

# The Relationship of Urban Farming with Horticultural Therapy for Urbanites: A Systematic Review

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## ABSTRACT

Urbanisation has increased stress levels, which has resulted in social issues that are expected to worsen in the future. Under these circumstances, it is believed that "horticultural therapy", an activity with diverse plant life, is very helpful in reducing physical and mental stress. Meanwhile the term "urban farming" in this context refers to the expansion of agricultural products inside of cities which increases options for people to access healthy and fresh food. Thus, believed to improve people's health and well-being by fostering interactions between people and plants. The relationship between urban farming and horticultural therapy to reduce urban stress is discussed in this paper, which explore the articles published in SCOPUS between year 2010 and year 2022. A systematic approach using PRISMA software was used to addresses data identification, evaluation, exclusion, and inclusion. Results showed the effects of horticultural therapy with urban farming elements were associated with more than one (1) horticultural therapy interaction, where a nature-based element was a potential source of viable and significant outcomes. Hence, this exploration emphasised the value of fostering horticulture therapy connections with urban farming. This review formulated the preliminary conceptual framework of the relationship of urban farming and horticultural therapy to reduce urban stress. It shows a constructive interaction between urban farming and horticultural therapy as the potential constructs to reduce urban stress (improves mental and physical health). This conceptual framework will be used as the basis for further research undertaking.

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## INTRODUCTION

Urban farming has drawn much attention in recent years because of its "horticultural therapy" impacts, which reduce urban stress (improve people's health and well-being). It is commonly acknowledged that outdoor activities, such as gardening or urban farming, provide relaxing physiological effects. Urban farming activities have been linked to reduced levels of stress, enhanced social relationships, and improved cognitive health in numerous studies (Truong et al., 2022; Van den Berg & Custers, 2011). Numerous attempts have been made to explore the physiological reactions of plants to activities like pot transfer or transplanting, which involve people actively participating in nature. This study demonstrated the value of urban farming as a complementary type of green space (Hong et al., 2021). Furthermore, it was anticipated that products from urban farming will affect human physiology during production and consumption (Lu et al., 2020). On the other hand, generally, individuals living in urban settings frequently experience environmental and social stressors that could negatively affect their mental health. The tension that results from living in an urban environment is referred to as urban stress. Urbanisation affects mental health through the influence of increased stressors and factors such as overcrowded and polluted environment, high levels of violence, and reduced social support (Hernandez et al., 2020). However, there was little systematic information about how urban farming affects urban stress (health and well-being). For urban farming to develop into one of the interventions for reducing urban stress, excellent health and well-being must be considered in addition to production and management. Applying the concept of horticultural therapy in such a situation will be highly successful. Therefore, more research was required on the relationship between urban farming and horticultural therapy to reduce urban stress.

In order to describe the relationships, this paper reviewed the literature published in SCOPUS between 2010 and 2022. The PRISMA reporting framework, which emphasised data identification, evaluation, exclusion, and inclusion, was presented. It was a proposed reporting item for reviews and meta-analyses. Based on these reviews, it concentrated primarily on urban farming attributes that were relevant to an urban people to provide results that were both practically and scientifically useful for people's health and well-being. Urban farming practice, horticultural therapy, and urban stress were briefly defined at the beginning of the paper, followed by an explanation of the methods used. The systematic exploratory review's findings were then discussed and presented. Future research recommendations were offered.

## LITERATURE REVIEW

### Urban Farming Practices and Horticultural Therapy

Urban farming was described as agriculture practiced within a city and coexists harmoniously with it. Plant factories in urban farming produce top-notch, edible, ornamental, medicinal, or industrial plants year-round with incredibly high plant production and efficiency (Salim et al., 2022). Plants can be produced in large quantities on a limited amount of land using a multitier system. Contrary to urban green areas, which were often found outside, plant factories were enclosed or partially enclosed agricultural systems. As health issues have received more attention, there has been a significant increase in the demand for safe and fresh food globally (Ma et al., 2020). The term "urban farming" in this context refers to the expansion of agricultural products inside of cities, which increases options for people to access healthy and fresh food. This also establishes the study's focus.

Horticultural therapy is an intervention that involves indoor or outdoor planting and gardening activities and has been shown to have therapeutic value by lowering blood pressure, boosting confidence, and reducing stress by stimulating the five (5) senses (sight, sound, taste, touch, and smell) (Spano et al., 2020). This was explained by saying that horticultural therapy is a series of procedures intended to produce "preventive medical benefits" through exposure to natural stimuli that induce physiological relaxation and strengthen compromised immune systems to prevent disease (Lu et al., 2020; Van den Berg & Custers,

2011). Horticultural therapy, in contrast to the "specific effects" predicted from pharmaceutical therapies, aims to boost immunity, prevent illnesses, preserve health, and promote health by exposing patients to nature and, as a result, promoting relaxation (Lu et al., 2020; Shen et al., 2022). Future urbanisation was anticipated to be further encouraged, and horticultural therapy was seen as useful in reducing the stress that urbanisation causes. This leads to reducing urban stress (improves mental and physical health).

## METHODOLOGY

Selecting the most appropriate search phrases for urban farming, horticultural therapy, and urban stress was the first step in the systematic review (Moher et al., 2015). Identifying the search terms was performed, which were then finalised by a subject-matter advisory panel (Table 1) and followed by screening the Scopus database for all English articles published between year 2010 and year 2022. In the literature, this period roughly corresponds to one (1) generation.

Table 1. The articles' characteristics of the included reviews

Population	urban OR city OR town AND resident* OR citizen* OR dweller* OR townspeople OR community*
Intervention	farm* OR agriculture* OR garden*
Outcome	"horticultural therapy" OR mental* OR physical* OR physiology* OR happy* OR satisfy* OR well-being

Source: Authors, 2023

## Review Process

PRISMA, a preferred reporting item for systematic reviews and meta-analyses that addresses data identification, evaluation, exclusion, and inclusion was used for this study. Title screening, abstract screening, and document screening were the three (3) main stages of the review process. The process of the title screening entailed looking over the results of a Scopus database search and uploading all the titles that seemed pertinent into a citation manager (Mendeley V.1.19.8). Three hundred seventy-eight (378) articles were downloaded from the one thousand three hundred twenty-seven (1,327) titles that were screened for further review. Following a screening of all three hundred seventy-eight (378) abstracts, sixty-seven (67) papers were kept that appeared to satisfy the inclusion criteria: The population included a city, gardening activities were a part of the intervention, and a beneficial impact on health outcomes was a part of the outcome variable. Finally, using the same inclusion and exclusion criteria as the abstract screening, the complete texts of all sixty-seven (67) retained articles were assessed, leaving thirty-eight (38) articles to be included in the systematic review (Figure 1).

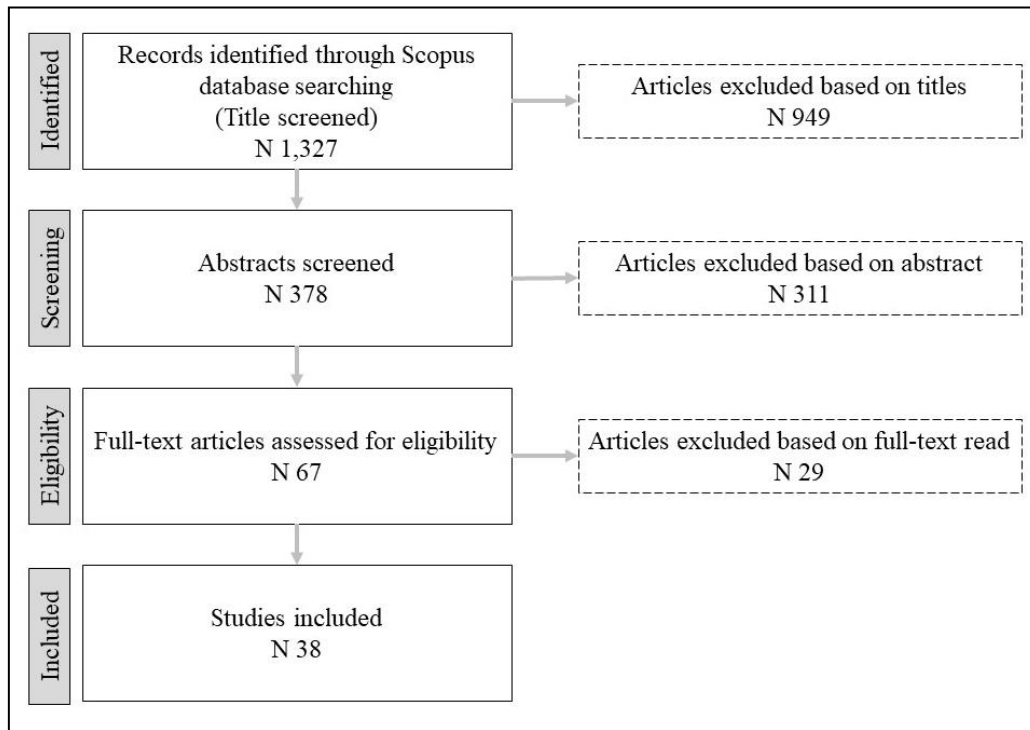


Fig. 1. Selection process of articles

Source: Authors, 2023

Figure 1 shows the systematic review which included screening, eligibility, and included. Thirty-eight (38) papers were finally derived for further analysis.

### Data Extraction

A data extraction table was created by gathering all the pertinent information from the thirty-eight (38) full-text articles. A summary of each study's key features, outcome measurement techniques, and findings was produced using this data. The variety of techniques and primary summary metrics given in the publications precluded a meta-analysis.

### RESULTS

Of the thirty-eight (38) articles that fit the criteria, seven (7) were undertaken in the US, four (4) in China, three (3) in each of Australia, Germany, and South Korea, and the remaining eighteen (18) were conducted in other countries. All the outcomes studied in the thirty-eight (38) articles were assigned to sixteen (16) subjects: satisfaction (seven (7) articles), solidarity (six (6) articles), secure (five (5) articles), healthy (five (5) articles), relationships (five (5) articles), positivity (four (4) articles), resilient (four (4) articles), enjoyment (three (3) articles), responsible (three (3) articles), knowledgeable (two (2) articles), and one (1) article in each of confidence, harmonious, integration, optimism, happiness, and recovery (Table 2).

Table 2. The characteristics of studies in articles about urban farming and horticultural therapy

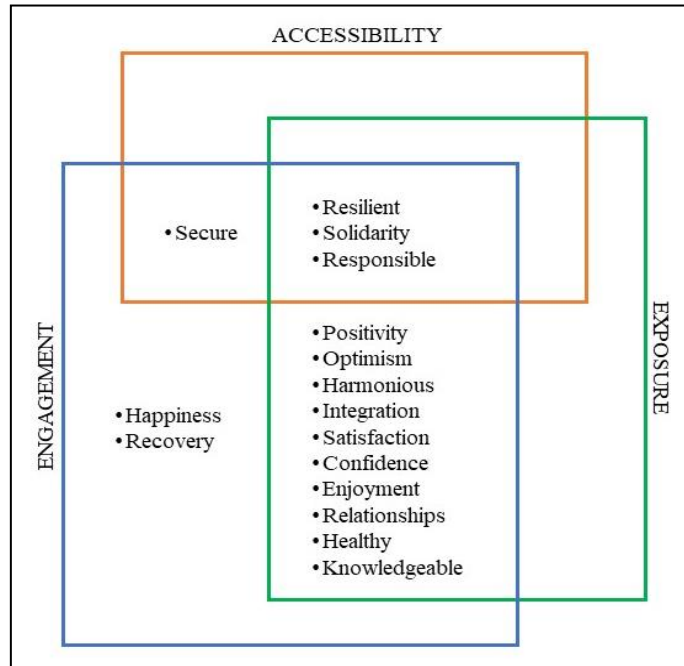
Ref# Country	Element(s) of urban farming	Horticultural therapy interaction(s)	Outcome(s)
Colson-Fearon & Versey (2022) Baltimore, Maryland, United States of America	Healthy food	Accessibility	Secure
Davis & Chen (2022) Auckland, New Zealand	Animal-based	Exposure	Positivity
Asl & Azadgar (2022) Tehran, Iran	Location	Accessibility Engagement	Resilient
Zhou & Li (2022) China	Entrepreneurial	Engagement Exposure	Optimism
Janowska et al. (2022) Poland	Physically active	Accessibility Engagement Exposure	Solidarity Responsible
Truong et al. (2022) Sydney, Australia	Nature-based	Engagement	Responsible Knowledgeable
Zheng & Lyu (2022) China	Location	Accessibility Engagement Exposure	Solidarity
Hoh et al. (2022) Seoul, South Korea	Recreation	Engagement	Satisfaction
Wu et al. (2022) Changsha, China	Ecosystem services	Engagement Exposure	Harmonious
Bailey & Kingsley (2022) Melbourne, Australia	Nature-based Cultural	Engagement Exposure	Resilient Integration
Milbourne (2021) United Kingdom	Publicness	Engagement	Solidarity Responsible
Basu et al. (2021) India	Nature-based	Engagement	Healthy Resilient
Grebitus (2021) Detroit, Michigan, United States of America	Food production	Engagement	Positivity
Feinberg et al. (2021) Germany	Resource systems	Engagement	Satisfaction
Jordi-Sánchez & Díaz-Aguilar (2021) Seville, Spain	Food dimension	Engagement	Enjoyment
Kley & Dovbishchuk (2021) Germany	Nature-based	Exposure	Satisfaction
Smith et al. (2021) Phoenix, United States of America	Location	Engagement	Satisfaction
Hong et al. (2021) South Korea	Companion plants	Engagement	Satisfaction
Ramsden (2021) England	Recreation Nature-based	Engagement Exposure	Confidence
Dubová et al. (2020) Czech Republic	Recreation Nature-based	Engagement	Enjoyment Relationships
Ma et al. (2020) Guangzhou, China	Location	Engagement	Resilient Solidarity

Ref# Country	Element(s) of urban farming	Horticultural therapy interaction(s)	Outcome(s)
Ambrose et al. (2020) Minneapolis-St. Paul, United States of America	Recreation Food dimension	Engagement	Happiness
Hong et al. (2020) South Korea	Physically active	Engagement	Satisfaction Solidarity
Nova et al. (2020) Porto, Portugal	Healthy food	Engagement	Positivity
Dubová & Macháč (2019) Czech Republic	Economically efficient Nature-based	Engagement	Relationships
Tharrey et al. (2019) Montpellier, France	Healthy food Physically active Nature-based	Engagement	Relationships Healthy
de Souza et al. (2019) Salvador, Brazil	Healthy food	Engagement	Secure
Ramalingam et al. (2019) Klang Valley, Malaysia	Recreation Publicness	Engagement	Satisfaction
Tiraieyari et al. (2019) Zanjan, Iran	Economically efficient Cultural	Engagement	Secure
Roberts & Shackleton (2018) Eastern Cape, South Africa	Economically efficient Food dimension	Engagement	Healthy
Haedicke (2018) Paris, France	Food dimension Cultural	Engagement Exposure	Enjoyment Relationships
Rogge (2018) Rhine-Ruhr, Germany	Publicness	Engagement	Relationships
Chou (2017) Taoyuan, Taiwan	Nature-based	Engagement	Positivity Solidarity
Mara et al. (2017) United States of America	Healthy food	Engagement Exposure	Healthy
Yusoff et al. (2017) Malaysia	Food production	Engagement	Secure Healthy
McClintock et al. (2016) Portland, Oregon, United States of America	Food production	Engagement	Secure
Chan et al. (2015) New York, United States of America	Publicness	Engagement	Resilient Recovery
Middle et al. (2014) Perth, Australia	Physically active Nature-based	Engagement Exposure	Knowledgeable

Source: Authors, 2023

Referred to Table 2, concerning the specific elements of urban farming that were being examined, there was a significant amount of variation among the thirty-eight (38) publications. The elements under study included nature-based (ten (10) articles), recreation (five (5) articles), healthy food (five (5) articles), location (four (4) articles), food dimension (four (4) articles), physically active (four (4) articles), publicness (four (4) articles), economically efficient (three (3) articles), cultural (three (3) articles), food production (three (3) articles), and one (1) article in each of companion plants, resource systems, ecosystem services, entrepreneurial, and animal-based.

Studies showed the interaction has produced a wide range of findings. Despite the variation, a more detailed review allowed us to classify each study into one of three broad groups that we refer to as "accessibility," "exposure," and "engagement" (see Figure 2 for results based on urban farming interaction).



\*Legend: — Engagement, — Exposure, — Accessibility

Fig. 2. Findings on the relationship between urban farming and horticultural therapy

Source: Authors, 2023

Figure 2 represents a discovery resulting from the analysis of interactions in horticultural therapy across thirty-eight (38) articles. "Accessibility" was a general concept that describes how easy it was to get to places. Accessibility affects how likely it is that the urban people will come across or interact with urban farming. On the other hand, "exposure" can be characterised as the state of being exposed to something, having contact with it, or being subjected to its effects. Exposure, as opposed to opportunity, implies that the urban people have a direct experience with urban farming. "Engagement" was defined as involvement or participation in an activity. It differs from the other two (2) categories in that it suggests a more direct, intentional, and prolonged interaction with urban farming.

This review showed significant findings on the relationship between urban farming and horticultural therapy outcomes. In order to highlight the distribution of relevant findings, the categories of horticultural therapy encounters were framed in terms of "accessibility," "engagement," and "exposure" to urban farming. Most of the effects on the horticultural therapy with urban farming elements (happiness, recovery, resilient, solidarity, responsible, positivity, optimism, harmonious, integration, satisfaction, confidence, enjoyment, relationships, healthy, and knowledgeable) were associated with more than one (1) horticultural therapy interaction, verifying the subject's therapeutic value as mentioned in earlier studies (Shen et al., 2022; Spano et al., 2020). Furthermore, among all, happiness and recovery effects were reported associated with engagement with horticultural therapy interaction only (Ambrose et al., 2020; Chan et al., 2015).

Additional research was needed to confirm the findings because it has been verified by only two studies compared to others that have been verified by three or more.

## DISCUSSION

Table 3 shows the thirty-five (35) articles that reported a total of sixteen (16) outcomes on the relationship between horticultural therapy interaction and urban farming elements. Engagement with urban farming elements confirmed all sixteen (16) horticultural therapy outcomes (secure, happiness, recovery, resilient, solidarity, responsible, positivity, optimism, harmonious, integration, satisfaction, confidence, enjoyment, relationships, healthy and knowledgeable). Whereas exposure to urban farming elements contributed sixteen (13) outcomes (resilient, solidarity, responsible, positivity, optimism, harmonious, integration, satisfaction, confidence, enjoyment, relationships, healthy and knowledgeable), and accessibility to urban farming elements contributed only four (4) outcomes (secure, resilient, solidarity, and responsible). There were three (3) outcomes (resilient, solidarity, and responsible) that resulted from all three horticultural therapy interaction categories. Happiness and recovery were the outcomes of only one (1) horticultural therapy interaction (engagement), while the rest were the outcomes of two (2) (a secure outcome from accessibility and engagement; a positivity, optimistic, harmonious, integrated, confident, enjoyable, and relationship (focused outcome from exposure).

Table 3. The elements of urban farming and quantities of horticultural therapy outcomes

Element(s) of urban farming	Horticultural therapy outcome(s)	Quantity(s)
Healthy food	Secure, positivity, relationships, healthy,	4
Animal-based	Positivity	1
Location	Resilient, solidarity, satisfaction	3
Entrepreneurial	Optimism	1
Physically active	Solidarity, responsible, satisfaction, relationships, healthy, knowledgeable	6
Nature-based	Responsible, knowledgeable, resilient, integration, healthy, satisfaction, confidence, enjoyment, relationships, positivity, solidarity	11
Recreation	Satisfaction, confidence, enjoyment, happiness	4
Ecosystem services	Harmonious	1
Cultural	Resilient, integration, secure, enjoyment, relationships	5
Publicness	Solidarity, responsible, satisfaction, resilient, recovery	5
Food production	Positivity, secure, healthy	3
Resource systems	Satisfaction	1
Food dimension	Enjoyment, happiness, healthy, relationships	4
Companion plants	Satisfaction	1
Economically efficient	Relationships, secure, healthy	3

Source: Authors, 2023

Referred to Table 3, from the viewpoint of urban farming elements, a potential alternative source for viable and significant outcomes would be a horticultural therapy interaction subject to nature-based elements. Studies determined that nature-based elements can provide eleven (11) horticultural therapy outcomes, which are the most significant compared to other elements (Table 3) (Bailey & Kingsley, 2022; Basu et al., 2021; Chou, 2017; Dubová et al., 2020; Kley & Dovbishchuk, 2021; Middle et al., 2014; Ramsden, 2021; Tharrey et al., 2019; Truong et al., 2022). Thus, the findings presented above are consistent



with understanding how urban farming improves mental and physical health (reduce urban stress) by expanding agricultural products and activities within cities.

### **Strength of the Review**

A major strength of this analysis was the fact that this study was the most recent systematic review providing comprehensive insights into the relationship between urban farming and horticultural therapy to alleviate urban stress. The Scopus database, widely acknowledged as the largest and most reputable repository of academic literature, was meticulously utilised for conducting an extensive search. This allowed us to gather a robust collection of relevant articles and studies, ensuring the reliability and comprehensiveness of our findings.

### **CONCLUSION**

The main purpose of this review was to gather and assess the available data to describe the relationship between urban farming and horticulture therapy to reduce urban stress. The results demonstrated that the effects of horticultural therapy with urban farming elements were associated with more than one (1) horticultural therapy interaction. The findings also showed a potential source of viable and significant outcomes, which was a horticultural therapy interaction with nature-based elements. Even though there has been a lot of interest in previous studies on horticultural therapy effects in urban farming, there is still a gap in the literature. Therefore, further in-depth investigations are required, especially on the happiness and recovery effects of horticultural therapy interactions. This review identified the importance of promoting horticultural therapy interactions with urban farming for urban people's health and well-being (reduce urban stress).

This review formulated the preliminary conceptual framework of the relationship between urban farming and horticultural therapy to reduce urban stress. It showed a constructive interaction between urban farming and horticultural therapy as a potential construct to reduce urban stress (improves mental and physical health). This conceptual framework will be used as the basis for further research undertaking. This review may also support the incorporation of these findings into a range of policy frameworks, including municipal planning, agriculture, and public health policy. Policymakers might use the findings to strengthen the current regulations that recognise the value of urban farming. Municipal boards may prioritise urban spaces as more beneficial to urban people based on these findings.

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### **AUTHORS' CONTRIBUTIONS**

Nurul Raihana Ramzi and Che Bon Ahmad have conceived and designed the paper. Helmi Hamzah has analysed the data and wrote the paper. Noriah Othman has analysed the data and revised the paper.

### **REFERENCES**

- Ambrose, G., Das, K., Fan, Y., & Ramaswami, A. (2020). Is gardening associated with greater happiness of urban residents? A multi-activity, dynamic assessment in the Twin-Cities region, USA. *Landscape and Urban Planning*, 198(May), 103776. <https://doi.org/10.1016/j.landurbplan.2020.103776>

- Asl, S. R., & Azadgar, A. (2022). The spatial distribution of urban community gardens and their associated socio-economic status in Tehran, Iran. *Frontiers in Sustainable Food Systems*, 6(August), 949075. <https://doi.org/10.3389/fsufs.2022.949075>
- Bailey, A., & Kingsley, J. (2022). Valuing the benefits and enhancing access: Community and allotment gardens in urban Melbourne, Australia. *Land*, 11(1), 62. <https://doi.org/10.3390/land11010062>
- Basu, M., Dasgupta, R., Kumar, P., & Dhyani, S. (2021). Home gardens moderate the relationship between Covid-19-induced stay-at-home orders and mental distress: A case study with urban residents of India. *Environmental Research Communications*, 3(10), 105002. <https://doi.org/10.1088/2515-7620/ac2ab2>
- Chan, J., Dubois, B., & Tidball, K. G. (2015). Refuges of local resilience: Community gardens in post-sandy New York City. *Urban Forestry & Urban Greening*, 14(3), 625–635. <https://doi.org/10.1016/j.ufug.2015.06.005>
- Chou, R. (2017). Fostering multi-functional urban agriculture: Experiences from the champions in a revitalized farm pond community in Taoyuan, Taiwan. *Sustainability*, (Switzerland), 9(11), 2097. <https://doi.org/10.3390/su9112097>
- Colson-Fearon, B., & Versey, H. S. (2022). Urban agriculture as a means to food sovereignty? A case study of Baltimore City residents. *International Journal of Environmental Research and Public Health*, 19(19). <https://doi.org/10.3390/ijerph191912752>
- Davis, S., & Chen, G. (2022). Community perception of animal-based urban agriculture within city greenspaces of the global north: A survey of residents near Cornwall Park, New Zealand. *Sustainability*, 14. <https://doi.org/10.3390/su141912419>
- de Souza, J. S., de Cassia Vieira Cardoso, R., Paraguassu, L. A. A., & dos Santos, S. F. (2019). The experience of community urban gardens: Social organization and food security. *Revista de Nutricao*, 32, e180291. <https://doi.org/10.1590/1678-9865201932E180291>
- Dubová, L., & Macháč, J. (2019). Improving the quality of life in cities using community gardens: From benefits for members to benefits for all local residents. *GeoScope*, 13(1), 68–78. <https://doi.org/10.2478/geosc-2019-0005>
- Dubová, L., Macháč, J., & Vacková, A. (2020). Food provision, social interaction or relaxation: Which drivers are vital to being a member of community gardens in czech cities? *Sustainability* (Switzerland), 12(22), 1–18. <https://doi.org/10.3390/su12229588>
- Feinberg, A., Rogge, N., Hooijschuur, E., Ghorbani, A., & Herder, P. (2021). Sustaining collective action in urban community gardens. *Journal of Artificial Societies and Social Simulation*, 24(3). <https://doi.org/10.18564/jasss.4506>
- Grebitus, C. (2021). Small-scale urban agriculture: Drivers of growing produce at home and in community gardens in Detroit. *PLoS ONE*, 16(9), e0256913. <https://doi.org/10.1371/journal.pone.0256913>
- Haedicke, S. (2018). Aroma-Home's edible stories: An urban community garden performs. *Renewable Agriculture and Food Systems*, 33(6), 542–547. <https://doi.org/10.1017/S174217051700028X>
- Hernandez, D. C., Daundasekara, S. S., Zvolensky, M. J., Reitzel, L. R., Maria, D. S., Alexander, A. C., Kendzor, D. E. & Businelle, M. S. (2020). Urban Stress Indirectly Influences Psychological Symptoms through Its Association with Distress Tolerance and Perceived Social Support among Adults Experiencing Homelessness, *International Journal of Environmental Research and Public Health*, 17(15): 5301. Published online 2020 Jul 23. <https://doi.org/10.3390/ijerph17155301>

- Hoh, Y. K., Chae, J., & Lee, H. (2022). An analysis of differences in perceived social value of community gardens as urban green spaces between participating and non-participating residents. *Journal of People, Plants, and Environment*, 25(1), 77–92. <https://doi.org/10.11628/ksppe.2022.25.1.77>
- Hong, I. K., Yun, H. K., Jung, Y. Bin, & Lee, S. M. (2020). Influence of community vegetable gardens on the settlement in residential district and community spirit of local residents from perspective of urban regeneration. *Journal of People, Plants, and Environment*, 23(2), 139–148. <https://doi.org/10.11628/ksppe.2020.23.2.139>
- Hong, I. K., Yun, H. K., Jung, Y. Bin, & Lee, S. M. (2021). A Survey on the perception of companion plants for eco-friendly urban agriculture among urban residents. *Journal of People, Plants, and Environment*, 24(1), 17–27. <https://doi.org/10.11628/ksppe.2021.24.1.17>
- Janowska, B., Łój, J., & Andrzejak, R. (2022). Role of community gardens in development of housing estates in polish cities. *Agronomy*, 12(6), 1447. <https://doi.org/10.3390/agronomy12061447>
- Jordi-Sánchez, M., & Díaz-Aguilar, A. L. (2021). Constructing organic food through urban agriculture, community gardens in Seville. *Sustainability* (Switzerland), 13(8), 4091. <https://doi.org/10.3390/su13084091>
- Kley, S., & Dovbishchuk, T. (2021). How a lack of green in the residential environment lowers the life satisfaction of city dwellers and increases their willingness to relocate. *Sustainability* (Switzerland), 13(7). <https://doi.org/10.3390/su13073984>
- Lu, N., Song, C., Kuronuma, T., Ikei, H., Miyazaki, Y., & Takagaki, M. (2020). The possibility of sustainable urban horticulture based on nature therapy. *Sustainability* (Switzerland), 12(12), 1–11. <https://doi.org/10.3390/su12125058>
- Ma, Y., Liang, H., Li, H., & Liao, Y. (2020). Towards the healthy community: Residents' perceptions of integrating urban agriculture into the old community micro-transformation in Guangzhou, China. *Sustainability* (Switzerland), 12(20), 1–21. <https://doi.org/10.3390/su12208324>
- Mara, B. M., Elizabeth, Z. V., Robert, G., Chenault, M. C., & Tooze, J. A. (2017). Process evaluation of a community garden at an urban outpatient clinic. *Journal of Community Health*, 42(4), 639–648. <https://doi.org/10.1007/s10900-016-0299-y>
- McClintock, N., Mahmoudi, D., Simpson, M., & Santos, J. P. (2016). Socio-spatial differentiation in the Sustainable City: A mixed-methods assessment of residential gardens in metropolitan Portland, Oregon, USA. *Landscape and Urban Planning*, 148, 1–16. <https://doi.org/10.1016/j.landurbplan.2015.12.008>
- Middle, I., Dzidic, P., Buckley, A., Bennett, D., Tye, M., & Jones, R. (2014). Integrating community gardens into public parks: An innovative approach for providing ecosystem services in urban areas. *Urban Forestry & Urban Greening*, 13(4), 638–645. <https://doi.org/10.1016/j.ufug.2014.09.001>
- Milbourne, P. (2021). Growing public spaces in the city: Community gardening and the making of new urban environments of publicness. *Urban Studies*, 58(14), 2901–2919. <https://doi.org/10.1177/0042098020972281>
- Moher, D., Liberati, A., Tetzlaff, J., & Altman, D. G. (2015). Preferred reporting items for systematic reviews and meta-analyses. *PLoS Med*, 12(5), 552–554. <https://doi.org/10.1188/15.ONF.552-554>
- Nova, P., Pinto, E., Chaves, B., & Silva, M. (2020). Urban organic community gardening to promote environmental sustainability practices and increase fruit, vegetables and organic food consumption. *Gaceta Sanitaria*, 34(1), 4–9. <https://doi.org/10.1016/j.gaceta.2018.09.001>

- Ramalingam, L., Sharifuddin, J., Mohamed, Z. A., & Ali, F. (2019). Motivation and satisfaction of volunteers for community-based urban agriculture programmes. *International Social Science Journal*, 69(231), 49–62. <https://doi.org/10.1111/issj.12196>
- Ramsden, S. (2021). “It’s one of the few things that ... pulls us together when the outside world is really tough.” Exploring the outcomes and challenges of a charity-led community garden in a disadvantaged English city. *Local Environment*, 26(2), 283–296. <https://doi.org/10.1080/13549839.2021.1886067>
- Roberts, S., & Shackleton, C. (2018). Temporal dynamics and motivations for urban community food gardens in medium-sized towns of the Eastern Cape, South Africa. *Land*, 7(4), 146. <https://doi.org/10.3390/land7040146>
- Rogge, N. (2018). Categorizing urban commons: Community gardens in the Rhine-Ruhr agglomeration, Germany. *International Journal of the Commons*, 12(2), 251–274. <https://doi.org/10.18352/ijc.854>
- Salim, S. A., Salim, S. H. and Razali, F. M. (2022). Structured Literature Reviews (SLR) of Urban Farming for Improving Economic Status of Urban Residents. *International Journal of Sustainable Construction Engineering and Technology*, 12(5), 271–278. <https://publisher.uthm.edu.my/ojs/index.php/IJSCET/article/view/10584>
- Shen, J. L., Hung, B. L., & Fang, S. H. (2022). Horticulture therapy affected the mental status, sleep quality, and salivary markers of mucosal immunity in an elderly population. *Scientific Reports*, 12(1), 1–7. <https://doi.org/10.1038/s41598-022-14534-x>
- Smith, J. P., Meerow, S., & Turner, B. L. (2021). Planning urban community gardens strategically through multicriteria decision analysis. *Urban Forestry and Urban Greening*, 58(March), 126897. <https://doi.org/10.1016/j.ufug.2020.126897>
- Spano, G., D’este, M., Giannico, V., Carrus, G., Elia, M., Laforteza, R., Panno, A., & Sanesi, G. (2020). Are community gardening and horticultural interventions beneficial for psychosocial well-being? A meta-analysis. *International Journal of Environmental Research and Public Health*, 17(10). <https://doi.org/10.3390/ijerph17103584>
- Tharrey, M., Perignon, M., Scheromm, P., Mejean, C., & Darmon, N. (2019). Does participating in community gardens promote sustainable lifestyles in urban settings? Design and protocol of the JArDinS study. *BMC Public Health*, 19(1), 1–10. <https://doi.org/10.1186/s12889-019-6815-0>
- Tiraieyari, N., Karami, R., Ricard, R. M., & Badsar, M. (2019). Influences on the implementation of community urban agriculture: Insights from agricultural professionals. *Sustainability*, 11(5), 1422. <https://doi.org/10.3390/su11051422>
- Truong, S., Gray, T., & Ward, K. (2022). Enhancing urban nature and place-making in social housing through community gardening. *Urban Forestry & Urban Greening*, 72(April), 127586. <https://doi.org/10.1016/j.ufug.2022.127586>
- Van den Berg, A. E., & Custers, M. H. G. (2011). Gardening promotes neuroendocrine and affective restoration from stress. *Journal of Health Psychology*, 16(1), 3–11. <https://doi.org/10.1177/1359105310365577>
- Wu, C., Li, X., Tian, Y., Deng, Z., Yu, X., Wu, S., Shu, D., Peng, Y., Sheng, F., & Gan, D. (2022). Chinese residents’ perceived ecosystem services and disservices impacts behavioral intention for urban community garden: An extension of the theory of planned behavior. *Agronomy*, 12(1), 193. <https://doi.org/10.3390/agronomy12010193>
- Yusoff, N. H., Hussain, M. R. M., & Tukiman, I. (2017). Roles of community towards urban farming <https://doi.org/10.24191/bej.v21i1.401>

activities. *Planning Malaysia*, 15(1), 271–278. <https://doi.org/10.21837/pmjournal.v15.i6.243>

Zheng, J., & Lyu, Y. (2022). An experience inspired by the evolution of community gardens in New York City. *Journal of Resources and Ecology*, 13(2), 299–311. <https://doi.org/10.5814/j.issn.1674-764x.2022.02.012>

Zhou, D., & Li, L. (2022). Farming experience, personal characteristics, and entrepreneurial decisions of urban residents: Empirical evidence from China. *Frontiers in Psychology*, 13(July), 859936. <https://doi.org/10.3389/fpsyg.2022.859936>



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