

Community Gardens as a Tool for Improving Access to Nutritious Foods

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Abstract:Community gardens serve as dynamic and transformative spaces, fostering community engagement, promoting local food production, and addressing multifaceted challenges. This abstract explores the various dimensions of community gardens, highlighting their significance in social, environmental, and health contexts. By delving into the collaborative effort inherent in these gardens, we uncover the sense of community they cultivate, providing shared spaces where individuals connect, share experiences, and collectively contribute to neighborhood well-being. Examining their role in enhancing food security, community gardens emerge as valuable tools, reducing reliance on commercially grown produce and offering fresh, locally sourced fruits and vegetables. Moreover, these spaces become educational hubs, empowering participants with knowledge about gardening practices, sustainable agriculture, and nutrition. Beyond tangible benefits, community gardens contribute to physical and mental well-being, providing therapeutic outdoor environments for exercise and relaxation. As agents of environmental stewardship, they transform urban landscapes into green spaces, supporting biodiversity and enriching community aesthetics. While community gardens present myriad opportunities, challenges such as land availability and sustained community involvement require ongoing attention. Successful community gardens necessitate collaboration with local authorities and adaptability to evolving community needs. In conclusion, community gardens stand as vibrant symbols of collective action, cultivating not only nutritious foods but also resilient and empowered communities

Keywords:Community Gardens, Social Engagement, Local Food Production, Food Security, Education, Sustainability, Physical Well-Being, Mental Health, Environmental

I. Introduction

Access to nutritious foods is a fundamental determinant of overall health and well-being, playing a pivotal role in shaping the physical, mental, and social dimensions of individuals and communities. In recent years, the global discourse on public health has increasingly recognized the significance of ensuring equitable access to fresh and healthy foods, as poor nutrition remains a major contributor to various health issues, including malnutrition, obesity, and diet-related diseases. The challenge of providing widespread access to nutritious foods is particularly evident in urban and suburban settings where factors such as food deserts, limited economic resources, and insufficient infrastructure create barriers to a healthy diet [1]. In response to these challenges, numerous tools and initiatives have emerged, each aiming to address the complex interplay of socio-economic, cultural, and environmental factors that contribute to disparities in food access. One notable tool that has gained prominence in community development efforts is the establishment of community gardens. These collaborative green spaces serve as microcosms of sustainable agriculture, community engagement, and nutritional education. As we delve into the multifaceted realm of community gardens, it becomes apparent that they represent more than just plots of land cultivated for growing fruits and vegetables; they embody a holistic approach to fostering healthier communities. Community gardens, at their core, are shared spaces where individuals come together to cultivate and nurture plants, fostering a sense of communal responsibility and pride [2]. The benefits of community gardens extend far beyond the boundaries of the physical plots, encompassing social, economic, and environmental dimensions. In this exploration, we will delve into the diverse facets of community gardens, examining how they serve as a powerful tool for improving access to nutritious foods and contributing to the overall well-being of individuals and communities. The concept of community gardening is deeply rooted in history, with examples dating back to ancient civilizations. In the early 20th century, community gardens gained traction in response to urbanization and the resulting disconnection from agrarian practices. During World War I and II, victory gardens became a widespread phenomenon, empowering communities to grow their own food in times of scarcity [3]. These historical precedents laid the groundwork for the modern community garden movement. Over the years, community gardens have evolved from makeshift plots to well-organized spaces that integrate sustainable agricultural practices, educational components, and a strong sense of

community engagement. Today, these gardens are not only sources of fresh produce but also serve as hubs for social interaction, skill-building, and environmental stewardship.

A. The Role of Community Gardens in Local Food Production

At the heart of the community garden movement is the notion of local food production. Community gardens act as localized solutions to the challenges associated with centralized and industrialized food systems. By cultivating fruits, vegetables, herbs, and other crops within the community, these gardens contribute to a more resilient and sustainable local food supply. The significance of local food [4] production lies not only in the freshness and nutritional quality of the produce but also in the reduction of carbon footprints associated with transportation. As community gardens flourish, they mitigate the environmental impact of long-distance food distribution, fostering a greater sense of environmental responsibility among participants.

B. Enhancing Nutritional Access and Food Security

One of the primary objectives of community gardens is to enhance access to nutritious foods, particularly in areas where traditional avenues for obtaining fresh produce are limited. Food deserts, characterized by a lack of grocery stores or markets offering healthy options, disproportionately affect underserved communities. Community gardens emerge as a local remedy to these nutritional gaps, providing a tangible solution to food insecurity. These gardens offer a diverse range of fruits, vegetables, and herbs, promoting dietary variety and addressing specific nutritional needs. Participants in community gardens not only gain access to fresh produce but also acquire the knowledge and skills to make informed choices about their diet. The educational aspect of community gardening empowers individuals to take an active role in their nutritional well-being, fostering a sense of agency and self-sufficiency. Beyond being sources of fresh produce [5], community gardens serve as dynamic educational tools, offering a wealth of opportunities for learning and skill development. Gardening workshops, horticultural classes, and hands-on experiences in sustainable agriculture become integral components of community garden initiatives. Participants, ranging from seasoned gardeners to novices, have the chance to deepen their understanding of plant biology, soil health, and the principles of organic gardening. This experiential learning fosters a sense of environmental stewardship and promotes sustainable practices that extend beyond the confines of the garden plots. The transferable skills acquired in community gardens, such as teamwork, problem-solving, and leadership, contribute to the

overall development and resilience of the community. Perhaps one of the most profound impacts of community gardens is their ability to bring people together, transcending social, cultural, and economic divides. The act of tending to a shared plot creates a sense of camaraderie among participants, fostering social interaction and community building. Community gardens become spaces where neighbors connect, share stories, and collaborate towards a common goal. The diversity of individuals involved in these initiatives adds richness to the communal tapestry, promoting cultural exchange and understanding. These shared experiences in the garden create a sense of belonging [6], breaking down barriers and creating stronger social ties within the community. Engaging in gardening activities has been associated with a myriad of physical and mental health benefits. The act of planting, weeding, and harvesting involves physical activity, contributing to improved cardiovascular health and overall fitness. Community gardens provide an opportunity for individuals to spend time outdoors, connecting with nature and reaping the mental health benefits associated with exposure to green spaces [7]. Gardening has been linked to stress reduction, improved mood, and increased overall well-being. The sense of accomplishment derived from cultivating a garden and witnessing the fruits of one's labor adds a therapeutic dimension to community gardening. As individuals invest time and effort into the care of their garden plots, they simultaneously invest in their own health and happiness. In economically disadvantaged communities, the cost of fresh, nutritious foods can be a significant barrier to maintaining a healthy diet. Community gardens provide a cost-effective solution by allowing participants to grow their own produce, reducing the financial burden associated with purchasing fresh fruits and vegetables. The communal nature of these gardens often involves shared resources, further lowering individual costs. Seeds, tools, and knowledge are exchanged freely among participants, creating a collaborative environment that fosters economic sustainability and resilience. As a result, community gardens play a vital role in democratizing access to nutritious foods, irrespective of economic constraints [8].

Food Security and Resilience Community gardens contribute to local food security by creating a more resilient and diversified food system. In times of crisis, such as natural disasters or disruptions in the global supply chain, communities with established gardens are better equipped to weather food shortages. The ability to grow food locally reduces dependency on external sources and mitigates the impact of external shocks on food availability. Community gardens act as microcosms of self-reliance, empowering communities to take control of their food supply and

build resilience in the face of uncertainty. In an era marked by increasing environmental concerns, community gardens exemplify sustainable and eco-friendly practices. Many community gardens emphasize organic gardening methods, eschewing synthetic pesticides and fertilizers in favor of environmentally sustainable alternatives. Composting, rainwater harvesting, and the use of native plants contribute to the ecological health of the community and promote a sense of environmental responsibility among participants. The commitment to sustainable practices in community gardens aligns with broader efforts to mitigate the environmental impact of food production and consumption[9].

II. Literature Review

Several studies have investigated the impact of community gardens on various aspects of health and nutrition. Garcia and colleagues conducted a systematic review to explore the effects of urban gardens on adequate and healthy food. Their study, published in *Public Health Nutrition*, delves into a range of literature to understand the broader implications of urban gardening on nutritional outcomes, emphasizing the importance of these spaces in addressing issues related to food access and quality[10]. Similarly, McCormack and co-authors, in an article published in the *Journal of the American Dietetic Association*, provide a comprehensive review of the nutritional implications associated with farmers' markets and community gardens. Their work calls for increased research efforts and evaluation of these community-based initiatives, contributing to the broader dialogue on the role of such initiatives in promoting healthier eating habits. In a scoping review, Audate et al. explore the impacts of urban agriculture on various determinants of health. Published in *BMC Public Health*, their study contributes valuable insights into the multifaceted effects of urban agriculture, shedding light on how these initiatives influence health outcomes beyond just nutrition[11]. Kunpeuk and colleagues, in a systematic review and meta-analysis published in *Health Promotion International*, delve into the impact of gardening on both nutritional and physical health outcomes. The study provides a quantitative synthesis of existing literature, offering a more nuanced understanding of the benefits associated with gardening. Weltin and Lavin's study, published in the *Journal of Community Health Nursing*, focuses specifically on the impact of community gardens on a targeted population—diabetics of Marshallese descent[11]. By honing in on a specific health indicator (H_{gA}1c levels), the authors provide a more tailored perspective on the potential health benefits of community gardens within

a specific demographic. Litt et al., in their investigation published in the American Journal of Public Health, explore the influence of social involvement and community garden participation on fruit and vegetable consumption. The study adds a social science perspective to the existing literature by exploring the interplay of social factors and community engagement. Milliron and co-authors, in their study published in the Journal of Community Health, conduct a process evaluation of a community garden situated at an urban outpatient clinic[12]. This unique focus on the operational aspects of a community garden provides insights into the practical considerations and challenges faced in implementing such initiatives within healthcare settings. Castro and colleagues, in an article published in the American Journal of Preventive Medicine, present a community garden-based obesity prevention program titled "Growing Healthy Kids." The study emphasizes the potential of community gardens not only as sources of fresh produce but as platforms for targeted health interventions. Alaimo et al., in a study published in the Journal of Nutrition Education and Behavior, investigate fruit and vegetable intake among urban community gardeners, providing valuable insights into the nutritional aspects of community gardening[13]. Litt et al., in another exploration published in Social Science & Medicine, delve into the ecological, emotional, and social levers influencing self-rated health for urban gardeners and non-gardeners. The multidimensional approach adds complexity to the understanding of the relationship between community gardening and self-rated health. Finally, Machida's study, published in the International Journal of Environmental Research and Public Health, explores the relationship between community or home gardening and the health of the elderly. The research provides insights into how gardening activities impact the health outcomes of older individuals and demonstrates an innovative approach to gathering data on the health benefits of gardening among the elderly[14].

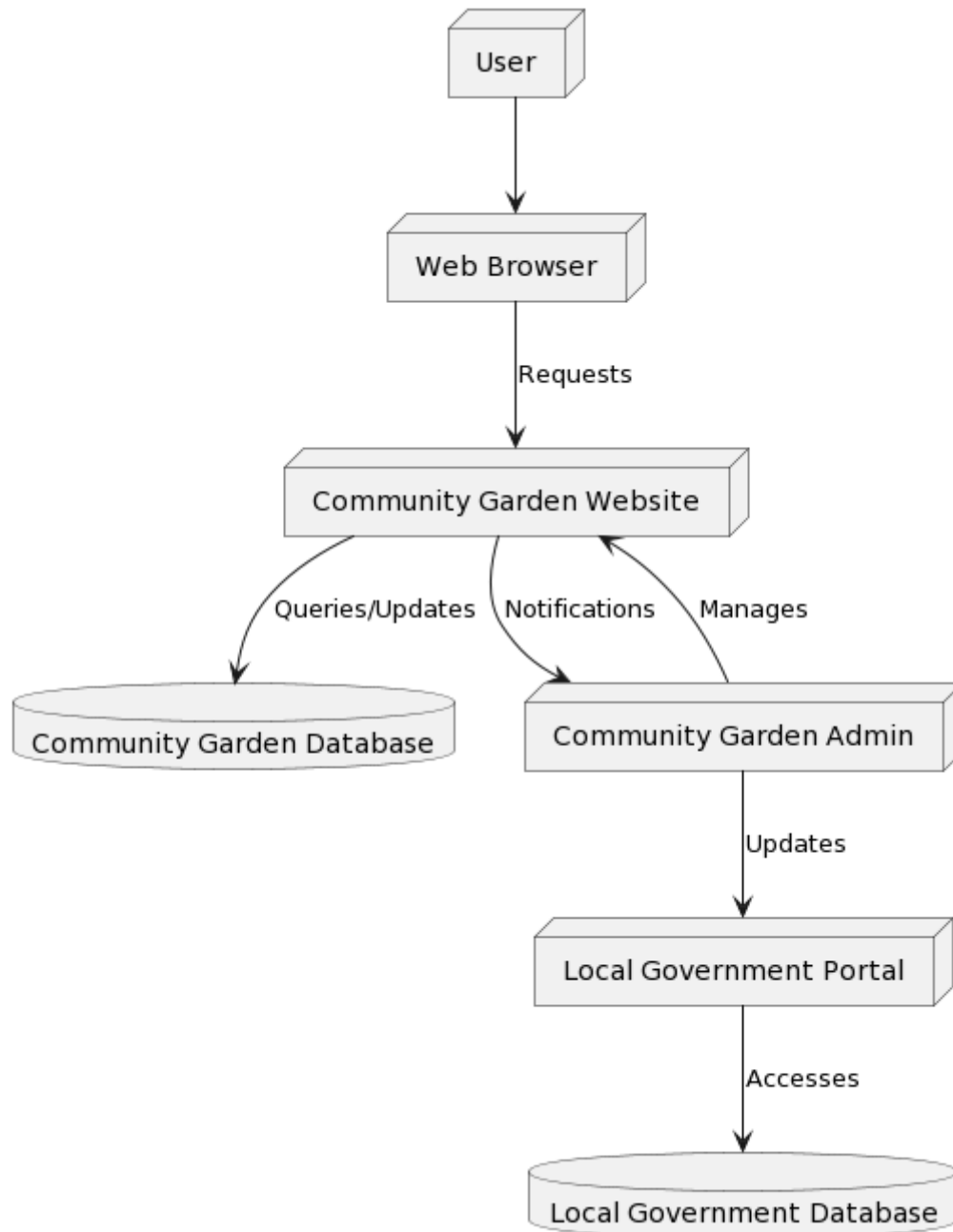
Author & Year	Area	Methodology	Key Findings	Challenges	Pros	Cons	Application
Garcia et al., 2018	Impact of urban gardens on adequate and healthy food	Systematic Review	Emphasizes the importance of urban gardens in addressing food access and quality.	Land availability, community engagement	Supports healthier dietary patterns; Promotes food access	Potential land constraints; Requires community participation	Urban nutrition strategies
McCorma	Nutritiona	Literature	Advocate	Limited	Identifies	Dependence	Informing

ck et al., 2010	Implications of farmers' markets and community gardens	Review	Provides data for increased research efforts and evaluation of community-based initiatives.	data for comprehensive evaluation	gaps in understanding ; Calls for further research	on available literature; Need for diverse evaluation methods	policy and research agendas
Audate et al., 2019	Impacts of urban agriculture on determinants of health	Scoping Review	Reveals multifaceted effects of urban agriculture beyond nutrition.	Complexity in understanding various health determinants	Broadens understanding of urban agriculture impacts	Challenges in defining clear health determinants ; Limited quantitative data	Urban planning for holistic health outcomes
Kunpeuk et al., 2009	Impact of gardening on nutrition and physical health outcomes	Systematic Review and Meta-Analysis	Provides a quantitative synthesis of existing literature on gardening benefits.	Heterogeneity in study designs and populations	Confirms positive effects on nutrition and physical health	Challenges in synthesizing diverse studies; Need for standardized methodologies	Health promotion through gardening interventions
Weltin and Lavin, 2012	Effect of a community garden on HgA1c in diabetics	Health Outcomes	Investigates the impact on HgA1c levels in diabetics of Marshallese descent.	Specific to a targeted population; Limited generalizability	Indicates potential health benefits in a specific demographic	Narrow focus on diabetes; Limited demographic applicability	Tailored health interventions for specific populations
Litt et al., 2011	Influence of social involvement and garden participation on consumption	Social and Nutritional	Explores the interplay of social factors and community engagement on dietary habits.	Challenges in quantifying social influences	Highlights importance of social context in dietary habits	Difficulty in quantifying social factors; Requires nuanced analysis	Socially informed nutrition programs
Milliron et al., 2017	Process evaluation of a community	Healthcare Integration	Evaluates the operational aspects	Practical considerations and challenges	Provides insights for integrating gardens into	Operational challenges in healthcare; Limited	Healthcare-based community

	y garden at an urban clinic		of a community garden at an outpatient clinic.	in healthcare settings	healthcare	scalability	gardening programs
Castro et al., 2013	Growing Healthy Kids: A community garden-based obesity prevention program	Health Intervention	Presents a community garden-based obesity prevention program.	Requires targeted health interventions	Demonstrates holistic health intervention potential	Program-specific challenges; May not suit all communities	Obesity prevention through community gardening
Alaimo et al., 2008	Fruit and vegetable intake among urban community gardeners	Nutritional Habits	Investigates fruit and vegetable consumption in urban gardeners.	Limited generalizability to non-gardening populations	Highlights positive nutritional habits associated with gardening	Limited external validity; Generalizability challenges	Promoting healthier dietary habits through community gardening
Litt et al., 2015	Ecological, emotional, and social levers of self-rated health	Social Determinants	Explores factors influencing self-rated health for urban gardeners.	Complexity in analyzing diverse factors	Provides a multidimensional understanding of health determinants	Analytical challenges in diverse factors; Requires advanced analysis	Informing interventions addressing social determinants of health
Machida, 2019	Relationship between gardening and health of the elderly	Elderly Health	Investigates the relationship between gardening and health outcomes in the elderly.	Specific to elderly population; Limited generalizability	Highlights potential health benefits for older individuals	Limited demographic applicability; Need for broader studies	

III. Tools for Food using Community Garden

The tool for improving access to nutritious foods encompasses a range of strategies, initiatives, and interventions designed to address barriers to obtaining and consuming healthy and nutritious food. Here are several tools and approaches that have been employed to enhance access to nutritious foods:



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Figure 1. Depicts the Block Diagram for Community Garden as Tool for Food

A. Community Gardens:

- Description: Community gardens are communal spaces where community members collectively grow fruits, vegetables, and herbs. These gardens promote local food production, foster a sense of community, and provide fresh, locally sourced produce.

- Benefits: Enhances access to affordable and fresh produce, promotes community engagement, and provides educational opportunities on gardening and nutrition.
- Challenges: Limited space, resource constraints, and potential issues related to community participation and maintenance.

B. Farmers' Markets:

- Description: Farmers' markets bring local farmers and producers directly to consumers, offering a variety of fresh, seasonal, and locally sourced produce.
- Benefits: Supports local agriculture, provides direct access to farmers, offers diverse food options, and promotes a sense of community.
- Challenges: Seasonal availability, limited operating hours, and potential affordability concerns for certain populations.

C. Food Banks and Pantries:

- Description: Food banks and pantries distribute donated and surplus food to individuals and families facing food insecurity.
- Benefits: Addresses immediate food needs, prevents food waste, and serves as a safety net for vulnerable populations.
- Challenges: Relies on donations, may have limited access to fresh produce, and may not address long-term nutritional needs.

D. Mobile Food Markets:

- Description: Mobile food markets are vehicles or trucks equipped with fresh produce that travel to underserved areas, providing direct access to nutritious foods.
- Benefits: Increases accessibility for communities with limited transportation, offers fresh and affordable produce, and adapts to varying community needs.
- Challenges: Operational costs, logistical challenges, and potential limitations in reaching remote areas.

E. Community-Supported Agriculture (CSA):

- Description: CSA programs allow individuals to purchase shares of a local farm's produce, receiving a regular supply of fresh, seasonal items.
- Benefits: Supports local agriculture, provides direct connections between farmers and consumers, and offers a variety of fresh produce.

- Challenges: Upfront costs for participants, potential lack of choice in received items, and reliance on local farming conditions.

F. Urban Food Hubs:

- Description: Urban food hubs are centralized facilities that aggregate, process, and distribute local food products, fostering a connection between producers and consumers.
- Benefits: Enhances efficiency in the local food supply chain, supports local businesses, and provides a hub for diverse food activities.
- Challenges: Initial infrastructure investment, coordination among stakeholders, and ensuring affordability for all community members.

G. Nutrition Education Programs:

- Description: Educational initiatives that teach individuals and communities about nutrition, meal planning, and cooking skills.
- Benefits: Empowers individuals to make healthier food choices, enhances nutritional literacy, and complements other access initiatives.
- Challenges: Requires ongoing resources, may need to address cultural and contextual factors, and necessitates community engagement for effectiveness.

H. Policy Advocacy and Food Policy Councils:

- Description: Advocacy for policies that support equitable access to nutritious foods and the establishment of local food policy councils to address systemic issues.
- Benefits: Addresses root causes of food inequity, influences broader systemic change, and fosters collaboration among stakeholders.
- Challenges: Requires sustained advocacy efforts, navigating complex policy landscapes, and ensuring inclusive representation in food councils.

IV. Challenges

- While community gardens offer a myriad of benefits, it is essential to acknowledge the challenges and considerations inherent in their establishment and maintenance.
- Land availability, soil quality, water access, and community engagement are among the factors that can influence the success of a community garden initiative.
- Additionally, ensuring inclusivity and addressing potential disparities in participation requires intentional efforts to involve diverse community members.

- The long-term sustainability of community gardens may depend on ongoing community support, organizational structures, and effective management.
- Adequate resources, such as funding, tools, and educational materials, are essential to sustaining these initiatives and maximizing their impact.

V. Conclusion

In conclusion, community gardens emerge as multifaceted tools that extend far beyond the boundaries of agriculture. These communal spaces, nurtured by the collective effort of community members, play pivotal roles in addressing various social, environmental, and health-related challenges. Through fostering community engagement, community gardens become dynamic hubs where individuals collaborate, share experiences, and build meaningful connections. The resulting sense of shared responsibility and belonging contributes not only to the well-being of individuals but also to the cohesion of entire neighborhoods. The impact of community gardens extends into realms of food security, as local production reduces dependence on commercially grown produce, providing communities with access to fresh and locally sourced fruits and vegetables. These spaces also serve as educational platforms, offering valuable insights into gardening practices, sustainable agriculture, and nutrition. By creating opportunities for learning and understanding the origins of food, community gardens empower individuals and contribute to a more informed and food-conscious society. Beyond their tangible benefits, community gardens provide a haven for physical and mental well-being. Engaging in gardening activities promotes outdoor exercise and, concurrently, contributes to improved mental health. The therapeutic nature of cultivating the land and being close to nature is a testament to the holistic advantages these spaces offer to participants. While community gardens present a wealth of opportunities, challenges such as land availability, sustained community involvement, and equitable access need continual attention. Successful community gardens require ongoing support, collaboration with local authorities, and adaptability to the evolving needs of the community.

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