed using an integrated systems approach rather than isolated socioeconomic indicators (Margolies et al., 2026; Griffiths et al., 2023).

POLICY RESPONSES AND URBAN FOOD SYSTEM INTERVENTIONS

Governments and international organisations have introduced various interventions to strengthen urban food security, including food subsidies, social protection programmes, urban agriculture initiatives, food banks, cash transfer schemes, and improvements to food supply chain governance. Urban agriculture has received considerable attention as a strategy for improving household food access while enhancing environmental sustainability and community resilience. Nevertheless, evidence regarding the effectiveness of these interventions remains inconsistent because implementation often depends on local governance capacity, institutional coordination, financial resources, and community participation. Recent reviews indicate that policy evaluation studies remain relatively limited, particularly within rapidly urbanising LMICs, where evidence-based policymaking is urgently required (Margolies et al., 2026; Özgüt & Saleem, 2026).

EMERGING RESEARCH TRENDS IN URBAN FOOD SECURITY

The urban food security literature has expanded considerably over the past decade, with increasing emphasis on food environments, food system resilience, urban governance, sustainability, and climate adaptation. More recent studies have also explored the impacts of digital food delivery platforms, informal food vendors, supermarket expansion, and changing dietary behaviours within urban settings. Despite this growing body of knowledge, much of the existing evidence remains descriptive, with relatively few intervention-based or longitudinal studies capable of establishing causal relationships between urban food environments and food security outcomes. In addition, methodological inconsistencies in measuring food accessibility, affordability, and food environments continue to limit cross-country comparisons and evidence synthesis (Margolies et al., 2026; Hailu et al., 2026).

RESEARCH GAP

Although research on urban food security has expanded substantially, the literature remains fragmented across public health, nutrition, urban planning, agriculture, environmental studies, and development economics. Existing reviews predominantly examine specific dimensions such as urban food environments, urban agriculture, household food insecurity, or regional case studies, rather than providing an integrated synthesis of the challenges, determinants, and policy responses affecting urban food security across LMICs. Furthermore, limited attention has been devoted to consolidating recent evidence published after the implementation of the Sustainable Development Goals (SDGs) and during the post-COVID-19 period, when food systems have undergone significant structural changes. Therefore, a comprehensive systematic literature review is necessary to synthesise contemporary evidence, identify dominant research themes, highlight existing knowledge gaps, and propose future research directions for strengthening urban food security in LMICs.

METHODOLOGY

RESEARCH DESIGN

This study employed a Systematic Literature Review (SLR) approach to synthesise empirical evidence on urban food security in low- and middle-income countries (LMICs). A systematic literature review was considered appropriate because it enables researchers to identify, evaluate, and synthesise relevant empirical studies using a transparent and structured procedure. Compared with a traditional narrative review, the SLR approach follows predefined methodological steps that minimise selection bias, enhance research transparency, and improve the reliability and reproducibility of the review findings. Consequently, this approach provides a comprehensive understanding of current research trends, key determinants, challenges, and policy implications related to urban food security in LMICs.

The review was guided by the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA 2020) framework to ensure a systematic, transparent, and replicable article selection process. The PRISMA framework organises the review into four sequential phases, namely identification, screening, eligibility assessment, and inclusion. These procedures enabled the researchers to document how studies were identified from selected electronic databases, how duplicate and irrelevant records were removed, and how the final empirical studies were selected for qualitative synthesis. The application of PRISMA also enhances methodological transparency and allows future researchers to replicate the review process.

In this review, the focus was placed on empirical studies examining urban and peri-urban food security among households and communities in low- and middle-income countries. Urban food security in this review encompasses several interrelated dimensions, including food availability, food accessibility, food affordability, food utilisation, food stability, urban agriculture, food environments, informal food systems, and urban food governance. The review also considered studies investigating socioeconomic, environmental, institutional, and policy-related factors influencing household food security within rapidly urbanising settings.

SEARCH STRATEGY

A systematic literature search was conducted using two internationally recognised electronic databases, namely Scopus and Web of Science (WoS). These databases were selected because they index high-quality peer-reviewed journals across multidisciplinary fields, including food security, public health, urban studies, sustainability, development studies, and social sciences. Using multiple databases enhanced the comprehensiveness of the search process while reducing the possibility of excluding relevant empirical studies related to urban food security in low- and middle-income countries.

The search strategy focused on three principal concepts: urban food security, urban or peri-urban settings, and low- and middle-income countries (LMICs). To maximise the retrieval of relevant studies, several synonymous keywords and related terms were incorporated into the search strategy. These included *"urban food security"*, *"food insecurity"*, *"household food security"*, *"food accessibility"*, *"food affordability"*, *"food availability"*, *"food environment"*, *"urban agriculture"*, *"urban food systems"*, *"city"*, *"metropolitan"*, *"municipality"*, *"peri-urban"*, *"informal settlements"*, *"developing countries"*, *"low-income countries"*, *"middle-income countries"*, and *"LMICs"*. These search terms were developed based on previous food security literature and refined to ensure that the retrieved studies addressed the objectives of the review.

Boolean operators (AND and OR) were used to combine the search terms, while truncation symbols (*) were applied where appropriate to capture different word variations. The search syntax was adjusted according to the indexing requirements of each database while maintaining consistency across the three main search concepts. The search was limited to studies published between 2021 and 2026 to capture the most recent evidence on urban food security, particularly following the COVID-19 pandemic and the increasing global emphasis on sustainable urban food systems. Only English-language, full-text, peer-reviewed journal articles reporting empirical findings were considered eligible for inclusion in this review. The review protocol was established prior to the literature search to minimise selection bias and ensure methodological consistency throughout the review process. The search strategy was developed iteratively by identifying the main concepts of urban food security, urban settings, and low- and middle-income countries (LMICs), followed by refinement of keywords and Boolean operators through pilot searches in both databases. Duplicate records were removed before screening, and all articles were independently assessed against the predefined inclusion and exclusion criteria. Any uncertainties regarding study eligibility were resolved through discussion among the researchers to enhance consistency in study selection.

Table 1. Search Strategy Used in the Selected Electronic Databases

Database	Search String	Search Filters
Scopus	TITLE-ABS-KEY (("urban food securit*" OR "food insecurit*" OR "household food securit*" OR "food access*" OR "food affordabilit*" OR "food availabilit*" OR "food environment*" OR "urban agriculture" OR "urban food system*") AND (urban* OR city OR cities OR metropolitan OR municipality* OR "peri-urban" OR	• Year: 2021–2026 • Document type: Article • Language: English • Subject Areas: Social Sciences, Environmental

	"informal settlement*" OR "urban fringe") AND ("low-income countr*" OR "middle-income countr*" OR "developing countr*" OR LMIC*))	Science, Agricultural & Biological Sciences, Public Health
Web of Science (WoS)	TS = (("urban food securit*" OR "food insecurit*" OR "household food securit*" OR "food access*" OR "food affordabilit*" OR "food availabilit*" OR "urban agriculture" OR "urban food system*") AND (urban* OR city OR metropolitan OR municipality* OR "peri-urban" OR "informal settlement*") AND ("low-income countr*" OR "middle-income countr*" OR LMIC* OR "developing countr*"))	• Year: 2021–2026 • Document type: Article • Indexes: SSCI, SCI-Expanded, ESCI • Language: English

INCLUSION AND EXCLUSION CRITERIA

Clear inclusion and exclusion criteria were established before the screening process to ensure that only relevant, high-quality, and credible studies were included in this systematic literature review. The inclusion criteria focused on empirical studies that examined urban and peri-urban food security within low- and middle-income countries (LMICs). Studies were considered eligible if they investigated food security at the household, community, or urban population level and addressed one or more dimensions of food security, including food availability, food accessibility, food affordability, food utilisation, and food stability. Studies involving urban agriculture, informal food systems, food environments, or urban food governance were also considered when they directly contributed to understanding urban food security.

The included studies were required to investigate urban or peri-urban settings, including metropolitan areas, municipalities, cities, urban fringes, and informal settlements within LMICs. Furthermore, the studies had to report empirical findings using quantitative, qualitative, or mixed-method research designs. Only peer-reviewed journal articles published in English between 2021 and 2026 with full-text availability were included in the review. These criteria ensured that the review captured recent evidence reflecting contemporary urban food security challenges and policy responses in rapidly urbanising regions.

Studies were excluded if they were not empirical in nature, including systematic reviews, literature reviews, editorials, opinion papers, book chapters, conference proceedings, policy briefs, dissertations, and unpublished manuscripts. Studies conducted exclusively in high-income countries or rural settings without a clear urban or peri-urban context were also excluded. In addition, articles published before 2021, non-English publications, studies without full-text access, and studies unrelated to urban food security, household food security, or urban food systems were removed during the screening process to ensure consistency with the objectives of this review.

Table 2. Inclusion and Exclusion Criteria

Criteria	Inclusion	Exclusion
Type of literature	Peer-reviewed empirical journal articles	Systematic reviews, literature reviews, editorials, opinion papers, book chapters, conference proceedings, dissertations
Publication period	2021–2026	Before 2021
Language	English	Non-English
Study population	Urban and peri-urban households, communities, or populations in LMICs	Studies conducted exclusively in rural settings or high-income countries
Research focus	Urban food security, household food security, food accessibility, food affordability, food availability, food utilisation, food stability, urban agriculture, food environment, urban food systems, food governance	Studies unrelated to urban food security or household food security
Study setting	Urban, peri-urban, metropolitan, municipalities, informal settlements, urban fringe	Rural settings without an urban or peri-urban context
Study design	Quantitative, qualitative, and mixed-method empirical studies	Reviews, conceptual papers, commentaries, conference abstracts
Availability	Full-text journal articles	Articles without full-text access

IDENTIFICATION PHASE

During the identification phase, a comprehensive literature search was conducted using two electronic databases, namely Scopus and Web of Science (WoS). The initial search identified a total of 204 records, comprising 128 records retrieved from Scopus and 76 records from Web of Science. These records represented all potentially relevant studies identified through the predefined search strategy before the removal of duplicate records. The search was conducted using combinations of keywords related to urban food security, urban and peri-urban settings, and low- and middle-income countries (LMICs).

The identification phase served as the foundation of the systematic review by establishing a comprehensive pool of potentially relevant studies. However, not all identified records were eligible for inclusion in the review. Each record subsequently underwent duplicate removal, title and abstract screening, full-text assessment, and quality appraisal before being considered for the final qualitative synthesis. This systematic procedure ensured that only studies directly addressing the research objectives were retained.

SCREENING PHASE

Following the identification phase, duplicate records were identified and removed. A total of 34 duplicate records were excluded because the same articles were indexed in both Scopus and Web of Science. After duplicate removal, 170 unique records remained and proceeded to the title and abstract screening stage.

The remaining records were screened based on their titles and abstracts to determine their relevance to the objectives of the review. During this process, 140 records were excluded because they did not satisfy the predetermined inclusion criteria. Specifically, 38 studies were published before 2021, 17 studies were non-English publications, 24 studies were review articles, book chapters, or conference proceedings, 32 studies were unrelated to urban food security, 18 studies focused exclusively on rural settings or high-income countries, and 11 studies contained titles or abstracts that were not relevant to the scope of the review.

Following the title and abstract screening, 30 articles remained and were considered eligible for full-text assessment.

ELIGIBILITY PHASE

During the eligibility phase, the full texts of the remaining 30 articles were examined in detail to determine their suitability for inclusion in the review. Each article was evaluated based on its research objectives, study setting, geographical context, research design, participant characteristics, and the extent to which it addressed urban or peri-urban food security within low- and middle-income countries. Particular attention was given to studies reporting empirical findings related to household food security, food accessibility, food affordability, urban agriculture, food environments, or urban food systems.

A total of 13 full-text articles were excluded during this phase because they did not fully satisfy the eligibility criteria. Among these, 4 studies did not specifically focus on urban or peri-urban food security, 3 studies were conducted exclusively in high-income countries, 2 studies lacked sufficient empirical evidence, 2 studies were unavailable in full-text format, and 2 studies reported findings that substantially overlapped with previously published studies.

Following the full-text assessment, 17 empirical journal articles fulfilled all inclusion criteria and were subsequently included in the final qualitative synthesis.

INCLUSION PHASE

The final inclusion phase consisted of 17 empirical studies published between 2021 and 2026. These studies represented a diverse range of geographical contexts across low- and middle-income countries, including Africa and Asia, and employed quantitative, qualitative, and mixed-method research designs. The selected studies were considered suitable for synthesis because they directly examined urban or peri-urban food security and addressed issues relevant to household food security, food access, food affordability, urban agriculture, food environments, and urban food systems.

The final included studies provided evidence across several major themes related to urban food security. These themes included household food security, food accessibility and affordability, urban agriculture, urban food environments, food system governance, and coping strategies adopted by urban households. Since several studies addressed more than one thematic area, the number of studies represented within each theme exceeded the total number of included articles. The synthesis of these overlapping themes enabled a more comprehensive understanding of the determinants, challenges, and potential strategies for improving urban food security in low- and middle-income countries.

Table 3. Summary of PRISMA Article Selection Process

PRISMA Phase	Process	Number of Records
Identification	Records identified from Scopus and Web of Science	204
Duplicate Removal	Duplicate records removed	34
Screening	Records screened by title and abstract	170
Excluded during Screening	Records excluded after title and abstract screening	140
Eligibility	Full-text articles assessed for eligibility	30
Full-text Excluded	Full-text articles excluded with reasons	13
Inclusion	Final empirical studies included in qualitative synthesis	17

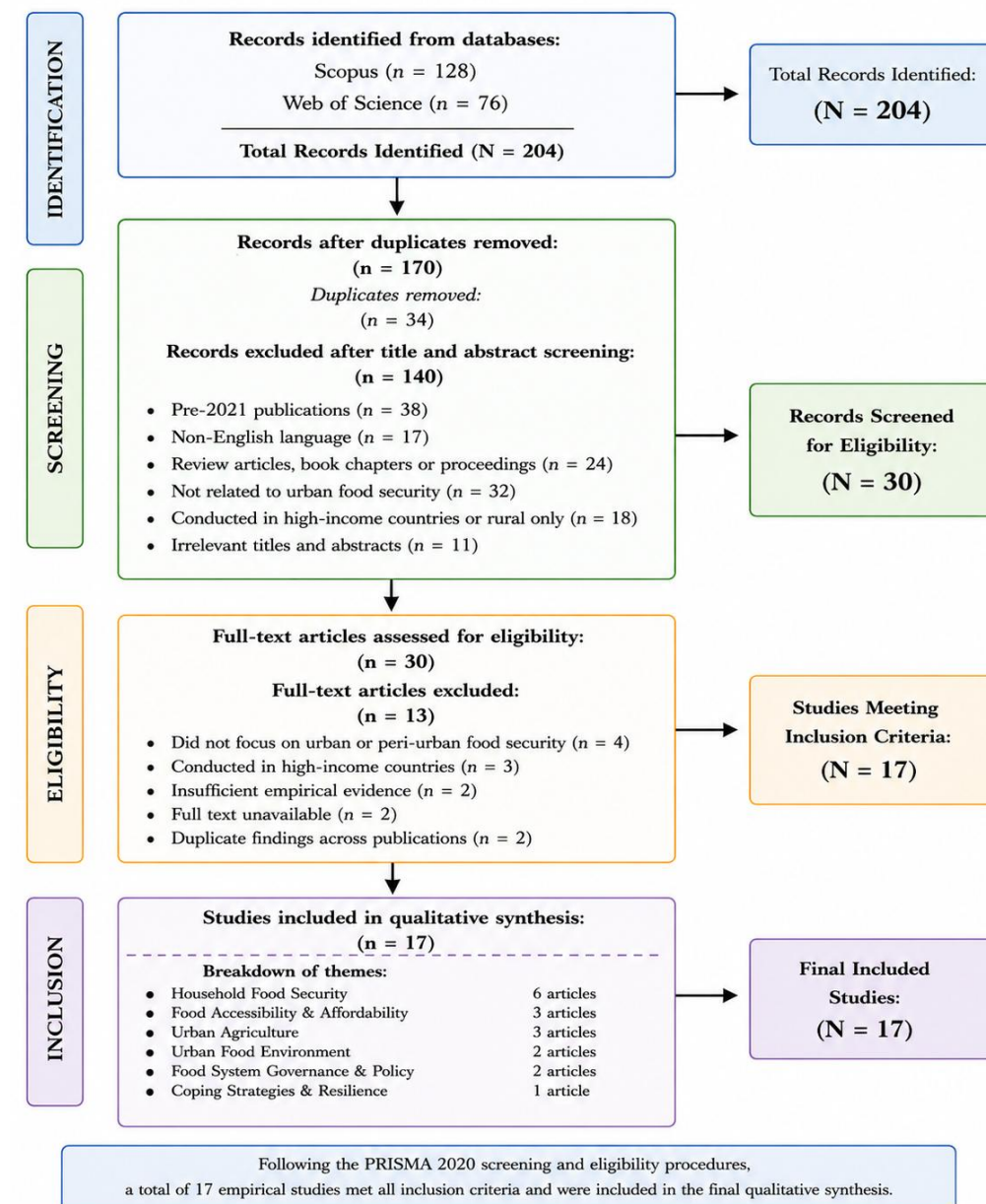


Figure 1: PRISMA 2020 Flow Diagram of the Article Selection Process

QUALITY APPRAISAL

A quality appraisal was conducted to evaluate the methodological quality and credibility of the 17 empirical studies included in this systematic literature review. The appraisal process was undertaken to ensure that the synthesis was based on studies demonstrating adequate methodological rigour, transparency, and reliability. Assessing study quality also strengthened the validity of the review findings by ensuring that only studies meeting acceptable research standards were retained for qualitative synthesis.

Each included study was assessed using a six-item quality appraisal checklist adapted from commonly applied quality assessment criteria for empirical research. The checklist evaluated whether each study: (1) clearly stated its research objectives, (2) employed an appropriate research design and methodology, (3) adequately described the study population or sampling procedures, (4) clearly explained the data collection methods and research procedures, (5) applied appropriate and sufficiently reported data analysis techniques, and (6) presented findings that were clearly supported by empirical evidence. These criteria were selected because they represent fundamental indicators of methodological quality applicable to quantitative, qualitative, and mixed-method studies.

Each quality criterion was scored using a binary scale, where 1 indicated that the criterion was fulfilled and 0 indicated that it was not fulfilled. Consequently, each study could obtain a maximum score of 6. The total score was subsequently converted into a percentage to facilitate comparison across the included studies and to determine their overall methodological quality. Studies achieving higher scores were considered to provide stronger and more reliable empirical evidence for the synthesis.

The quality appraisal demonstrated that the methodological quality of the included studies was generally high. Six studies achieved the maximum score of 6/6 (100%) and were classified as Excellent, while eight studies obtained 5/6 (83%) and were classified as Good. The remaining three studies scored 4/6 (67%), indicating an Acceptable level of methodological quality. No study scored below 67%, indicating that all selected studies satisfied the minimum quality threshold and were therefore retained for the final qualitative synthesis.

Table 4. Quality Appraisal Criteria

Code	Quality Appraisal Criterion	Score
QA1	The study clearly stated its research objectives.	0 / 1
QA2	The research design and methodology were appropriate for the research objectives.	0 / 1
QA3	The study population or sampling procedures were clearly described.	0 / 1
QA4	The data collection methods and research procedures were clearly explained.	0 / 1
QA5	The data analysis techniques were appropriate and sufficiently reported.	0 / 1
QA6	The findings were clearly presented and supported by empirical evidence.	0 / 1

Table 5. Interpretation of Quality Appraisal Scores

Total Score	Percentage	Quality Level	Decision
6/6	100%	Excellent	Included
5/6	83%	Good	Included
4/6	67%	Acceptable	Included
3/6 and below	≤50%	Weak	Excluded

Table 6. Quality Appraisal of Included Studies

Study (Author & Year)	QA1	QA2	QA3	QA4	QA5	QA6	Total Score (6)	Quality (%)
Abdul-Aziz (2022)	1	1	1	1	1	1	6	100%
Aboye et al. (2024)	1	1	1	1	1	1	6	100%
Adeosun, Greene, & Oosterveer (2022)	1	1	1	1	1	0	5	83%
Adeosun, Oosterveer, & Greene (2023)	1	1	1	1	1	1	6	100%

Adeosun, Greene, & Oosterveer (2023)	1	1	1	1	0	1	5	83%
Asravor & Kwakwa (2024)	1	1	1	1	1	0	5	83%
Ayuya (2024)	1	1	1	1	1	1	6	100%
Bannor et al. (2021)	1	1	1	0	1	1	5	83%
Delbiso et al. (2024)	1	1	1	1	1	1	6	100%
Graham et al. (2024)	1	1	1	1	1	0	5	83%
Macalou et al. (2023)	1	1	1	1	1	0	5	83%
Mazenda & Mushayanyama (2022)	1	1	1	0	1	1	5	83%
Mekonen, Berlie, & Kassie (2023)	1	1	1	1	1	1	6	100%
Ndlovu et al. (2021)	1	1	1	0	1	1	5	83%
Nenguda & Scholes (2022)	1	1	1	1	0	1	5	83%
Onyango, Crush, & Owuor (2021)	1	1	1	1	1	1	6	100%
Swanepoel, Van Niekerk, & Tirivangasi (2021)	1	1	1	0	1	1	5	83%

DATA EXTRACTION

Data were systematically extracted from the 17 empirical studies included in this systematic literature review using a structured data extraction framework. The data extraction process was undertaken to ensure consistency, transparency, and comparability across all included studies. The extracted information comprised the author(s), year of publication, country or study context, journal, research design, study population, research focus, key findings, and practical or policy implications related to urban food security in low- and middle-income countries (LMICs).

The extracted data enabled the researchers to organise the included studies systematically and identify similarities, differences, and emerging patterns across the literature. Furthermore, the extraction process facilitated comparisons of research settings, methodological approaches, determinants of urban food security, and the challenges experienced by urban and peri-urban households. The extracted information also formed the basis for the subsequent thematic synthesis by grouping studies according to recurring themes, including household food security, food accessibility and affordability, urban agriculture, urban food environments, governance, and household coping strategies.

Table 7. Data Extraction Framework

Data Extracted	Description
Author and Year	Name of the author(s) and year of publication.
Country / Study Context	Country and urban or peri-urban setting where the study was conducted.
Journal	Name of the journal in which the study was published.
Research Design	Quantitative, qualitative, or mixed-methods research design employed in the study.
Study Population	Households, individuals, communities, food vendors, farmers, or other participants included in the study.
Research Focus	Urban food security, household food security, food accessibility, food affordability, food availability, food utilisation, urban agriculture, food environment, food systems, or food governance.
Key Findings	Main empirical findings related to the determinants, challenges, or strategies associated with urban food security.
Implications	Practical, policy, or research implications for improving urban food security and sustainable urban food systems in LMICs.

DATA ANALYSIS AND THEMATIC SYNTHESIS

The extracted data were analysed using a thematic synthesis approach to identify recurring patterns, concepts, and emerging themes across the 17 empirical studies included in this systematic literature review. Thematic synthesis was selected because it provides a systematic and transparent method for integrating findings from studies employing quantitative, qualitative, and mixed-methods research designs. This approach facilitated the identification of common determinants, challenges, and strategies related to urban food security in low- and

middle-income countries (LMICs), while allowing evidence from diverse geographical and methodological contexts to be synthesised into meaningful analytical themes.

The thematic analysis followed three sequential stages. First, the extracted findings from each study were carefully reviewed and coded according to their primary research focus, reported findings, and key concepts related to urban food security. Similar concepts and recurring issues were subsequently grouped into preliminary categories. During the second stage, these categories were compared across studies to identify similarities, differences, and relationships, allowing broader analytical themes to emerge. Finally, the themes were refined and organised into coherent thematic categories that addressed the objectives of the review and reflected the current state of knowledge on urban food security in LMICs.

Based on this analytical process, the findings of the included studies were synthesised into six major themes: (1) Household Food Security, (2) Food Accessibility and Affordability, (3) Urban Agriculture, (4) Urban Food Environment, (5) Food Governance and Policy, and (6) Household Coping Strategies. Several studies contributed to more than one theme because urban food security is a multidimensional issue influenced by interconnected socioeconomic, environmental, and institutional factors. The thematic synthesis therefore enabled a comprehensive understanding of the determinants, challenges, and potential interventions for improving urban food security in rapidly urbanising low- and middle-income countries.

Table 8. Thematic Synthesis Framework

Theme	Description
Theme 1: Household Food Security	Studies examining the food security status of urban households and factors influencing household food security.
Theme 2: Food Accessibility and Affordability	Studies investigating access to food, food prices, purchasing power, and household affordability.
Theme 3: Urban Agriculture	Studies exploring the contribution of urban and peri-urban agriculture to food security and household livelihoods.
Theme 4: Urban Food Environment	Studies focusing on informal food markets, food vendors, food availability, and urban food systems.
Theme 5: Food Governance and Policy	Studies examining governance, institutional arrangements, regulations, and policy interventions related to urban food security.
Theme 6: Household Coping Strategies	Studies reporting coping mechanisms adopted by households in response to food insecurity, economic shocks, and rapid urbanisation.

RESULTS

CHARACTERISTICS OF THE INCLUDED STUDIES

The systematic review included 17 empirical studies published between 2021 and 2024 that examined various aspects of urban food security in low- and middle-income countries (LMICs). The selected studies represented diverse geographical contexts across Africa and Asia, with the majority conducted in Sub-Saharan African countries, including Ethiopia, Ghana, Kenya, Nigeria, Zimbabwe, Mali, and South Africa, while one study was conducted in Nepal. This geographical distribution reflects the growing research interest in understanding the challenges of urban food security within rapidly urbanising regions where population growth, economic inequality, and urban expansion continue to influence household food access and food systems.

The reviewed studies employed a range of methodological approaches. Quantitative research designs were the most frequently adopted, particularly cross-sectional household surveys and econometric analyses. Several studies employed qualitative approaches, including interviews, focus group discussions, and practice-based analyses, while a smaller number adopted mixed-methods designs to provide a more comprehensive understanding of urban food security. The diversity of research methodologies enabled the review to capture both measurable determinants of food insecurity and contextual perspectives regarding governance, informal food systems, and household coping strategies.

Across the included studies, the research populations varied according to the objectives of each investigation. Most studies focused on urban households, particularly low-income households residing in metropolitan areas, informal settlements, or peri-urban communities. Other studies investigated smallholder farmers, informal ready-to-eat food vendors, community members, and key stakeholders involved in urban food systems. Although the study populations differed, all studies addressed issues directly related to urban food security within the context of low- and middle-income countries.

The findings of the included studies covered multiple dimensions of urban food security. The most frequently investigated topics included household food security status, food accessibility and affordability, urban agriculture, informal food systems, food governance, and household coping strategies. Since several studies addressed more than one aspect of urban food security, each study contributed to multiple thematic categories. This multidimensional evidence provided a comprehensive understanding of the determinants, challenges, and potential interventions required to strengthen urban food security in rapidly urbanising low- and middle-income countries.

Table 9. Characteristics of the Included Studies

Author (Year)	Country	Journal	Research Design	Study Population	Research Focus
Abdul-Aziz (2022)	Ghana	<i>Cogent Social Sciences</i>	Quantitative	Smallholder farmers	Urbanisation and food crop production
Aboye et al. (2024)	Ethiopia	<i>Research in Globalization</i>	Quantitative	Peri-urban farm households	Food insecurity and coping strategies
Adeosun et al. (2022)	Nigeria	<i>Food Security</i>	Qualitative	Informal food vendors	Informal food provisioning
Adeosun et al. (2023a)	Nigeria	<i>PLOS ONE</i>	Qualitative	Food vendors and stakeholders	Food governance
Adeosun et al. (2023b)	Nigeria	<i>Frontiers in Sustainable Food Systems</i>	Qualitative	Food vendors	Urban food system improvement
Asravor & Kwakwa (2024)	Ghana	<i>African Geographical Review</i>	Quantitative	Urban households	COVID-19 and food security
Ayuya (2024)	Kenya	<i>Heliyon</i>	Quantitative	Informal settlement households	Food security and social connectedness
Bannor et al. (2021)	Ghana & India	<i>International Journal of Social Economics</i>	Quantitative	Urban households	Urban agriculture
Delbiso et al. (2024)	Ethiopia	<i>Heliyon</i>	Quantitative	Low-income households	Urban household food insecurity
Graham et al. (2024)	Nepal	<i>Current Developments in Nutrition</i>	Quantitative	Households	Urbanicity and food security
Macalou et al. (2023)	Mali	<i>Frontiers in Sustainable Food Systems</i>	Quantitative	Urban households	Urbanisation and food security
Mazenda & Mushayanyama (2022)	South Africa	<i>Journal of Hunger & Environmental Nutrition</i>	Quantitative	Urban households	Dietary diversity
Mekonen et al. (2023)	Ethiopia	<i>Cogent Food & Agriculture</i>	Quantitative	Urban households	Determinants of food security
Ndlovu et al. (2021)	Zimbabwe	<i>Cogent Social Sciences</i>	Quantitative	Urban households	Cash transfers and food security
Nenguda & Scholes (2022)	South Africa	<i>Frontiers in Sustainable Food Systems</i>	Mixed Methods	Urban households	Household resilience
Onyango et al. (2021)	Kenya	<i>PLOS ONE</i>	Quantitative	Urban households	COVID-19 vulnerability
Swanepoel et al. (2021)	South Africa	<i>Development Southern Africa</i>	Quantitative	Informal settlement households	Urban agriculture

THEMATIC ANALYSIS

The thematic synthesis of the 17 empirical studies identified six major themes that collectively explain the current state of urban food security research in low- and middle-income countries. These themes emerged through systematic coding and comparison of the extracted findings and represent the most frequently discussed issues across the included studies. Although each study addressed different research objectives and geographical contexts, several common patterns were observed regarding the determinants of food insecurity, household responses, urban food systems, and governance mechanisms. Because some studies investigated more than one aspect of urban food security, they contributed to multiple themes within the synthesis.

The six themes identified were (1) Household Food Security, (2) Food Accessibility and Affordability, (3) Urban Agriculture, (4) Urban Food Environment, (5) Food Governance and Policy, and (6) Household Coping Strategies. These themes provide the analytical framework for the following sections and facilitate a comprehensive understanding of the complex and multidimensional nature of urban food security in low- and middle-income countries. The thematic synthesis involved repeated reading of the extracted findings to ensure familiarity with the data. Initial codes were generated inductively based on recurring concepts reported across the studies. Similar codes were subsequently grouped into broader categories before being refined into six analytical themes. Throughout the synthesis, similarities and differences across study contexts were continuously compared to improve the credibility and consistency of the thematic interpretation.

Table 10. Distribution of Studies by Theme

Theme	Number of Studies (n)
Household Food Security	10
Food Accessibility and Affordability	9
Urban Agriculture	4
Urban Food Environment	5
Food Governance and Policy	3
Household Coping Strategies	6

Household Food Security

Household food security emerged as the most prominent theme across the included studies, highlighting the persistent challenges faced by urban households in securing adequate, safe, and nutritious food in rapidly urbanising low- and middle-income countries (LMICs). The reviewed studies consistently demonstrated that urban food insecurity is shaped by a combination of socioeconomic, demographic, and environmental factors rather than by food availability alone. Household income, employment stability, household size, educational attainment, and access to social protection were repeatedly identified as key determinants influencing the ability of households to obtain sufficient food.

Several studies reported that low-income households living in urban and peri-urban areas experience considerably higher levels of food insecurity than households with stable employment and diversified income sources. For example, Delbiso et al. (2024) found that households in Addis Ababa with lower income levels and larger family sizes were significantly more likely to experience moderate and severe food insecurity. Similarly, Mekonen et al. (2023) reported that household income, educational level, employment status, and access to productive assets significantly influenced household food security in Bahir Dar and Gondar cities, Ethiopia. These findings suggest that economic capacity remains one of the strongest predictors of urban household food security.

The influence of rapid urbanisation was also evident across several studies. Macalou et al. (2023) demonstrated that uncontrolled urban expansion in Mali has reduced agricultural land and weakened local food production systems, increasing household dependence on market-purchased food. Likewise, Abdul-Aziz (2022) observed that urbanisation pressures at the fringes of Ghanaian cities have reduced staple food crop production by smallholder farmers, thereby affecting both household livelihoods and urban food availability. These studies indicate that urban growth presents both opportunities and challenges, particularly where urban planning fails to protect productive agricultural land.

The COVID-19 pandemic further intensified household food insecurity across many urban settings. Asravor and Kwakwa (2024) reported a significant deterioration in food security among urban households in Ghana during and after movement restrictions, primarily due to income losses and disruptions to food supply chains. Comparable findings were reported by Onyango et al. (2021) in Nairobi, Kenya, where vulnerable households experienced greater exposure to food shortages because of employment instability and limited financial resources. Similarly, Ndlovu et al. (2021) demonstrated that although cash transfer programmes provided temporary relief for vulnerable households in Zimbabwe, financial assistance alone was insufficient to eliminate long-term food insecurity without broader economic support.

Beyond economic factors, several studies highlighted the importance of social capital and household resilience. Ayuya (2024) found that strong social networks and community support improved food security among households living in informal settlements in Kenya by facilitating food sharing, financial assistance, and access to informal markets. Likewise, Nenguda and Scholes (2022) argued that household resilience was strengthened through livelihood diversification, community cooperation, and adaptive strategies, enabling households to better withstand economic shocks and food supply disruptions. These findings demonstrate that household food security depends not only on income but also on the capacity of households and communities to adapt to changing socioeconomic conditions.

Overall, the reviewed studies demonstrate that household food security in urban areas is influenced by a complex interaction of economic, social, and environmental factors. While household income remains the primary determinant, factors such as rapid urbanisation, employment opportunities, social protection, community networks, and household resilience also play crucial roles in determining food security outcomes. These findings suggest that improving urban household food security requires integrated policy interventions that simultaneously strengthen household livelihoods, promote inclusive urban development, enhance social protection programmes, and improve the resilience of vulnerable urban communities.

Food Accessibility and Affordability

Food accessibility and affordability emerged as one of the most significant determinants of urban food security across the reviewed studies. While food may be physically available within urban areas, many households continue to experience difficulties obtaining sufficient and nutritious food because of limited purchasing power, rising food prices, unstable incomes, and unequal access to food markets. The reviewed evidence indicates that food security in urban settings is largely determined by economic access rather than food availability alone, particularly among low-income households living in rapidly urbanising low- and middle-income countries (LMICs).

Several studies identified household income as the primary factor influencing food accessibility and affordability. Delbiso et al. (2024) reported that low-income households in Addis Ababa experienced significantly higher levels of food insecurity because their limited financial resources restricted access to adequate and nutritious food. Similarly, Mekonen et al. (2023) found that households with stable employment, higher educational attainment, and diversified income sources demonstrated better food security outcomes than economically vulnerable households. These findings suggest that improvements in household income and employment opportunities are fundamental to strengthening food accessibility in urban environments.

Economic shocks further reduced household purchasing power and worsened food affordability. Asravor and Kwakwa (2024) demonstrated that the COVID-19 pandemic substantially reduced the food security status of urban households in Ghana, mainly through declining household incomes and increasing food prices during lockdown periods. Comparable findings were reported by Onyango et al. (2021), who found that many households in Nairobi struggled to purchase essential food items due to employment disruptions and income instability during the pandemic. These studies highlight the vulnerability of urban households to external economic shocks that directly affect their ability to access food.

Food prices and market dependence also played a crucial role in determining household food security. As urban households generally rely on purchased food rather than self-production, fluctuations in food prices disproportionately affect economically disadvantaged households. Macalou et al. (2023) reported that rapid

urbanisation in Mali increased dependence on commercial food markets while simultaneously reducing local agricultural production, making households more vulnerable to food price inflation. Likewise, Abdul-Aziz (2022) observed that urban expansion reduced agricultural land surrounding Ghanaian cities, contributing to reduced local food supply and increasing pressure on urban food prices. These findings suggest that urban food affordability is closely linked to sustainable food production and efficient food distribution systems.

Beyond financial constraints, social and community support mechanisms contributed to improving food accessibility among vulnerable households. Ayuya (2024) found that households with stronger social networks were better able to obtain food through informal sharing arrangements, borrowing, and community-based assistance during periods of food shortage. Similarly, Nenguda and Scholes (2022) argued that resilient households adopted diversified livelihood strategies and strengthened community cooperation to maintain food access during periods of economic uncertainty. These findings indicate that social capital complements economic resources in improving household access to food.

Overall, the reviewed evidence demonstrates that food accessibility and affordability represent critical dimensions of urban food security. Household income, employment opportunities, food price stability, social protection programmes, and community support systems collectively influence households' capacity to obtain adequate food. Therefore, improving urban food accessibility requires integrated policies that strengthen household purchasing power, stabilise food markets, enhance social safety nets, and promote equitable access to affordable and nutritious food, particularly for low-income populations residing in rapidly growing urban centres.

Urban Agriculture

Urban agriculture emerged as an important strategy for strengthening food security among urban and peri-urban households in low- and middle-income countries. Across the reviewed studies, urban agriculture referred to the cultivation of crops and, in some contexts, livestock production within cities, informal settlements, and peri-urban areas. Its contribution extended beyond direct food production because it also supported household income, dietary diversity, employment, and resilience against food-price increases and supply disruptions. Nevertheless, the effectiveness of urban agriculture varied according to access to land, water, agricultural inputs, markets, and institutional support.

The comparative study by Bannor et al. (2021) highlighted the potential relationship between participation in urban agriculture and improved household food security in Ghana and India. Urban farming may enable households to supplement market-purchased food with their own production, reduce part of their food expenditure, and improve access to fresh produce. However, the contribution of urban agriculture is not uniform across households, as its benefits depend on the scale of production, household resources, land availability, and the capacity to convert agricultural activities into food or income. Evidence from wider Sub-Saharan African research similarly indicates that urban agriculture can contribute to food access and dietary diversity, although the magnitude of its effect differs across locations and household groups.

The importance of urban agriculture was particularly evident in informal settlement areas. Swanepoel et al. (2021) examined its contribution to urban household food security in South African informal settlements, where households generally face unemployment, poverty, and heavy dependence on purchased food. In such environments, household and community food production may improve access to vegetables and other fresh foods while generating supplementary income. Urban agriculture can therefore function as both a food-provisioning activity and a livelihood strategy. Its benefits, however, may remain limited when farming is conducted on small or insecure plots without reliable access to water, finance, technical assistance, or productive inputs.

The reviewed evidence also showed that rapid urban expansion threatens the land base required for urban and peri-urban agriculture. Abdul-Aziz (2022) demonstrated that urbanisation pressures at the fringes of Ghanaian cities affected smallholder staple-crop production. The conversion of agricultural land to residential, commercial, and infrastructural development reduces the availability of productive land and may disrupt farming livelihoods. As peri-urban farmers lose or experience uncertainty over land access, their ability to supply food to urban markets and maintain household food security may decline. This illustrates a central contradiction in urban

development: while population growth increases urban food demand, the same expansion may displace the agricultural activities that contribute to local food supply.

Peri-urban farm households also face food insecurity when agricultural livelihoods are weakened by urbanisation. Aboye et al. (2024) focused on food insecurity and coping responses among peri-urban farming households in Ethiopia. Their inclusion in this theme demonstrates that proximity to agricultural production does not automatically guarantee household food security. Farm households may remain vulnerable because of shrinking landholdings, unstable income, limited market access, rising production costs, or reduced agricultural productivity. As urban boundaries expand, peri-urban households may be forced to combine farming with non-farm employment or adopt short-term coping strategies to maintain food consumption.

Taken together, the studies indicate that urban agriculture should not be treated as a complete solution to urban food insecurity. Its contribution is most effective when supported by secure land tenure, access to water and credit, extension services, market infrastructure, and recognition within urban planning. Without such support, urban agriculture may remain small-scale, informal, and vulnerable to displacement. Therefore, municipal and national policies should integrate urban and peri-urban agriculture into land-use planning while protecting productive spaces and improving access to the resources required for sustainable production.

Urban Food Environment

The urban food environment emerged as an important theme because it shapes how households obtain, purchase, and consume food within rapidly growing cities. Across the reviewed studies, the urban food environment included formal and informal food markets, street-food vending, neighbourhood food outlets, food availability, food quality, and the social and institutional arrangements governing food provision. The evidence indicates that urban food security depends not only on whether food is physically present, but also on whether households can access convenient, affordable, safe, and nutritious food within their immediate surroundings.

Informal ready-to-eat food vending played a particularly important role in the urban food environment. Adeosun, Greene, and Oosterveer (2022) demonstrated that informal food vendors constitute a significant part of food provisioning in urban Nigeria, particularly for low-income consumers who depend on inexpensive and conveniently located meals. Street-food vending therefore contributes to everyday food access by supplying prepared foods near residential areas, workplaces, roadsides, markets, and transport points. However, the study also highlighted concerns regarding limited menu diversity, food quality, hygiene, and the nutritional composition of foods commonly sold through the informal sector.

The importance of the informal food environment was also evident in the governance of ready-to-eat food vending. Adeosun, Oosterveer, and Greene (2023) found that formal government institutions and informal vending associations jointly shaped food-vending practices in Ibadan, Nigeria. Although many vendors remained unlicensed and operated outside a fully standardised regulatory framework, their activities were influenced by government monitoring, local levies, food-safety expectations, vendor associations, and informal intermediaries. The findings suggest that urban food environments are governed through overlapping formal and informal arrangements rather than through government regulation alone.

The quality of the food environment was another major issue. Informal food vending provides affordable and accessible meals, but the food supplied may be high in energy and limited in fruits, vegetables, and dietary diversity. Adeosun, Greene, and Oosterveer (2023) therefore explored practitioners' perspectives on improving the provision of healthier and more diverse ready-to-eat foods in urban Nigeria. The study emphasised that improvements require changes not only in vendors' behaviour, but also in food availability, infrastructure, consumer demand, knowledge, resources, and the broader systems within which vendors operate. This indicates that healthier urban food environments cannot be achieved solely through stricter enforcement; they also require supportive interventions that enable vendors to offer safer and more nutritious food.

Urban food environments also extend beyond the immediate neighbourhood and are connected to rural and peri-urban food networks. Ayuya (2024) found that food security among residents of Nairobi's informal settlements

was influenced by social connectedness and the rural–urban food continuum. Households with stronger social and spatial connections may gain access to food, financial assistance, or food transfers from relatives and communities outside the city. This finding shows that the urban food environment is not spatially isolated; instead, it is embedded within wider networks linking urban consumers to rural producers, family members, and informal supply systems.

The reviewed studies further suggest that low-income households are disproportionately exposed to less diverse and lower-quality food environments. Although affordable food outlets and vendors improve physical access, the cheapest available options may not always support healthy diets. Consequently, urban households may face a trade-off between affordability, convenience, food safety, and nutritional quality. This challenge is especially significant in informal settlements, where residents often have limited income, inadequate transport, poor market infrastructure, and restricted access to formal retail outlets.

Overall, the reviewed evidence demonstrates that informal markets and food vendors are essential components of urban food systems in LMICs. Policies that attempt to remove or excessively restrict informal vendors may reduce food access for low-income residents. A more appropriate approach would involve recognising informal vendors as legitimate food-system actors while improving sanitation facilities, access to clean water, waste management, training, licensing arrangements, and the availability of nutritious ingredients. Strengthening urban food environments therefore requires a balanced strategy that protects affordability and accessibility while improving food safety, dietary diversity, and institutional support.

Food Governance and Policy

Food governance and policy emerged as a critical theme in the reviewed literature, highlighting the importance of institutional arrangements, regulatory frameworks, and multi-stakeholder collaboration in strengthening urban food security. The evidence suggests that urban food insecurity is not solely a consequence of insufficient food production or household poverty but is also influenced by the effectiveness of governance systems responsible for planning, regulating, and managing urban food systems. As cities continue to expand rapidly across low- and middle-income countries (LMICs), coordinated governance becomes increasingly important to ensure equitable access to safe, affordable, and nutritious food while supporting sustainable urban development.

Several studies demonstrated that food governance extends beyond government institutions and involves multiple actors operating across formal and informal sectors. Adeosun, Oosterveer, and Greene (2023) found that urban food systems in Nigeria were governed through a combination of government agencies, local authorities, market associations, informal vendor organisations, and community stakeholders. Rather than functioning independently, these actors collectively influenced food vending practices, food safety, licensing, and market operations. This co-governance model reflects the complex nature of urban food systems, where informal institutions frequently complement formal regulatory mechanisms in ensuring continuous food provision for urban populations.

Governance challenges were particularly evident within the informal food sector. Although informal food vendors play an essential role in supplying affordable food to low-income urban residents, they often operate under fragmented regulatory arrangements characterised by inconsistent enforcement, overlapping institutional responsibilities, and limited policy coordination. Adeosun, Greene, and Oosterveer (2023) argued that improving urban food systems requires supportive governance rather than restrictive regulation. Instead of relying solely on enforcement measures, governments should provide vendor training, food safety education, infrastructure improvements, and institutional support to encourage compliance while preserving livelihoods. Such an approach recognises informal food vendors as legitimate contributors to urban food security rather than treating them solely as subjects of regulation.

The reviewed studies also emphasised the importance of integrating food security considerations into broader urban development and land-use planning. Abdul-Aziz (2022) demonstrated that rapid urban expansion reduced agricultural land surrounding Ghanaian cities, creating long-term implications for local food production and food availability. Similarly, Macalou et al. (2023) highlighted that unplanned urbanisation in Mali increased

dependence on external food markets while weakening local production systems. These findings suggest that urban planning decisions directly influence food security outcomes and that food governance should be incorporated into spatial planning, infrastructure development, and land management policies.

Another recurring finding concerns the need for cross-sectoral collaboration. Urban food security intersects with agriculture, public health, environmental management, transport, housing, social welfare, and economic development. Consequently, effective governance requires coordinated action among ministries, municipal governments, civil society organisations, research institutions, and private-sector actors. Several studies argued that isolated policy interventions often fail to address the multidimensional causes of food insecurity because they overlook interactions between food production, food distribution, employment, poverty reduction, and social protection. A whole-of-government and whole-of-society approach is therefore essential for developing resilient and sustainable urban food systems.

The reviewed evidence further indicates that governance should prioritise vulnerable urban populations, particularly households residing in informal settlements, low-income communities, and peri-urban areas. Policies promoting affordable food markets, targeted social protection, urban agriculture, nutrition-sensitive planning, and resilient food supply chains can substantially strengthen household food security. Equally important is the establishment of monitoring systems capable of identifying emerging food insecurity risks associated with economic crises, climate change, pandemics, and rapid urbanisation. Such evidence-based governance enables policymakers to respond more effectively to changing urban food system dynamics.

Overall, the reviewed studies demonstrate that effective food governance requires more than regulatory enforcement. It demands integrated policy coordination, inclusive stakeholder participation, evidence-based decision-making, and institutional support that collectively strengthen the resilience, sustainability, and inclusiveness of urban food systems. Future urban food policies should therefore move beyond sector-specific interventions and adopt comprehensive governance frameworks that balance food accessibility, food safety, environmental sustainability, economic development, and social equity.

Household Coping Strategies

Household coping strategies emerged as a recurring theme across the reviewed studies, demonstrating how urban households respond to food insecurity under conditions of economic hardship, rapid urbanisation, market volatility, and external shocks. Rather than remaining passive recipients of food insecurity, households employed a variety of adaptive strategies to maintain food consumption, minimise nutritional deprivation, and sustain their livelihoods. However, while these coping mechanisms often provided short-term relief, the reviewed evidence indicates that many were insufficient to ensure long-term food security, particularly among low-income households in rapidly growing urban areas.

Economic coping strategies were the most frequently reported responses to food insecurity. Several studies found that households adjusted their expenditure patterns by prioritising essential food purchases while reducing spending on healthcare, education, transportation, and other non-food necessities. Delbiso et al. (2024) observed that food-insecure households in Addis Ababa frequently reduced meal sizes, limited dietary diversity, and purchased lower-cost food items to cope with declining purchasing power. Likewise, Asravor and Kwakwa (2024) reported that many urban households in Ghana experienced substantial income reductions during the COVID-19 pandemic, forcing families to consume less preferred foods, reduce meal frequency, and rely on cheaper food alternatives. These findings demonstrate that financial constraints often compel households to compromise dietary quality before experiencing complete food shortages.

Livelihood diversification also emerged as an important coping mechanism. Nenguda and Scholes (2022) found that households in South Africa strengthened their resilience by combining multiple income-generating activities rather than depending on a single source of employment. Informal employment, small-scale trading, temporary labour, urban agriculture, and self-employment enabled households to reduce their vulnerability to economic shocks. Similarly, Aboye et al. (2024) reported that peri-urban farming households in Ethiopia diversified both agricultural and non-agricultural livelihoods in response to declining farm productivity and increasing

urbanisation pressures. These adaptive strategies reduced dependence on a single livelihood source and improved households' capacity to respond to unexpected disruptions.

Social support networks represented another important form of household resilience. Ayuya (2024) demonstrated that households with stronger social connectedness were better able to cope with food insecurity through food sharing, financial assistance, borrowing, and reciprocal support from relatives, neighbours, and community members. Informal social networks acted as an alternative safety net when formal government assistance was limited or unavailable. Similar patterns were observed across several studies, suggesting that social capital plays a significant role in enhancing household resilience during periods of economic stress and food shortages. Nevertheless, the effectiveness of these networks may decline during widespread crises, such as pandemics or prolonged economic recessions, when entire communities experience similar resource constraints.

Institutional support also influenced household coping capacity. Ndlovu et al. (2021) found that cash transfer programmes in Zimbabwe improved short-term household food access by increasing purchasing power during periods of financial hardship. However, the study concluded that social assistance alone could not permanently resolve household food insecurity without complementary interventions aimed at improving employment opportunities, household income, and economic resilience. This finding reinforces the broader evidence that emergency assistance functions primarily as a temporary coping mechanism rather than a long-term solution to structural food insecurity.

The reviewed studies further suggest that repeated reliance on negative coping strategies may increase household vulnerability over time. Reducing meal frequency, consuming less nutritious foods, selling productive assets, accumulating debt, or withdrawing children from education may temporarily alleviate immediate food shortages but can undermine long-term household well-being and future livelihood opportunities. Consequently, households that repeatedly adopt such strategies may become trapped in cycles of chronic poverty and food insecurity, particularly when exposed to recurring economic or environmental shocks.

Overall, the reviewed evidence demonstrates that household coping strategies constitute an essential component of urban food security. Households continuously adapt to changing economic and social conditions through financial adjustments, livelihood diversification, social support networks, and institutional assistance. Nevertheless, these coping mechanisms primarily address the symptoms rather than the underlying causes of food insecurity. Sustainable improvements therefore require integrated policies that strengthen household resilience through stable employment, inclusive economic growth, effective social protection systems, resilient urban food supply chains, and improved access to affordable and nutritious food.

DISCUSSION

OVERVIEW OF THE FINDINGS

The objective of this systematic literature review was to synthesise recent empirical evidence on urban food security in low- and middle-income countries (LMICs). Based on the analysis of 17 empirical studies published between 2021 and 2024, six interrelated themes emerged: Household Food Security, Food Accessibility and Affordability, Urban Agriculture, Urban Food Environment, Food Governance and Policy, and Household Coping Strategies. Collectively, these themes demonstrate that urban food security is a multidimensional issue influenced by economic, social, environmental, and institutional factors rather than food production alone.

The review reveals that household income remains the strongest determinant of urban food security. Although urban areas generally offer better physical access to food markets than rural regions, many households continue to experience food insecurity because of poverty, unstable employment, rising food prices, and increasing dependence on purchased food. These findings support the conceptual understanding of food security proposed by the Food and Agriculture Organization (FAO), which emphasises that food security depends not only on food availability but also on access, utilisation, and stability. In rapidly urbanising LMICs, economic access consistently appears to be the most vulnerable dimension of household food security.

The review also highlights the growing importance of urban governance in addressing food insecurity. Urban food systems involve complex interactions among government institutions, informal markets, community

organisations, private-sector actors, and households. Consequently, improving food security requires integrated governance approaches that extend beyond agricultural policies alone. Effective urban food policies should therefore combine poverty reduction, employment generation, urban planning, public health, environmental sustainability, and social protection within a coordinated policy framework. Although most of the reviewed studies were conducted in Sub-Saharan Africa, the limited evidence from Asia suggests that urban food security is also shaped by rapid urbanisation, changing dietary patterns, and market integration. However, the comparatively small number of Asian studies indicates an important geographical research gap, highlighting the need for further empirical research across diverse LMIC contexts.

REGIONAL DIFFERENCES IN URBAN FOOD SECURITY ACROSS LMICS

Although common determinants of urban food security were identified across the reviewed studies, important regional differences were also evident. In Sub-Saharan Africa, food insecurity was primarily associated with poverty, unemployment, informal settlements, and weak governance structures. Rapid urbanisation frequently reduced peri-urban agricultural land while increasing household dependence on informal food markets. In contrast, evidence from Asian LMICs highlighted the growing influence of urban density, changing dietary patterns, market integration, and rapid socioeconomic transformation. While both regions experienced increasing dependence on purchased food, the underlying drivers differed according to institutional capacity, urban planning systems, and economic development. These findings suggest that urban food security interventions should be context-specific rather than adopting a uniform policy approach across all LMICs.

HOUSEHOLD INCOME AS THE PRIMARY DETERMINANT OF URBAN FOOD SECURITY

One of the most consistent findings across the reviewed studies is that household income is the principal determinant of food security in urban environments. Unlike rural households that may partially rely on subsistence agriculture, urban households obtain most of their food through market purchases. As a result, household purchasing power directly determines both the quantity and quality of food consumed. The reviewed studies consistently showed that households with stable employment, diversified income sources, and higher educational attainment experienced significantly better food security outcomes than economically disadvantaged households.

This finding aligns with previous international research, which has consistently identified income poverty as one of the strongest predictors of urban food insecurity. The dependence on cash-based food systems means that fluctuations in employment, wages, inflation, or food prices immediately affect household food consumption. Consequently, policies aimed solely at increasing food production may have limited impact unless accompanied by measures that improve household income and purchasing power.

Furthermore, the review demonstrates that food affordability has become increasingly important as urbanisation accelerates. Rising living costs, housing expenses, transportation costs, and food price inflation reduce disposable household income, particularly among low-income families. These conditions reinforce socioeconomic inequalities and increase vulnerability to food insecurity, especially in informal settlements where employment opportunities are often unstable.

URBANISATION: OPPORTUNITIES AND EMERGING CHALLENGES

The reviewed studies demonstrate that urbanisation presents both opportunities and significant challenges for food security. Urban growth creates employment opportunities, improves market connectivity, and increases food distribution efficiency. However, uncontrolled urban expansion also reduces agricultural land, increases dependence on commercial food markets, and contributes to rising food prices. This dual relationship illustrates that urbanisation itself is not inherently beneficial or detrimental; rather, its impact depends largely on the effectiveness of urban planning and governance.

Several studies highlighted the conversion of peri-urban agricultural land into residential, industrial, and commercial developments. Although such development supports economic growth, it simultaneously reduces local food production capacity. Consequently, cities become increasingly dependent on external food supply

chains, making them more vulnerable to market disruptions, transportation constraints, and global economic shocks.

These findings support the concept of sustainable urban development, which argues that food security should be integrated into urban planning rather than treated as a separate agricultural issue. Protecting productive peri-urban agricultural land, supporting urban agriculture, and strengthening local food systems may therefore improve long-term urban food resilience.

URBAN FOOD SYSTEMS REQUIRE INTEGRATED GOVERNANCE

Another important finding concerns the complexity of urban food governance. The review demonstrates that urban food systems are governed through interactions among government agencies, informal food vendors, market associations, civil society organisations, and local communities. Rather than relying exclusively on regulatory enforcement, effective food governance requires collaboration among multiple stakeholders.

The findings suggest that informal food vendors should be recognised as essential contributors to urban food security rather than viewed solely as regulatory challenges. In many LMIC cities, informal markets provide affordable food for low-income households that cannot consistently access formal retail outlets. Restrictive regulations without adequate institutional support may unintentionally reduce food accessibility for vulnerable populations.

Therefore, governments should adopt governance approaches that balance food safety, economic inclusion, and market accessibility. Investments in vendor training, sanitation infrastructure, food safety education, and market facilities are likely to generate greater long-term benefits than punitive enforcement alone.

Building Household Resilience Against Future Shocks

The COVID-19 pandemic illustrated how rapidly urban households can become food insecure when income sources are disrupted. The reviewed studies demonstrate that households adopted numerous coping strategies, including reducing meal frequency, consuming cheaper foods, borrowing money, relying on community support, and diversifying livelihoods. While these strategies temporarily reduced food insecurity, they rarely addressed the structural causes of vulnerability.

The findings suggest that long-term resilience requires more than emergency food assistance. Sustainable household resilience depends upon stable employment, diversified income opportunities, accessible social protection systems, resilient food supply chains, and inclusive urban development. Strengthening these structural components may reduce household vulnerability to future economic crises, climate-related disasters, pandemics, and food price shocks.

Overall, the review indicates that resilient urban food systems depend on coordinated action across multiple sectors, integrating economic development, social welfare, urban planning, agriculture, and public health into comprehensive food security policies.

Table 17. Summary of Discussion

Major Finding	Interpretation	Policy Implication
Household income is the strongest determinant	Purchasing power determines food access	Strengthen employment opportunities and income generation
Urbanisation has both positive and negative effects	Economic growth may reduce agricultural land	Integrate food security into urban planning
Informal food systems remain essential	Informal vendors improve food accessibility	Support rather than exclude informal food systems
Governance requires multi-stakeholder collaboration	Food security extends beyond agriculture	Promote integrated urban food governance
Household coping strategies improve short-term resilience	Coping mechanisms cannot replace structural solutions	Expand social protection and livelihood programmes

CONCLUSION

CONCLUSION

This systematic literature review synthesised empirical evidence from 17 peer-reviewed studies published between 2021 and 2024 to examine the determinants, challenges, and emerging research directions relating to urban food security in low- and middle-income countries (LMICs). Guided by the PRISMA 2020 framework, the review identified six interrelated themes that collectively explain the multidimensional nature of urban food security: Household Food Security, Food Accessibility and Affordability, Urban Agriculture, Urban Food Environment, Food Governance and Policy, and Household Coping Strategies.

The findings demonstrate that urban food insecurity is driven primarily by socioeconomic vulnerability rather than by food shortages alone. Household income, employment stability, food prices, rapid urbanisation, and dependence on market-based food systems consistently emerged as the most influential determinants affecting food security outcomes. While urbanisation has improved market connectivity and economic opportunities, it has simultaneously intensified pressures on peri-urban agricultural land, increased reliance on purchased food, and exposed vulnerable households to fluctuations in food prices and economic shocks.

The review further demonstrates that improving urban food security requires integrated and coordinated interventions across multiple sectors. Urban agriculture, informal food systems, effective governance, and strong social protection programmes contribute significantly to strengthening household resilience, yet these interventions are most effective when supported by inclusive urban planning, institutional collaboration, and sustainable economic development. Consequently, urban food security should be recognised not merely as an agricultural concern but as a multidisciplinary urban development issue involving economic policy, public health, environmental management, social welfare, and governance.

Overall, this review contributes to the growing body of knowledge on urban food security by providing a comprehensive synthesis of recent empirical evidence from LMICs. The findings offer valuable insights for researchers, policymakers, urban planners, and development practitioners seeking to design more resilient, inclusive, and sustainable urban food systems capable of responding to future demographic, economic, and environmental challenges.

THEORETICAL IMPLICATIONS

This review extends the existing literature by demonstrating that urban food security should be understood through a multidimensional systems perspective rather than through a single-dimension food production framework. The synthesis reinforces the Food and Agriculture Organization (FAO) concept of food security, showing that the dimensions of food availability, accessibility, utilisation, and stability are closely interconnected within urban environments. Unlike rural contexts, urban households rely predominantly on market-based food systems, making economic access a particularly influential determinant of food security.

The review also highlights the value of integrating urban planning, governance, and resilience perspectives into future food security research. Rather than treating food security solely as an agricultural issue, future conceptual models should acknowledge the interactions among household socioeconomic conditions, urban governance, informal food systems, spatial development, and environmental sustainability. This broader perspective provides a stronger theoretical foundation for understanding the complexity of food security in rapidly urbanising LMICs.

PRACTICAL IMPLICATIONS

The findings provide several practical implications for governments, local authorities, development agencies, and urban planners. First, poverty reduction and employment creation should remain central strategies for improving urban food security because household purchasing power consistently emerged as the strongest determinant of food access. Expanding decent employment opportunities, strengthening household incomes, and reducing socioeconomic inequalities can substantially improve food security outcomes among vulnerable urban populations.

Second, governments should recognise informal food vendors and local food markets as essential components of urban food systems. Rather than relying solely on regulatory enforcement, supportive interventions such as infrastructure improvements, food safety training, access to clean water, waste management, and simplified licensing systems can enhance food quality while preserving affordable food access for low-income households.

Third, urban planning policies should incorporate food security considerations into land-use planning, housing development, transport systems, and infrastructure investment. Protecting peri-urban agricultural land, promoting urban agriculture, and strengthening local food supply chains can improve long-term food system resilience. Finally, expanding social protection programmes, emergency food assistance, and community-based resilience initiatives will help households better withstand future economic crises, climate-related disasters, and public health emergencies.

LIMITATIONS OF THE REVIEW

Several limitations should be acknowledged when interpreting the findings of this review. First, the review included only peer-reviewed journal articles published in English between 2021 and 2024, potentially excluding relevant studies published in other languages or outside the selected timeframe. Second, the review relied exclusively on studies indexed in Scopus and Web of Science, meaning that relevant evidence from regional databases, institutional reports, conference proceedings, or grey literature was not considered.

Third, the reviewed studies represented a limited number of LMICs, with a strong concentration of evidence from Sub-Saharan Africa. Consequently, the findings may not fully represent the diversity of urban food security challenges experienced in other LMIC regions, including Latin America, the Middle East, or parts of Southeast Asia. Finally, variations in research methodologies, food security indicators, sampling approaches, and contextual factors across the included studies limited direct comparisons of empirical findings.

FUTURE RESEARCH DIRECTIONS

Future research should expand the geographical coverage of urban food security studies by including a wider range of low- and middle-income countries from Asia, Latin America, and other underrepresented regions. Comparative cross-country studies would provide a broader understanding of how different socioeconomic, cultural, institutional, and environmental contexts influence urban food security outcomes.

Longitudinal research is also required to examine how urban food security evolves over time, particularly in response to rapid urbanisation, climate change, migration, economic crises, and technological transformation. Most existing studies employ cross-sectional designs that provide only a snapshot of household food security conditions, limiting understanding of long-term trends and causal relationships.

Future studies should further investigate the effectiveness of policy interventions, including urban agriculture programmes, digital food distribution systems, social protection mechanisms, and integrated urban food governance frameworks. Greater attention should also be given to the role of smart-city technologies, climate-resilient food systems, and data-driven urban planning in strengthening food security. Finally, interdisciplinary research combining perspectives from urban planning, economics, public health, environmental science, and governance is needed to develop more comprehensive solutions for achieving sustainable urban food security in rapidly urbanising low- and middle-income countries.

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