



Review

Investigating the association between urban agriculture and food security, dietary diversity, and nutritional status: A systematic literature review



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ABSTRACT

Objective: This literature review seeks to examine the evidence for the association between urban agriculture (UA) and food security, dietary diversity, and nutritional status and clarify the evidence base for its effectiveness at ameliorating some food security challenges faced by urban residents.

Design: We searched five databases, five grey literature libraries, and hand-searched reference lists to identify all potentially relevant sources. To be included a paper needed to quantify the impact of UA on food security, dietary diversity, or nutrition status. Papers were screened and quality assessed and data were extracted in duplicate.

Setting: Developing and transitional economies.

Subjects: Urban farmers, their households, and communities.

Results: We identified 11,192 potentially relevant studies and included 13 papers from 12 unique studies. Studies identified both positive and no associations with UA and food security, and in one study's sub-analysis, negative associations were detected. Weak study designs and methods, incomparable measures, compounded with the finding that food insecure households are more likely to engage in UA, all make interpretations difficult. All studies that measured dietary diversity found a positive association. Most studies found a positive association between engagement in UA and food consumption. Findings for nutritional status were mixed, some showing positive associations for stunting.

Conclusion: Poor quality and weak study designs made interpretation difficult and the assignment of causation impossible. The evidence base for UA needs to be strengthened before it can be confidently recommended as a strategy to improve urban food security. We did not however, find any evidence to discourage its use.

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Introduction

Urban and periurban agriculture is defined by the FAO as “an industry located within (intra-urban) or on the fringe (periurban) of a town, city, or metropolis, which grows and raises, processes and distributes a diversity of agricultural products, using largely human, land and water resources, products and services found in or around that urban area” (Hoorneweg and Paul, 2008). Urban agriculture (UA) may contribute to food security, food consumption and diet composition, dietary diversity, and nutritional status by

increasing direct access to locally produced foods, increasing freshness and variety of available foods, and offering employment opportunities (FAO, 1999).

Food security exists “when all people at all times have access to sufficient, safe, nutritious food to maintain a healthy and active life” (Kennedy et al., 2011) and therefore refers to both the physical and economic access to food that meets people's dietary needs. Conceptually, it can be applied at the individual, household, community, and national levels and is achieved through three consecutive pathways: food availability, food access, and food use. While food insecurity remains highly prevalent agricultural growth has considerable potential to increase access and availability to foods that are both healthy and affordable (FAO, 2012).

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Analytical framework

Specifically, UA can impact food security through various proximal and distal mechanisms, including increased food availability, access, and consumption and through income generated through the sale of produce (Fig. 1). Numerous factors, not the least of which include environmental and climactic conditions, social, political, and economic contexts, and land access can influence UA’s impact on health. Additionally, rural food production, food availability and cost also change people’s needs for and reliance upon UA, where, for example, high availability, easy access, and low cost will reduce people’s need for UA. Once food is grown it may be eaten directly by the producer and their family or sold into the larger community, thereby potentially increasing other people’s access to food, and generating income for the grower. It may also be able to support communities to withstand shocks, including food shortages, seasonality, personal or family crisis, political or economic instability, or food scarcity. The food which is eaten is likely to be fresh (Litt et al., 2011; Zezza and Tasciotti, 2010), may increase dietary diversity (Blair et al., 1991; USAID, 2005) and may potentially improve nutritional status (Mawoneke, 1998; Maxwell, 1995).

There is increasing interest in UA from a range of academic, advocacy, policy, and community and concomitant groups to increase UA-friendly policies (Zezza and Tasciotti, 2010; Kang’Ethe et al., 2007). Some researchers and many advocates assert that UA is an effective strategy to improve nutrition of urban residents (Hoornweg and Paul, 2008; FAO, 1999, 2012; Kennedy et al., 2011; Robertson, 2004; Giovannucci et al., 2012; De Zeeuw et al., 2000) and can also improve dietary diversity (FAO, 1999; Robertson, 2004; De Bon et al., 2010; Mougeot, 2000). Others however, suggest that the evidence base is weak and driven by an advocacy agenda, and that its use regarding food security and/or nutritional status is limited (Zezza and Tasciotti, 2010; Kang’Ethe et al., 2007). There has also been concern that UA is popular because of its cohesion with current policy discourse on community participation, gender equity, and sustainability, and not because it is an intervention with proven positive health outcomes (Kang’Ethe et al., 2007).

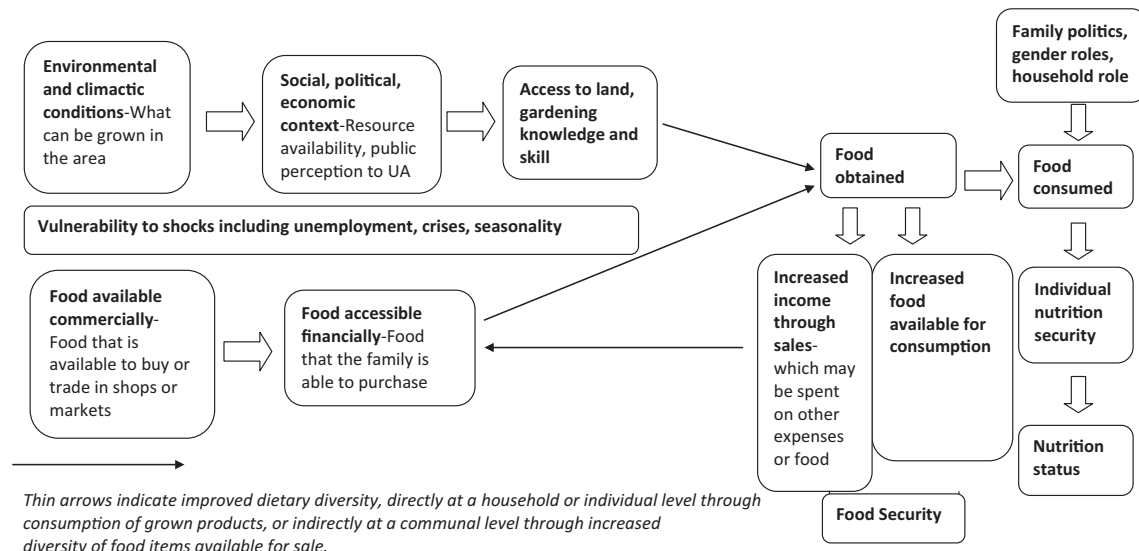
While the corpus of literature on UA is far broader than what is reviewed here, and spans out to include community cohesion, mental health, and infectious disease transmission, we have chosen a more narrow focus. Specifically, this literature review seeks to examine the evidence for the association between UA and food security, food consumption and diet composition, dietary diversity, and nutritional status and to clarify the evidence base for its effectiveness at ameliorating some food security challenges faced by urban residents in developing and transitional economies.

Methods

Search strategy

Prior to systematically searching the databases, a general Google Scholar search was run to gather key documents which we found relevant which were then used as a way to ensure that our search was capturing appropriate studies. These papers were also used to collect key terms and phrases. A standardized search strategy (Table 1) was developed to include words or phrases relating to urban agriculture, food security, dietary diversity and nutritional outcomes and spanning publications up to January 2013. No restrictions were set on publication dates to ensure that the broadest set of data could be captured. The search strategy was applied to five databases: Agricola, AgEcon, Web of Science, Global Health and Embase. MeSH terms were exploded when possible in order to capture the widest range of papers. In addition, we systematically searched relevant organizational websites in order to capture the grey literature on this topic: Eldis (<http://www.eldis.org/>), World Bank (<http://www.worldbank.org/>), International Food Policy Research Institute (<http://www.ifpri.org/>), World Food Programme (<http://www.wfp.org/>) and Resource Centres for Urban Agriculture and Food Security (<http://www.ruaf.org/>). Reference lists of included publications were also hand-searched for additional relevant studies. The work cited lists of newly included studies were also scanned until no new relevant papers were identified. We imposed language limits to included studies written in English, Spanish, and French.

Diagram 1: Factors influencing urban agriculture and food and nutrition security



Modified Influences on food choices diagram, p. 166, Food and health in Europe (2004)

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