

Health Effects of Participation in Creating Urban Green Spaces—A Systematic Review

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Abstract: The participation of citizens in creating urban green spaces is a promising approach to promoting health and wellbeing while facilitating the development of equitable cities more prepared for the challenges of climate change. This systematic review provides an overview of the current state of knowledge by synthesizing and summarizing scholarly articles reporting studies on the health effects of participation in green space creation. A review protocol was preregistered on PROSPERO (registration number CRD42023454363). Following PRISMA guidelines, we searched six databases for studies published since 2003. After screening 2676 records, we found 133 studies matching our inclusion criteria and summarized the findings on health effects in qualitative and quantitative research, differentiating between study types, population types, and intervention types. In addition, we explored secondary outcomes mentioned in the included articles. The majority of studies reported positive impacts of participatory green space creation on general, mental, and physical health. Moreover, many studies reported other personal and social benefits. The results of this review indicate that the participatory creation of urban green spaces represents a promising approach to promoting health and wellbeing. Nevertheless, further high-quality, quantitative research is required to gain a more comprehensive understanding of the relationship between participatory green space activities and health, particularly with regard to the benefits of specific intervention types and subpopulations.



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1. Introduction

The proportion of the world's population living in urban areas is rising steadily. In 2020, around 56% of the global population lived in cities—according to United Nations (UN) estimates, this number will rise to more than two-thirds by 2050 [1]. Due to the steady increase in population, there is a permanently high demand for urban housing, along with rising land values, leading to more and more densely built cities. Often, this results in green and open spaces disappearing or being degraded [2]. At the same time, cities face growing challenges such as adapting to climate change and dealing with social inequality, which pose various health risks to urban populations. Due to climate change, various regions worldwide are already experiencing higher temperatures and longer periods of extreme heat. There will also be an increase in the frequency of extreme weather events such as storms, heavy rainfall, or droughts. In addition to this, air pollution is a major problem in urban areas. All of these factors have an impact on human quality of life and wellbeing, but also on morbidity and mortality [3–5]. At the same time, social inequality in relation to health is one of the best documented findings from public health research. People with a lower socioeconomic status have a shorter life expectancy and also higher disease prevalence than people with a higher socioeconomic status [6]. This trend, as well as social inequalities between different population groups, has continued to increase since the 1990s [7].

Creating attractive public green spaces has been suggested as a way for cities to tackle both the negative health effects of climate change and social inequality. According to the definition of the World Health Organization (WHO), urban green spaces include places with semi-natural areas and environments, such as parks, forests, gardens, playgrounds, and street greenery, as well as rivers, lakes, and coastal areas [8]. Many studies show that high-quality urban green spaces have positive effects on the mental, physical, and social health of urban residents [9–14]. Both exposure to and experiences of green spaces affect health and wellbeing in different ways, as has been elucidated in theoretical frameworks on the pathways between green space and health [15,16]. They can reduce harm by mitigating health risks associated with environmental stressors such as heat or air pollution. They can also build and restore capacities, as spending time in green spaces has a positive effect on stress and attention span and promotes physical activity as well as social cohesion [15–17]. In addition, studies have shown that especially vulnerable or socially disadvantaged groups, such as the elderly, unemployed, or children, benefit greatly from good access to green spaces in terms of their health. Therefore, green spaces hold the potential to contribute to reducing health inequalities. However, vulnerable groups in particular often do not have good access to green spaces close to their homes and are less likely to use them [2,18].

One way to promote the quality and frequency of use of urban green spaces, and thus improve their health effects in diverse populations, could be the use of participatory approaches such as co-creation or co-design [2,19,20]. Participation is defined as having a say in “decisions and thus being able to influence the outcome. It is based on clear agreements that regulate how a decision is made and how far the right to participate extends” [21] (p. 230). On the one hand, studies show that the participation of residents can increase the relevance, fairness, and acceptance of sustainable solutions for cities and can also reduce their maintenance costs [22]. On the other hand, people can also benefit individually from participatory processes. For example, there is preliminary evidence that these have a positive impact on social cohesion, social identification with the neighborhood, and collective efficacy [2,19,23]. For children and young people, participation in natural open spaces strengthens self-efficacy, closeness to nature, autonomy, the ability to debate and compromise, as well as health resources such as resilience by creating opportunities for experience and use [10,24,25]. In this review, by participation in creating green spaces, we refer to activities adhering to the following criteria: active involvement in decisions on planning, designing, and creating a given green space or engagement in maintaining green spaces involving physical changes to the environment in which people participate voluntarily. This included activities such as environmental volunteering or community gardening. Activities that do not involve physical changes to the environment (e.g., exercising in green spaces), along with green space creation in the context of paid employment as well as predominantly private activities (e.g., home or allotment gardening), were excluded from this review, because we wanted to focus on the effects of active public participation in green spaces on health, in contrast to mere exposure to them.

Many previous reviews have assessed the effects of an exposure to green spaces on health [11,14,26]. However, a distinction needs to be made between exposure to and active participation in green spaces, also referred to as experiencing green spaces [16]. These experiential aspects of participation in green spaces may be very relevant to their health effects, yet they have been studied less often, as a recent scoping review on the mental health impacts of various green space types and characteristics concludes [27]. To the best of our knowledge, there are no systematic reviews of the effects of participation in the creation of urban green spaces on health.

Objective

With this systematic review, we address this research gap and systematically examine and summarize the existing empirical evidence to answer the following research question: what effects does the participatory creation of urban green spaces have on health-related

outcomes? In addition, we explore which types of participatory interventions in and around urban green spaces exist in various research disciplines, as well as the effects of these interventions on other, secondary outcome variables (that might moderate or mediate relations between green space participation and health).

2. Methods

We conducted this systematic review using the “Preferred Reporting Items for Systematic Reviews and Meta-Analyses” (PRISMA) recommendations [28]. Furthermore, a protocol for the present systematic review was developed and it was registered on PROSPERO prior to starting the review process (registration number CRD42023454363). It can be accessed at https://www.crd.york.ac.uk/PROSPEROFILES/454363_PROTOCOL_20231110.pdf (accessed on 8 June 2024).

2.1. Data Sources and Search Strategy

The systematic search for this review was conducted in the databases APA PsycInfo, CINAHL Complete, PSYINDEX, Psychology and Behavioral Sciences, PubMed, and WebOf-Science. The field of research in which the review was conducted is quite broad and lacks well-defined concepts and terminology due to its multidisciplinary nature and recency. Therefore, a rather broad search term combination was used to increase the sensitivity of our search strategy and minimize the risk of overlooking articles which use slightly different wording. The search string was developed based on three preliminary searches. We searched abstracts and titles with the following search query, consisting of keywords on participation, green spaces, specific participatory green space activities, and health outcomes:

((("community garden*" OR "environmental volunt*" OR "conservation group*") AND ("quality of life" OR "wellbeing" OR wellbeing OR satisfaction OR "morbidity" OR "mortality" OR illness* OR disease* OR disorder* OR "health" OR stress)) OR ((engage* OR involve* OR collabora* OR participat* OR "co-creat*" OR "co-produc*" OR "co-design*" OR "citizen science" OR volunt*) AND ("green area*" OR "green space*" OR "urban regeneration" OR "natural environment" OR "streetscape green*" OR "green infrastructure" OR "urban park*" OR "urban forest*" OR "urban landscap*" OR "urban biodiversity") AND ("quality of life" OR "wellbeing" OR wellbeing OR satisfaction OR "morbidity" OR "mortality" OR illness* OR disease* OR disorder* OR "health" OR stress))).

2.2. Eligibility Criteria

For this review, we used the PICOS scheme (P—participants, I—interventions, C—comparators, O—outcomes, S—study design) with some additions and developed the following eligibility criteria for the selection process. Only articles in the English language, published between 2003 and 2023 (until the 9 October 2023; date of the systematic database search), were considered for inclusion. Regarding participants, all kinds of different populations were considered. We did not have specific inclusion criteria for comparators. We included qualitative, quantitative, and mixed-method studies reporting empirical, primary data. Studies eligible for inclusion had to meet the requirements of our definition of active public participation involving physical changes to a green space and a health-related outcome measure in the title or abstract. We describe in more detail which studies were included based on these criteria in the sections below.

2.2.1. Green Spaces

We included different types of green spaces where people are actively participating in their planning, design, construction, maintenance or management. These include (but are not limited to) public green spaces, parks, streetscape green elements, urban green areas, residential green spaces, urban forests, national reserves, rivers, lakes, and coastal environments, as well as (public) community gardens and urban farms.

2.2.2. Types of Participatory Interventions

In this review, we included different kinds of studies focusing on people engaging in active participation in urban green spaces as the intervention or independent variable. We defined active participation (also referred to as co-creation) in urban green spaces as actions related to planning, designing, building, maintaining, or managing green spaces, in which people participate voluntarily and not as part of their paid employment. These can be classified into three different types of participatory green space activities [29], which we combined with three distinct types of interventions arising from our search.

Building and planning green space [30,31] includes planning and designing processes as well as the actual construction, restoration, and maintenance of green spaces such as parks, residential green space, derelict land, and street vegetation, in which participants engage voluntarily.

Community gardening [32] describes gardening activities, such as sowing, planting, maintaining, and harvesting plants with a group of people including social interactions to organize the common garden. We excluded studies concerned with allotments and private gardens.

Environmental volunteering [33,34] refers to unpaid activities during leisure time in green space, including stewardship and citizen science activities in green space (e.g., planting, pruning, litter picking, debris removal, monitoring of plant or animal species, habitat improvement in urban forests, natural reserves, parks, etc.). Participants specifically aim to provide benefits to the natural environment.

In addition to the empirically given categories, we included the following types of interventions:

Community gardening “plus” is defined as community gardening with additional activities, such as education (e.g., lessons on cooking and nutrition), social events (neighborhood events, communal cooking events, joint field trips), selling or donating produce, community organized cafés and libraries, or sports classes.

Horticultural therapy [35,36] refers to green space activities as part of a therapeutic treatment for people with a diagnosed illness in a clinical setting, consisting mainly of gardening and plant-related activities (potting, planting, propagating, and harvesting plants) undertaken in green spaces such as urban farms, community gardens, rehabilitation gardens, or parks.

Engagement with the natural environment [37,38] is defined as interaction with the natural environment. This includes activities such as playing or creating with natural materials, actively focusing on sensing nature, picking flowers, collecting leaves, or assisting in gardening activities (but not in a community garden setting or capacity).

2.2.3. Health Outcomes

Studies reporting any health outcomes following participation in green space creation were included in this review.

2.3. Study Selection and Data Extraction

The search results from the databases were exported, uploaded, and pooled, and duplicates were removed using a reference manager. The study selection process was then carried out in two stages. First, two reviewers independently screened the titles and abstracts of the identified results for studies matching the eligibility criteria based on the PICOS scheme. The results of the title and abstract screening were then compared and disagreements between the reviewers were discussed until they were resolved. We then obtained the full texts, which were again screened independently by two reviewers. Where there was disagreement, the reviewers discussed the study until agreement was reached on inclusion or exclusion. The references of the eligible full texts were searched for additional studies missed by the database search according to the selection criteria. The additional results were included in the final selection of publications for the systematic review.

From the resulting number of studies deemed eligible for the systematic review, information about the author, title, year, study type, context and population, intervention or predictors, measures, specific instruments, health outcomes, secondary outcomes, effect sizes, and criteria for study quality assessment were extracted and entered into a spreadsheet. This spreadsheet was the basis of the overview tables presented in the Results section and is available in the Supplementary Materials.

2.4. Synthesis and Quality Appraisal

As the focus of our review was to summarize findings on participation in green space and health from different fields using all kinds of methodological approaches, we used narrative synthesis to review and summarize the findings of this review. We conducted a qualitative summary categorized into outcome measures, secondary outcomes, different populations, and methodological approaches. We categorized the effects of participation in green spaces on health outcomes in general as well as according to study type (qualitative and quantitative study results), different types of interventions (building/planning green spaces, community gardening (plus), engagement with natural environment, environmental volunteering, and horticultural therapy), and different populations (general, vulnerable, and clinical populations). In addition to this, we summarized secondary outcome measures that showed significant (in the case of quantitative studies) effects after participation in urban green space creation or maintenance. Regarding secondary outcome measures, non-significant results were not reported in this review.

To assess the differences in the quality of studies included and observe possible bias in the results, we conducted an appraisal of study quality. We gave studies a rating of either I—high (studies of high methodical quality in which causal inference is possible); II—acceptable (studies with solid methodical quality without the possibility of causal inference); or III—low (studies of poor methodical quality). We assessed sample size, study design, handling of bias and confounding variables, and the documentation of the research question, methods, and results. The quality assessment was carried out by two researchers. Whenever disagreements arose, these were discussed and resolved by discussion with a third researcher. However, it is important to note that no studies were excluded from this review on the basis of quality criteria, as the aim of this research was primarily to identify and summarize the effects of different types of interventions and study elements regarding participation in green spaces on health, regardless of methodological quality. If studies with a high quality yielded systematically different results, this was highlighted. For further details, see the Supplementary Materials.

3. Results

3.1. Study Selection

The total number of search results from the systematic database searches (completed in October 2023) was 4093. After duplicate removal, 2676 studies remained and were screened by two researchers independently. A total of 323 studies were sought for retrieval and the full texts were sifted through. In addition to this, we searched through the references of included studies for relevant studies missed by the systematic search and identified 24 additional studies matching the eligibility criteria. In total, we found 133 studies that met the inclusion criteria of the review, and these were included in the synthesis. Figure 1 is a PRISMA flow diagram [39] of the selection process.

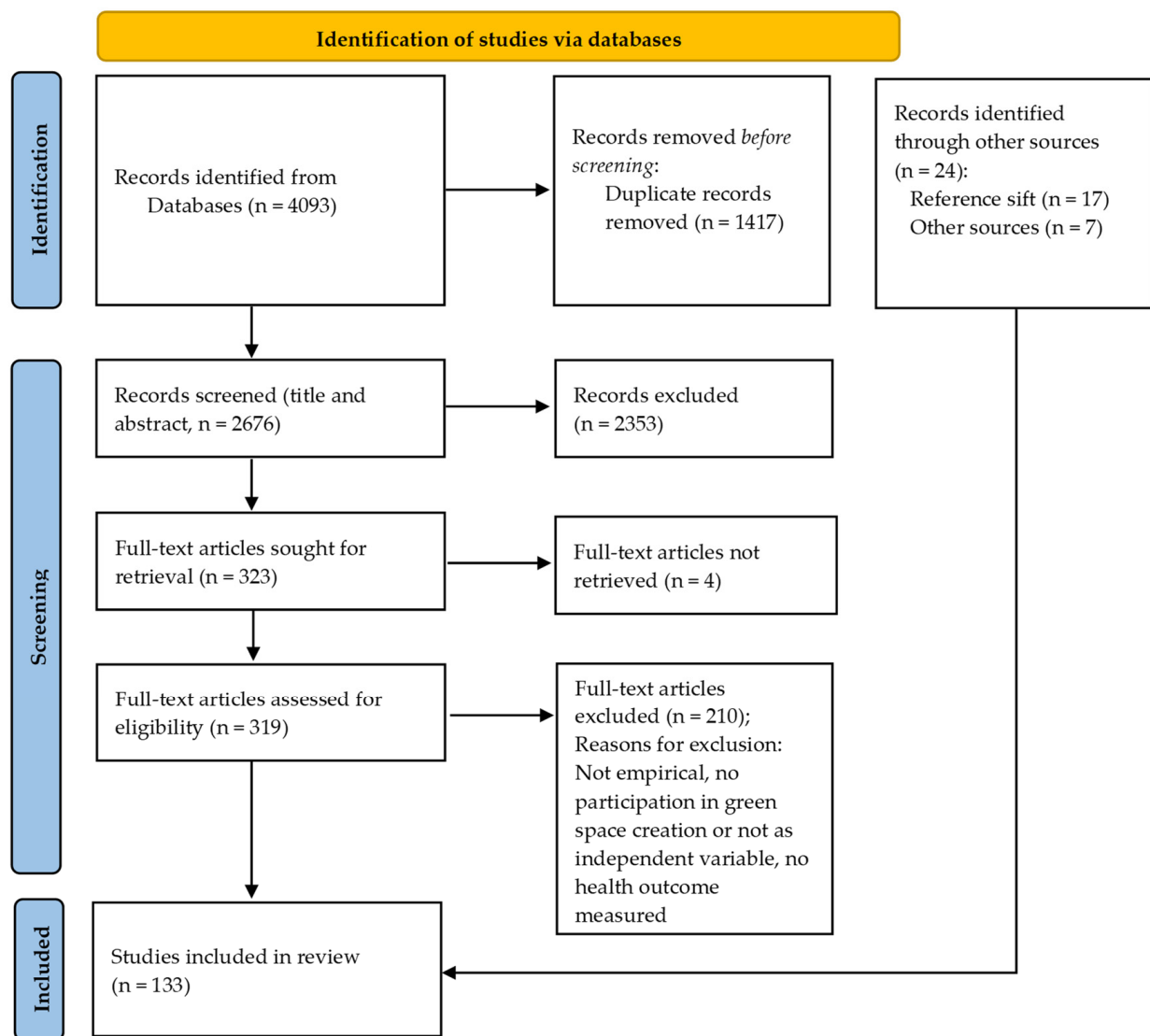


Figure 1. PRISMA flow diagram of the search process for this systematic review.

3.2. Study Characteristics

In our systematic review, we included and analyzed 133 studies. These studies included 55 qualitative, 43 quantitative, and 35 mixed-method studies, among which 47 were conducted in North America, 44 in Europe, 20 in Asia, 18 in Oceania, and 4 in Africa. Regarding green space interventions that were studied, 79 studies focused on community gardening (including community gardening plus), 24 on environmental volunteering, 14 on horticultural therapy, 10 on green space building/planning, and 6 on engagement with the natural environment. The studies included in the review involved different populations: 66 included the general population, 49 involved vulnerable groups (e.g., children, elderly, people with low socioeconomic status, immigrants and refugees, indigenous people, people with disabilities, and other marginalized groups), and 18 targeted participants from clinical settings (people with a diagnosed illness that are treated in a clinical or therapeutic context). In our systematic review, we evaluated the quality of studies based on the appraisal criteria mentioned above. Out of the 133 studies examined, 11 were of high quality (8%), while the majority of 64 studies met acceptable quality standards (48%), and 58 studies were deemed to have low methodological quality (44%). Studies with a high quality did not yield systematically different results.

3.3. Synthesis

To summarize the findings of both qualitative and quantitative studies in our review, we used a narrative synthesis. For mixed-method studies, we extracted whether the outcomes reported were assessed with qualitative or quantitative methods for synthesis. We formed superordinate categories of the different outcomes assessed in the included studies. A more detailed overview of the specific outcomes summarized in these categories can be found in the Supplementary Materials of this article. In the first section, we present the results for the main research question: ‘What effects does the participatory creation of urban green spaces have on health-related outcomes?’. In the subsequent sections, we present results from further analyses regarding the differences in health effects in various study populations, green space interventions, and methodological approaches, as well as the effects on relevant secondary outcomes.

3.3.1. Overview: Effects of Participation in Green Space Creation on Health-Related Outcomes

Most studies find positive effects of participation in the creation of urban green spaces on general, mental, and physical health (see Table 1). Out of the 133 studies included in this review, only five report negative effects on health. The majority of studies find positive effects of participatory green space activities for self-rated health status (12/16, indicating that 12 out of 16 studies that assessed self-rated health status found positive effects), general wellbeing (23/27), mental wellbeing (20/22), social wellbeing (11/12) and physical wellbeing (5/7). Only one study [40] examines spiritual and functional wellbeing, showing positive effects on these dimensions of wellbeing. All four studies reporting on healthcare utilization show a reduction in healthcare consumption [41–44]. Mixed results are found for life satisfaction and quality of life, with ten studies finding positive impacts, but as many studies finding no significant impacts, and one study [45] recording a decrease in health satisfaction (for older people specifically).

Regarding mental health outcomes, our review results show an improvement in general mental health (23/23) and a positive effect on mood and positive emotions (such as joy, happiness, etc.; 29/32). The majority of studies find participatory green space activities to be stress-relieving, relaxing, or restorative for participants (61/67), while five studies report no effects on stress, and one study finds that high levels of participation (i.e., high levels of responsibility regarding self-organization) can also lead to increased stress for participants [46]. Out of the 24 studies that examine depression or depressive symptoms, 15 report a relief of depressive symptoms, while the remaining 9 studies report no significant effects. Similarly, 14 out of 20 studies find positive effects on anxiety. However, four studies report no effects and two studies report an increase in anxiety and anxious feelings after a participatory green space intervention [47] or when compared to a non-environmental-volunteering control group [41].

Only two studies report on attention deficit and hyperactivity, with one qualitative study finding positive impacts [48] and one quantitative study finding no impacts [49]. Out of the five studies reporting on mental strain, two find no effects on psychological distress [50,51], while another three record positive effects on psychological distress/pressure and burnout [43,52,53].

Regarding different physical health outcomes, our review results show that all included studies reporting directly on physical health find positive effects of participatory green space activities (17/17). Similarly, a large majority of studies find positive effects on the physical activity of participants (45/51). Five out of eight studies report positive effects on cardiovascular-related outcomes, such as a reduction in heart problems [43], cardiovascular benefits [42], or a reduction in blood pressure [54–56]. Results are mixed for metabolic-related outcomes, with seven studies finding no effects on indicators such as weight, BMI, or body fat percentage, while eight studies do find reductions in BMI, weight gain, obesity risk, and symptoms of diabetes.

Singular studies find a positive effect on the respiratory [42] or immune system [40], as well as on cognitive functioning [47] and resistance to substance use [57]. Two out of three studies [34,35] report positive impacts on sleep. We found mixed evidence regarding the impact of green spaces on fatigue and pain. One study reports a positive effect on fatigue [40], while another reports a negative effect [58]. Four studies report mixed results on pain symptoms. Specifically, two studies indicate a decrease in pain symptoms [43,59], one study shows no effect [60], and one study reports an increase in pain [58]. Regarding somatic problems, one study finds no effect of green space participation [51].

Table 1. Effects of participatory green space interventions on health outcomes by study type.

Health Outcome Category	Study Type	+	0	–	References
General health outcomes					
Self-rated health	All	12	4	0	[41,42,49,52,58,60–69] [54]
	Quantitative	11	4		
	Qualitative	1	0	0	
Life satisfaction and quality of life	All	10	10	1	[40,45,47,50,52,57,60,66,70–80] [81]
	Quantitative	9	10	1	
	Qualitative	1			
(General) wellbeing	All	23	4	0	[36,47,52,68,79,82–89] [30,35,43,54,88,90–99]
	Quantitative	9	4		
	Qualitative	15			
Domain specific wellbeing					
Mental wellbeing	All	20	2	0	[38,40,63,64,76,77] [34,42,83,100–112]
	Quantitative	4	2		
	Qualitative	16			
Functional wellbeing	Quantitative	1			[40]
Social wellbeing	All	11	1	0	[40,60,76] [34,83,99,101,104,112–115]
	Quantitative	2	1		
	Qualitative	9			
Spiritual wellbeing	Quantitative	1			[40]
Physical wellbeing	All	5	2	0	[40,77] [100,102–104,106]
	Quantitative		2		
	Qualitative	5			
Healthcare utilization	All	0	0	4	[41–44]
	Quantitative			4	
Mental Health Outcomes					
General mental health Outcomes	All	23	0	0	[46,62] [51,54,72,77,97,99,109,114–127]
	Quantitative	2			
	Qualitative	21			
Mood and positive emotions	All	29	3	0	[34,50,55,60,66,71,73,88,102,117,128–131] [30,35,48,77,81,102,108,113,115,116,119,125,132–138]
	Quantitative	11	3		
	Qualitative	19			
Stress and relaxation	All	61	5	1	[36–38,55,58,61,66,67,86,102,128,131,139–143] [31,34,36,42,43,45,46,48,53,54,59,73,85,90,94,95,98,101,105,107–109,113,116,117,121,123,127,133–138,144–154]
	Quantitative	14	5		
	Qualitative	47		1	
Mental strain	All		2	3	[43,50–52] [53]
	Quantitative		2	2	
	Qualitative			1	

Table 1. Cont.

Health Outcome Category	Study Type	+	0	−	References
<i>Mental disorders</i>					
Depression	All	0	9	15	
	Quantitative		9	8	[36,38,41,47,49,55,57,60,69,71,72,80,128,129,140,155,156]
	Qualitative			7	[48,85,90,98,113,136,157]
Anxiety	All	2	4	14	
	Quantitative	2	4	7	[36,38,40,41,47,55,71,80,128,129,140,142,156]
	Qualitative			7	[45,85,98,108,121,136,157]
Attention deficit, hyperactivity	All		1	1	
	Quantitative		1		[49]
	Qualitative			1	[48]
<i>Physical Health Outcomes</i>					
Physical health	All	17	0	0	
	Quantitative	5			[46,64,66,117,158]
	Qualitative	12			[77,90,97,99,108–111,113,120,122,123]
Physical activity	All	45	6	0	
	Quantitative	16	6		[38,50,52,57,60,62,63,65,69,73,75,80,85,89,106,117,140,142,143,156,159,160]
	Qualitative	30			[34,42,43,45,51,53,59,73,77,95,96,98–100,105,107,110,114,116,118,119,121,126,127,135,136,148,161–163]
Cardiovascular and related outcomes	All	5	3	0	
	Quantitative	3	3		[43,49,55,56,71,143]
	Qualitative	2			[42,54]
Metabolic and related outcomes	All	0	7	8	
	Quantitative		7	6	[49,50,56,71,89,143,156,163–165]
	Qualitative			2	[54]
<i>Other outcomes</i>					
Respiratory benefits	Qualitative	1			[42]
Immune system	Quantitative	1			[40]
Cognitive functioning	Quantitative	1			[47]
Resistance to substance use	Quantitative	1			[57]
Sleep	All	2	1	0	
	Quantitative		1		[43]
	Qualitative	2			[34,35]
Fatigue	All	1		1	
	Quantitative	1		1	[40,58]
	Qualitative				
Somatic problems	Quantitative		1		[51]
Pain	All	1	1	2	
	Quantitative	1	1	1	[43,58,60]
	Qualitative			1	[59]

Note. + = positive effect on outcome; 0 = no effect on outcome; − = negative effect on outcome; the number indicates the number of studies that indicated positive, no, or negative effects on a respective outcome; in quantitative studies, an alpha value of 0.05 was required for statistical significance; differences in the number of references and effects can occur due to multiple similar outcomes being assessed in single publications.

3.3.2. Differences in Health Effects According to Study Type

We included results attained using quantitative and qualitative methods in this review. The included qualitative studies use different methods to collect data, such as, for example,

(semi-structured) interviews, focus group discussions, photo-voice methods, or field observations. Quantitative studies apply diverse methods of data collection as well, including (specific) questionnaires, physiological measurements, and activity diaries.

It is worth noting that the included qualitative studies almost exclusively report on the benefits of participatory green space creation, and thus only include positive effects on various health-related outcomes. The only instance of a negative health effect assessed qualitatively is described by Kou et al. [46], who report that increasing responsibility in participatory creation can lead to increased stress. Nevertheless, quantitative and qualitative studies generally show similar results, with reported effects mostly pointing in the same direction (see Table 1). However, there are exceptions. Both studies that assess physical wellbeing quantitatively find no effects. In contrast, all five qualitative studies report positive impacts. While quantitative studies find mixed results on depression and depressive symptoms (with 9/17 studies finding no effects and 8/17 finding positive effects), all seven qualitative studies report a relief of depressive symptoms. Similarly, for anxiety, all qualitative studies note a reduction in anxiety (7/7), while quantitative results are mixed, with two studies finding an increase in anxiety [41,47], four studies reporting no effects, and seven studies noting positive impacts. Both qualitative studies reporting on cardiovascular and related outcomes note positive effects, while results for quantitative studies are mixed, with three studies reporting positive effects and three studies finding no effects.

Additionally, some health-related outcomes are almost exclusively reported when using quantitative methods (e.g., self-rated health, life satisfaction and quality of life, healthcare utilization, mental strain), while other health-related outcomes are covered predominately in qualitative studies (e.g., social and physical wellbeing, general mental health).

3.3.3. Differences of Health Effects in Varying Study Populations

Study populations were categorized into general, vulnerable, and clinical, with the majority of studies examining the general (66 studies) and vulnerable populations (49 studies). Eighteen studies look at clinical populations. The results for health outcomes in different populations are displayed in Table 2.

For general wellbeing, physical activity, and positive mood and emotions, as well as stress and relaxation, a clear majority of studies report positive effects across all population types. Additionally, positive effects are observed for both general and vulnerable populations in terms of mental health, physical health, mental wellbeing, and social wellbeing. However, there is an insufficient amount of evidence to draw conclusions for clinical populations. In terms of life satisfaction and quality of life, there are varying effects depending on the population studied. The majority of studies on general (5/8) and clinical (4/5) populations indicate a positive effect, while most studies on vulnerable groups (7/8) find no effect. Regarding depressive symptoms, there are mainly positive effects for both general (6/8) and clinical populations (4/6), but results are mixed for vulnerable populations, with half of the studies reporting positive effects and the other half reporting no effects (5/10). For anxiety, the majority of positive effects are found among general populations (8/9). Among vulnerable populations, there is a slightly greater proportion of positive results (3/5), and there are mixed results for clinical populations (3/6).

Additionally, some studies note particular benefits for certain demographic groups. Buru et al. [82] find significant positive effects of a horticultural therapy program on wellbeing for women, but not for men. Egerer et al. [84] analyze the effects of community garden participation in Australia and highlight that, regarding subjective wellbeing, gardeners with a migrant background benefit specifically. While Gray et al. [45] show a reduction in health satisfaction (only) for older people, Xiang et al. [55] record positive effects on cardiovascular outcomes and anxiety for older, but not for younger, participants.

Table 2. Overview of effects of participatory green space interventions on health in different study populations.

Health Outcome Category	Population Type	+	0	–	References
General health outcomes					
Self-rated health	All	12	4	0	[41,42,54,58,61–63,65–69] [49,52,60,64]
	General	11	1	0	
	Vulnerable	1	3	0	
Life satisfaction and quality of life	All	10	10	1	[45,50,66,70,74–76,78] [47,52,57,60,72,73,77] [40,71,79–81]
	General	5	2	1	
	Vulnerable	1	7	0	
	Clinical	4	1	0	
(General) wellbeing	All	23	4	0	[30,54,68,84–87,89,95–99] [47,52,83,88,90–92,94] [35,36,43,79,82,93]
	General	12	1	0	
	Vulnerable	6	2	0	
	Clinical	5	1	0	
Domain specific wellbeing					
Mental wellbeing	All	20	2	0	[34,38,42,63,76,101,102,109–111] [64,77,83,100,103–108,112] [40]
	General	10			
	Vulnerable	10	1		
	Clinical		1		
Functional wellbeing	All	1	0	0	[40]
	Clinical	1			
Social wellbeing	All	11	1	0	[34,76,99,101,114,115] [60,83,104,112,113] [40]
	General	6			
	Vulnerable	5			
	Clinical		1		
Spiritual wellbeing	All	1	0	0	[40]
	Clinical	1			
Physical wellbeing	All	5	2	0	[102] [77,100,103,104,106] [40]
	General	1			
	Vulnerable	4	1		
	Clinical		1		
Healthcare utilization	All			4	[41,42] [43,44]
	General			2	
	Clinical			2	
Mental health outcomes					
General mental health outcomes	All	23		0	[46,54,62,97,99,109,114,115,117,118,123,127] [51,72,77,116,119–122,124–126]
	General	12			
	Vulnerable	11			
	Clinical				
Mood and positive emotions	All	29	3	0	[30,34,50,55,66,102,115,117,129–131,137] [48,60,73,77,88,108,113,116,119,125,132,133,135,136] [35,71,81,128,134,138]
	General	10	2	0	
	Vulnerable	14			
	Clinical	5	1	0	
Stress and relaxation	All	61	5	1	[31,34,38,42,45,46,53–55,58,61,66,67,85,86,95,98,101,102,109,117,123,127,131,137,139,143,144,147–152] [37,48,59,73,90,94,105,107,108,113,116,121,133,135,136,141,145,146,153] [36,43,128,134,138,140,154]
	General	33	3	1	
	Vulnerable	21			
	Clinical	7	2	0	
Mental strain	All	0	2	3	[50,53] [51,52] [43]
	General		1	1	
	Vulnerable		1	1	
	Clinical			1	

Table 2. Cont.

Health Outcome Category	Population Type	+	0	−	References
<i>Mental disorders</i>					
Depression	All	0	9	15	
	General		2	6	[38,41,55,69,85,98,129,157]
	Vulnerable		5	5	[47–49,57,60,72,90,113,136,156]
	Clinical		2	4	[36,71,80,128,140,155]
Anxiety	All	2	4	14	
	General	1		8	[38,41,45,55,85,98,129,142,157]
	Vulnerable	1	1	3	[47,108,121,136,156]
	Clinical		3	3	[36,40,71,80,128,140]
Attention deficit, hyperactivity	All		1	1	
	Vulnerable		1	1	[48,49]
<i>Physical health outcomes</i>					
Physical health	All	17	0	0	
	General	10			[46,66,97,99,109–111,117,123,158]
	Vulnerable	7			[59,64,77,108,113,120,122]
Physical activity	All	45	6	0	
	General	23	3		[34,38,42,45,50,53,62,63,65,69,75,85,89,94–96,98,99,110,114,117,118,127,142,143,162]
	Vulnerable	18	3		[51,52,57,59,60,73,77,100,105–107,116,119,121,126,135,136,156,159–161]
	Clinical	4			[43,80,140,163]
Cardiovascular and related outcomes	All	5	3	0	
	General	3	1		[42,54,55,143]
	Vulnerable	1	1		[49,56]
	Clinical	1	1		[43,71]
Metabolic and related outcomes	All	0	7	8	
	General		3	5	[50,54,89,143,164,165]
	Vulnerable		3	2	[49,54,56,143,156]
	Clinical		1	1	[71,163]
<i>Other outcomes</i>					
Respiratory benefits	General	1			[42]
Immune system	Clinical	1			[40]
Cognitive functioning	Vulnerable	1			[47]
Resistance to substance use	Vulnerable	1			[57]
Sleep	All	2	1		
	General	1			[34]
	Clinical	1	1		[35,43]
Fatigue	All	1		1	
	General	1			[58]
	Clinical			1	[40]
Somatic problems	Vulnerable	1			[51]
Pain	All	1	1	2	
	General	1			[58]
	Vulnerable		1	1	[59,60]
	Clinical			1	[43]

Note. + = positive effect on outcome; 0 = no effect on outcome; − = negative effect on outcome; the number indicates the number of studies that indicated positive, no, or negative effects on a respective outcome; in quantitative studies, an alpha value of 0.05 was required for statistical significance; differences in the number of references and effects can occur due to multiple similar outcomes being assessed in single publications.

3.3.4. Health Effects of Different Types of Participatory Green Space Interventions

In accordance with the presented categorization of intervention types above, we found ten studies relating to the health effects of the participation in the building and planning of green spaces. These include the designing and constructing of green areas on school grounds [83,132], the initial planning and implementation of community gardens or an orchard [46,64,98,122], and the co-creation of residential or public green spaces and nature-

based solutions [30,31,68,78]. Due to the small number of studies, conclusions should be drawn with caution. Positive effects are documented for self-rated health (2/2), life satisfaction and quality of life (1/1), general wellbeing (3/4), and mental (2/2) and social (1/1) wellbeing. For mental health outcomes, positive effects are found for mental health (2/2), mood (2/2), and stress and relaxation (2/3). Additionally, positive impacts on physical health (3/3) and physical activity (1/1) are reported.

Of the studies included in this review, 79 include a community gardening intervention. We subdivided these into 50 studies in which solely community gardening is examined (category ‘community gardening’) and 29 studies in which community gardening with additional activities is examined (category ‘community gardening plus’). In the 50 studies examining the effects of community gardening on health, there are variations in terms of how long participants gardened, whether a community garden was newly set up or long established, and regarding different specific contexts (gardens in residential neighborhoods, schools, hospitals, etc.). In addition, there are differences regarding whether participants were active gardeners at the time of study or whether community gardening was a planned intervention. Despite these differences, overall positive effects are documented for self-rated health, general wellbeing, social and physical wellbeing, mental and physical health, mood, stress, depression, anxiety, and physical activity. However, it should be noted that for some outcomes, there are only few studies in this review and conclusions have to be drawn carefully. A slight majority of studies find positive effects on metabolic and related outcomes (4/6). The results are mixed for mental strain (one out of three studies finds a positive effect) and pain, with one study finding pain reduction [59] and another finding no effect [60]. No cardiovascular and related outcomes were assessed in studies of community gardening. All studies that report on life satisfaction and quality of life find no significant effects (4/5) or a decrease in health satisfaction (1/5) following community gardening (for older people specifically).

In the 29 studies categorized as ‘community gardening plus’, (mostly) positive effects are documented for the same outcomes as community gardening. The five studies reporting on quality of life and life satisfaction find no effects. However, the study results differ for depression and anxiety. While studies concerned with community gardening alone find overall positive effects, studies that are categorized as ‘community gardening plus’ mostly find no effect on depression (4/5) and only a slight majority of positive effects on anxiety (3/5). Out of the three studies that examine cardiovascular and related outcomes, two find positive effects on blood pressure [54,56] and one study finds no effect on blood pressure [71].

For environmental volunteering, 24 studies were included, considering activities such as environmental stewardship, wildlife monitoring, pest control, habitat maintenance, vegetation clearance, and debris removal, conducted in green spaces such as parks, national parks, (urban) forests, or residential green spaces. As with community gardening, designs vary in terms of how long participants had been volunteering at time of analysis and whether or not the examined activities were part of a planned intervention or people’s regular activities. The studies included report mostly positive effects for self-rated health, general wellbeing, mental and social wellbeing, healthcare utilization, mental health, stress and relaxation, mood and positive emotions, physical health, and physical activity. Additionally, singular studies find positive effects on physical wellbeing [102] and sleep [58], as well as respiratory benefits [42]. In contrast to community gardening, all four publications studying life satisfaction and quality of life find positive effects of participating in environmental volunteering. Mixed results are found for depression, with an equal number of studies reporting no effects and positive effects (2/4). Similarly, one study finds reduced feelings of anxiety in older people [55] and no effect for the younger age group following an environmental volunteering intervention, while another finds higher levels of anxiety for long-term environmental volunteers when compared to a non-volunteering control group [41].

Of all included studies, 14 fall into the category of horticultural therapy. The horticultural therapy programs applied in the studies are of varying length, ranging from 3 days [82] to 15 weeks [80], and include various activities, though they mainly consist of gardening activities in a group setting. In some studies, the horticultural therapy programs are complemented by other types of therapy, such as physiotherapy, psychotherapy, or occupational therapy, e.g., [35,43]. Mostly positive effects are documented for quality of life and life satisfaction (4/4), general wellbeing (5/6), healthcare utilization (2/2), mood and positive emotions (4/5), stress and relaxation (5/7), mental strain (1/1), depression (4/4), anxiety (3/4), physical activity (2/2), cardiovascular-related outcomes (1/1), and pain (1/1). The results are mixed for sleep quality, with one qualitative study noting improved sleep [35], while one quantitative study finds no effects [43]. Different domains of wellbeing are examined in one study only, which finds no effects on mental, social, and physical wellbeing but positive impacts on functional and spiritual wellbeing [40]. This study additionally finds higher immune system activity and reduced (cancer-related) fatigue. No studies examine the effects of horticultural therapy on self-rated health, general mental or physical health, and metabolic and related outcomes.

We found six studies in the category engagement with the natural environment. These include primarily intervention programs studying the effects of restorative activities in nature in different settings and including different activities. Mostly positive effects are found on stress and relaxation (3/3) and depression (2/3). The results are mixed for anxiety, with one study finding a reduction in anxiety following a 5-week program where participants engaged with an urban forest environment [38] and another study reporting increased anxiety following a 15-week horticulture program in parks and national reserves for older people [47]. Similarly, for quality of life and life satisfaction, one study reports a positive effect [70], while another finds no effect [47]. Singular studies find positive effects for mental wellbeing, physical activity, and cognitive functioning, while no effects are found for self-rated health, general wellbeing, attention deficit and hyperactivity, cardiovascular and related outcomes, and metabolic and related outcomes. A detailed overview of the health effects of participation in green space creation in different types of interventions can be found in the Supplementary Materials.

3.3.5. Effects of Participation in Green Space Creation on Other Outcomes

In addition to the health-related outcomes examined in the previous section, studies report on a broad range of other outcomes of participatory green space creation (see Table 3). It is important to note that for quantitative studies, we included only significant results in this synthesis.

Table 3. Overview of effects of participatory green space interventions on other outcomes mentioned in the included studies by study type (quantitative/qualitative).

Other Outcome	Qualitative	Quantitative	All	References
<i>Personal benefits</i>				
Self-esteem/self-worth	30	5	35	[34–36,49,51,52,64,66,72,73,77,82,83,90,92,94,103,104,111,115,124,127,133–135,138,141,145,154]
Sense of self (self-identity, self-reflection)	9		9	[48,72,81,94,98,105,108,112,147]
Sense of purpose	20		20	[34,77,81,85,99,101,102,110,112,113,118,123,133,137,138,145,152,162]
Sense of pride	22	1	23	[45,51,76,81,90,94,96,99,103,108,110,115,118,122,133,136,138,147–149,162]
Sense of safety	7	3	10	[31,42,68,82,101,103,108–110,134]

Table 3. Cont.

Other Outcome	Qualitative	Quantitative	All	References
Independence/autonomy	10		10	[51,77,95,103,109,123,124,133,145]
Sense of ownership/responsibility	9		9	[59,94,103,122,123,138,147]
Personal development	2	1	3	[77,97,162]
Motivation/stimulation	2		2	[98,101]
Personal resources (resilience, mindfulness, spirituality)	6	3	9	[64,80,81,86,115,143,148,150,151]
Sense of belonging	17	2	19	[41,42,68,82,83,90,91,94,108,114,115,120,123,136,138,145,147,154,162]
<i>Social benefits</i>				
Social relationships and resources				
Building social relationships/connections	42	8	50	[34,45,50,51,53,59,61,65,72,76,77,81,83,85,87,88,90–92,98,102,103,106,107,109,110,115–117,119,121,122,124,126,133,135–138,144,147–152,157,158,161,162]
Less social isolation/loneliness	7	2	9	[31,72,79,109,111,113,120,124,125]
Social inclusion/integration	5		5	[91,99,108,123,145]
Social resources	13	2	15	[34,36,51,73,107,108,110,112–114,120,131,148,153,162]
Intergenerational interaction	4	1	5	[53,99,105,126,151]
Community benefits				
Community empowerment	2	1	3	[52,121,146]
Community cohesion	20	10	30	[38,41,45,52–54,61,64,67,75,78,81,92,95,97–100,113,114,116,123,127,137,147,148,151,162]
Work together/as a collective/team	5		5	[110,116,122,123,146]
<i>Negative outcomes</i> (frustration, tension/conflict)	6		6	[89,112,123,132,147,151]
<i>Economic benefits</i> (saving money on groceries, property value, selling produce)				
	9	3	12	[51,53,59,61,65,112,117,124,126,133,151,152]
<i>Cultural benefits</i> (cultural exchange, Connecting to roots, traditional practices)				
	10		10	[51,59,91,94,97,103,118,126,146,161]
<i>Nutrition</i> (food security, access to fresh food, vegetable consumption)				
	30	12	42	[45,50–52,54,56,57,59,65,85,90,95,100,103–106,111,112,117–120,123–127,131,133,136,137,143,147–149,152,153,156,158,162,163]
<i>Education and skills</i>				
	31	10	41	
Learning something new (about ecology / environment, food/nutrition, gardening)	14	5	19	[53,54,59,72,75,85,88,95,99,118,126,133,137,138,143,158,161]
Skill development	17	5	22	[34,36,41,42,75,77,90,98,100,101,106,112,113,116,121,122,124,125,133,135,147,150]
<i>Place connection</i> (forming connection with place, place attachment, place/local identity)				
	10	3	13	[53,85,91,94,95,107,114,115,139,148,153,154]

Table 3. Cont.

Other Outcome	Qualitative	Quantitative	All	References
<i>Nature connection</i>	21	5	26	
Nature connectedness	16	5	21	[36,48,59,63,68,85,86,98,105,107–109,114,116,133,137,139,147,148,150,157]
Positive feelings for/associations with nature	5		5	[35,43,118,126,134]
<i>Pro-environmental behavior and attitudes</i> (sustainable lifestyle, caring more about environment)	2	4	6	[76,97,106,117,139,147]
<i>Benefits to the environment</i> (benefits for wildlife and biodiversity, improving natural environment and green space appearance)	9	3	12	[53,73,92,102,113,116,117,120,127,148,152,158]
<i>Other</i>				
Connecting with past memories	4		4	[81,109,125,147]
Removing stigma (of mental illness)	1		1	[154]
Increased use of green space		1	1	[57]

Note. In this overview, only significant (for quantitative studies) reported effects are summarized; a number indicates the number of studies indicating an outcome with reported (significant) effects; differences in the number of references and effects can occur due to multiple similar outcomes being assessed in single publications.

Over half of all included studies report some type of personal benefit gained from participatory green space activities. These include, for example, increased self-esteem or self-worth (35), having a sense of purpose (20), an increased sense of safety (10), and a sense of pride (23). An increased sense of belonging (e.g., to the garden/local community, to “something bigger”, etc.) is reported in 19 studies. Similarly, in over half of all studies, social benefits are described as outcomes of participatory green space creation, such as the building of relationships, connections, and increased social interactions (50), less social isolation and loneliness (9), and improvements regarding social resources (15), including social networks or social support. We also included community-related benefits, such as higher community cohesion (30). Additionally, 13 studies note an increased connection to place, either in the form of higher place attachment [95,107,139,148], special connections with place [85,91,115,154], or strengthening local identity [114]. Studies frequently report on educational benefits and skill development (41). This includes learning about nature and the environment, urban agriculture, and nutrition, or developing skills, both in terms of interpersonal skills, such as problem solving, e.g., [106], and more practical skills, e.g., [100]. An improved connection to nature following participatory urban green space creation is found in 26 studies. This includes five quantitative studies that report increased nature connectedness or an increased environmental identity and 21 studies that qualitatively note better connections or relations to nature, as well as participants describing that they feel more comfortable in nature, have more fun [43,126], or feel embedded in nature [118]. Additionally, six studies note that participants reported increased pro-environmental behaviors and attitudes [76,139,147], adopted more sustainable lifestyles [97,117], or cared more about the environment [106]. Participants in twelve studies attributed benefits to the environment to be an outcome of their participatory green space activities, such as an improved appearance of public spaces, an improvement to the natural environment [102,152], and benefits for biodiversity and local wildlife [53,113,116]. Mainly regarding the participation in community gardening, studies frequently report on nutritional benefits (42), e.g., increased access to and consumption of fresh fruits and vegetables, as well as economic benefits (12) for participants, such as saving money on groceries and selling produce. Ten studies report on cultural benefits, such as the connections to one’s roots, cultural exchange, or the

connection to traditional practices, for example when it comes to community gardening, e.g., [146] or environmental stewardship [94].

Overall, studies report very few negative outcomes. Jansson et al. [132] note that some children were frustrated because of changes and maintenance decisions made without them after their participation in designing and greening school grounds ended. Five studies report that conflict between community gardeners was mentioned by participants in qualitative interviews, but this was mostly seen as a minor problem [123] or as a consequence of garden mismanagement [112].

4. Discussion

The main objective of this review was to provide a broad overview of the effects of different types of participation in urban green spaces on health outcomes across disciplines and methodological approaches, attempting to distinguish participation in green spaces from mere exposure. In addition, we wanted to explore the effects on secondary outcome variables reported in these studies.

4.1. Effects on Health

The majority of studies included in our review indicate the positive effects of the participation in the creation of urban green spaces on various health-related outcomes, including different indicators of general, mental, and physical health. These findings align with the existing literature on the positive association between green spaces and health [9–12]. Most notably, participatory green space activities show positive impacts on self-rated health status, mental and physical health, wellbeing, and stress. Reductions in healthcare utilization further emphasize the potential cost-saving benefits associated with these interventions. However, the mixed results observed for life satisfaction and quality of life illustrate the complexity of evaluating the impact of participatory green space interventions. While a considerable number of studies reported positive impacts, an equal number found no effects, suggesting that these interventions may not universally enhance life satisfaction and quality of life for all participants. Furthermore, the finding of decreased health satisfaction among older individuals in one study [45] points to the necessity of considering interindividual variability and group differences (e.g., age) when evaluating the outcomes of green space participation. Regarding affective disorders and mental strain, our results indicate a positive effect. A significant proportion of studies reported the relief of depressive symptoms and positive effects on anxiety. Nevertheless, the presence of studies reporting no effects or even increases in anxiety after participation [41,47] highlights the need for caution in interpreting these results. Factors such as the characteristics of interventions (e.g., duration or intensity) as well as individual differences may contribute to the variability in effects across studies. A similar conclusion could be drawn with regard to cardiovascular (e.g., heart problems) as well as metabolic and related outcomes (e.g., weight, BMI). The majority of effects for cardiovascular and metabolic outcomes are positive, although the latter are more mixed.

Despite the overwhelming prevalence of positive effects on general, mental, and physical health, it is crucial to acknowledge that a small number of studies report negative effects on health. This highlights the complexity of the relationship between green spaces and health outcomes. For example, a high administrative burden can reverse the stress-reducing effects of green space participation and instead cause increased levels of stress [46,123].

4.2. Different Study Populations

Our analysis revealed variations in the effects of participatory green space creation across different study populations. While positive effects were generally observed across general, vulnerable, and clinical populations, the evidence for clinical populations was limited due to a lower number of studies. Further research is needed to expand the evidence base and elucidate the mixed results observed, particularly for vulnerable and clinical populations. Notable findings include specific benefits observed for certain demographic

groups, such as individuals with migrant backgrounds [84] and women [82] experiencing subjective wellbeing improvements. Furthermore, life satisfaction and quality of life once again stood out, as studies involving general and clinical populations mostly found positive effects, while studies with vulnerable populations did not. This highlights the need for studies investigating the health effects of green space interventions comparing different groups as well as tailoring interventions for specific populations.

4.3. Different Intervention Types

Generally, the majority of reported health effects are positive for all included types of participatory green space activities. This is a valuable finding highlighting the benefits of active participation, going a step further than passive forms of green space exposure. While community gardening emerged as the most extensively studied intervention type, all other interventions also demonstrated positive impacts on health-related outcomes. However, the diverse array of participatory green space interventions analyzed in our review shed light on some differences in effects associated with each approach. For example, life satisfaction and quality of life seem to be positively influenced by environmental volunteering and horticultural therapy, but not as much by community gardening. Depression or depressive symptoms are found to be positively influenced by horticultural therapy, but less so by community gardening with additional activities or environmental volunteering. However, the varying methodologies and contexts across studies warrant cautious interpretation of the findings. For instance, while community gardening interventions consistently showed positive effects on several outcomes, studies examining community gardening combined with additional activities yielded mixed results, suggesting potential complexities in intervention design and implementation. Notably, there were very few studies on building/planning green space and engagement with nature that measure health outcomes, emphasizing the need for interdisciplinary collaboration in the evaluation of projects involving planning and building greenspaces.

4.4. Effects on Other Outcomes

Our review of participatory green space creation reveals many benefits beyond direct health outcomes, replicating and expanding upon the results of previous studies on the personal and social benefits of participation [2,10,19,23]. More than half of the studies included in this review highlighted various personal benefits that can be achieved through participation in such interventions. These include a wide range of positive psychological effects, such as increased self-esteem, a sense of purpose, and pride. Social benefits were also highlighted, with participatory green space initiatives facilitating the development of social connections and resources, while reducing social isolation and loneliness. Notably, these activities also contribute to community benefits such as community cohesion and connection to place. Both social and personal benefits might be important moderators or mediators for associations between green space participation and health. Educational benefits and skill development emerged as frequent themes, highlighting the role of participatory green spaces in promoting learning opportunities and enhancing practical skills and cognitive competencies such as environmental health literacy. Another important finding is a strengthened connection with nature, manifested in increased environmental awareness, pro-environmental behavior, and a deeper appreciation of the natural world. This connection can translate into improved sustainable lifestyles and environmental improvements, including the enhancement of public spaces, the preservation of natural habitats, and the promotion of biodiversity. In addition, community gardening initiatives provide other benefits, including increased access to fresh produce, economic benefits, and opportunities for cultural exchange and preservation. Overall, the multiple benefits of participatory green space creation underline its potential as a holistic approach to increasing use of green spaces among different populations as well as enhancing individual health and wellbeing, social cohesion and sustainable behavior. However, it should be noted that in many studies (especially qualitative research) the concepts of the outcome variables presented were often

not properly defined. As a result, it was not always clear what was meant specifically, which calls for caution in interpreting the findings of this review.

4.5. Limitations

The integration of qualitative, quantitative, and mixed-method studies from different disciplines without considering study quality as an exclusion criterion in this review was intended to provide a comprehensive overview of different participatory green space interventions, but comes with certain limitations. Firstly, the results might be biased due to weak methodological studies skewing the results of the synthesis. Only about eight percent of the studies were rated as high quality, while 44 percent were rated as low quality. Secondly, qualitative studies predominantly reported positive outcomes, shedding light on the subjective experiences and perceived benefits of participants. The predominance of qualitative studies in this review reporting positive outcomes may lead to bias, potentially skewing the overall findings towards positive effects. Conversely, quantitative studies yielded more varied results, highlighting the importance of quantitative assessment to complement qualitative insights. However, the overall heterogeneity in study populations, interventions, and outcome measures and the resulting differences in the number of studies on each of these posed challenges for synthesizing results and necessitates careful interpretation of findings. Furthermore, most of studies that we analyzed in this review (91 of 133) come from either North America or Europe, creating possible biases due to the sociocultural background of the countries in which the majority of the studies were conducted. This might reduce the transferability of the present findings to other sociocultural contexts. In addition, only articles written in English were included in this review. Consequently, results published in other languages were not considered, which represents another limitation of this research, as important results could be missed. A further limitation of our analytic approach is the lack of differentiation between types of urban green spaces in the analysis of health effects. Different green spaces may have varying impacts on health based on their unique characteristics and quality [27,166]. The primary focus of this review was to provide an overview of the effects of different participatory interventions in green spaces, and these only occasionally reflect green space types, such as in the case of community gardening.

5. Conclusions and Future Directions

In conclusion, the participatory creation of urban green spaces represents a promising approach to promoting health and wellbeing while simultaneously contributing to climate change mitigation in urban areas. It provides an opportunity to actively involve groups that might otherwise not benefit that much from the health-promoting effects of green spaces, while also adding the personal and social benefits of participation, which exposure to green spaces does not offer. While the evidence overwhelmingly supports the positive impacts of participatory interventions, further research is needed to deepen our understanding of the complex relationships between participation, green spaces, and health outcomes to be able to distinguish between the effects of experiencing green spaces and being exposed to them. There is a broad body of research on the health effects of community gardening and a solid amount of research on environmental volunteering. However, research on the health effects of participation in planning and building urban green spaces is still lacking. In particular, further research is required in the form of quantitative studies that allow for causal inferences to be drawn, as well as studies that compare different subpopulations (e.g., vulnerable or clinical populations) using robust research designs. Future studies could investigate which types of participatory green space interventions are most effective in different contexts and for different populations. Moreover, causal studies that permit a comparison of the health effects of active participation in green spaces with those of mere exposure are needed to provide more detailed information on the specific benefits of participation. Future studies could also examine which types, functions, and characteristics of green spaces are most beneficial for health and how green spaces work through different pathways to health. By addressing the methodological challenges and

building upon the findings of existing studies, future research can inform the development of effective, equitable, and participatory green space interventions to enhance public health and wellbeing while strengthening social cohesion as well as contributing to the fight against climate change.

Supplementary Materials: The following supporting information can be downloaded at: <https://www.mdpi.com/article/10.3390/su16125000/s1>, Table S1: Complete spreadsheet for data extraction and synthesis; Table S2: Overview of effects of different participatory greenspace intervention types on health; Table S3: Overview of effects on different health outcomes (not aggregated); Table S4: Overview of effects on other outcomes (not aggregated); PROSPERO Review Protocol.

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References

1. United Nations. *World Cities Report 2022: Envisaging the Future of Cities*; United Nations Human Settlements Programme: Nairobi, Kenya, 2022.
2. Kruize, H.; van der Vliet, N.; Staatsen, B.; Bell, R.; Chiabai, A.; Muiños, G.; Higgins, S.; Quiroga, S.; Martinez-Juarez, P.; Aberg Yngwe, M.; et al. Urban Green Space: Creating a Triple Win for Environmental Sustainability, Health, and Health Equity through Behavior Change. *Int. J. Environ. Res. Public Health* **2019**, *16*, 4403. [\[CrossRef\]](#)
3. Tidball, K.; Krasny, M. *Greening in the Red Zone: Disaster, Resilience, and Community Greening*; Springer: Dordrecht, The Netherlands, 2014; Volume 24, ISBN 978-90-481-9946-4.
4. WHO. *Burden of Disease from Environmental Noise. Quantification of Healthy Life Years Lost in Europe*; WHO Regional Office for Europe: Copenhagen, Denmark, 2011.
5. World Meteorological Organization; WHO. *Heatwaves and Health: Guidance on Warning-System Development*; World Meteorological Organization (WMO): Geneva, Switzerland, 2015.
6. Kröger, H.; Pakpahan, E.; Hoffmann, R. What Causes Health Inequality? A Systematic Review on the Relative Importance of Social Causation and Health Selection. *Eur. J. Public Health* **2015**, *25*, 951–960. [\[CrossRef\]](#) [\[PubMed\]](#)
7. Mackenbach, J.P.; Kulháňová, I.; Menvielle, G.; Bopp, M.; Borrell, C.; Costa, G.; Deboosere, P.; Esnaola, S.; Kalediene, R.; Kovacs, K.; et al. Trends in Inequalities in Premature Mortality: A Study of 3.2 Million Deaths in 13 European Countries. *J. Epidemiol. Community Health* **2015**, *69*, 207–217. [\[CrossRef\]](#) [\[PubMed\]](#)
8. World Health Organization. *Urban Green Spaces and Health*; WHO Regional Office for Europe: Copenhagen, Denmark, 2016.
9. Callaghan, A.; McCombe, G.; Harrold, A.; McMeel, C.; Mills, G.; Moore-Cherry, N.; Cullen, W. The Impact of Green Spaces on Mental Health in Urban Settings: A Scoping Review. *J. Ment. Health* **2021**, *30*, 179–193. [\[CrossRef\]](#)
10. Gebhard, U. Naturerfahrung und seelische Gesundheit bei Kindern—Theoretische Ansätze und ausgewählte empirische Befunde. *Bundesgesundheitsblatt* **2023**, *66*, 803–810. [\[CrossRef\]](#)
11. Jimenez, M.P.; DeVille, N.V.; Elliott, E.G.; Schiff, J.E.; Wilt, G.E.; Hart, J.E.; James, P. Associations between Nature Exposure and Health: A Review of the Evidence. *Int. J. Environ. Res. Public Health* **2021**, *18*, 4790. [\[CrossRef\]](#)
12. Lee, A.C.K.; Maheswaran, R. The Health Benefits of Urban Green Spaces: A Review of the Evidence. *J. Public Health* **2011**, *33*, 212–222. [\[CrossRef\]](#)
13. Nguyen, P.-Y.; Astell-Burt, T.; Rahimi-Ardabili, H.; Feng, X. Green Space Quality and Health: A Systematic Review. *Int. J. Environ. Res. Public Health* **2021**, *18*, 11028. [\[CrossRef\]](#)

14. Kondo, M.; Fluehr, J.; McKeon, T.; Branas, C. Urban Green Space and Its Impact on Human Health. *Int. J. Environ. Res. Public Health* **2018**, *15*, 445. [[CrossRef](#)] [[PubMed](#)]
15. Markevych, I.; Schoierer, J.; Hartig, T.; Chudnovsky, A.; Hystad, P.; Dzhambov, A.M.; de Vries, S.; Triguero-Mas, M.; Brauer, M.; Nieuwenhuijsen, M.J.; et al. Exploring Pathways Linking Greenspace to Health: Theoretical and Methodological Guidance. *Environ. Res.* **2017**, *158*, 301–317. [[CrossRef](#)]
16. Marselle, M.R.; Hartig, T.; Cox, D.T.C.; De Bell, S.; Knapp, S.; Lindley, S.; Triguero-Mas, M.; Böhning-Gaese, K.; Braubach, M.; Cook, P.A.; et al. Pathways Linking Biodiversity to Human Health: A Conceptual Framework. *Environ. Int.* **2021**, *150*, 106420. [[CrossRef](#)] [[PubMed](#)]
17. Shanahan, D.F.; Lin, B.B.; Bush, R.; Gaston, K.J.; Dean, J.H.; Barber, E.; Fuller, R.A. Toward Improved Public Health Outcomes from Urban Nature. *Am. J. Public Health* **2015**, *105*, 470–477. [[CrossRef](#)] [[PubMed](#)]
18. Staatsen, B.; Vliet, N.; van der Kruize, H.; Hall, L.; Morris, G.; Bell, R.; Stegeman, I. *Exploring Triple-Win Solutions for Living, Moving and Consuming That Encourage Behavioural Change, Protect the Environment, Promote Health and Health Equity*; EuroHealthNet: Brussels, Belgium, 2017.
19. Ferreira, V.; Barreira, A.P.; Loures, L.; Antunes, D.; Panagopoulos, T. Stakeholders' Engagement on Nature-Based Solutions: A Systematic Literature Review. *Sustainability* **2020**, *12*, 640. [[CrossRef](#)]
20. Morris, J.; Marzano, M.; Dandy, N.; O'Brien, L. *Forestry, Sustainable Behaviours and Behaviour Change—Setting the Scene*; The Research Agency of the Forestry Commission: Farnham, UK, 2012.
21. Straßburger, G.; Rieger, J. (Eds.) *Partizipation Kompakt—Für Studium, Lehre und Praxis Sozialer Berufe*; Beltz: Tokyo, Japan, 2014; Volume 2.
22. Nunes, N.; Björner, E.; Hilding-Hamann, K.E. Guidelines for Citizen Engagement and the Co-Creation of Nature-Based Solutions: Living Knowledge in the URBiNAT Project. *Sustainability* **2021**, *13*, 13378. [[CrossRef](#)]
23. Flanagan, C.; Gallay, E.; Pykett, A.; Smallwood, M. The Environmental Commons in Urban Communities: The Potential of Place-Based Education. *Front. Psychol.* **2019**, *10*, 226. [[CrossRef](#)] [[PubMed](#)]
24. Fabian, C. Der Beitrag Partizipativer Prozesse Bei Der Freiraumentwicklung Für Die Gesundheit von Kindern: Eine Theoretische Annäherung. *Umweltpsychologie* **2016**, *20*, 112–136.
25. Fabian, C.; Käser, N. Partizipative Prozesse für die Gesundheit von Kindern. *vhw FWS* **2018**, *10*, 29–33.
26. Liu, J.; Green, R. The Effect of Exposure to Nature on Children's Psychological Well-Being: A Systematic Review of the Literature. *Urban For. Urban Green.* **2023**, *81*, 127846. [[CrossRef](#)]
27. Beute, F.; Marselle, M.R.; Olszewska-Guizzo, A.; Andreucci, M.B.; Lammel, A.; Davies, Z.G.; Glanville, J.; Keune, H.; O'Brien, L.; Remmen, R.; et al. How Do Different Types and Characteristics of Green Space Impact Mental Health? A Scoping Review. *People Nat.* **2023**, *5*, 1839–1876. [[CrossRef](#)]
28. Page, M.J.; Moher, D.; Bossuyt, P.M.; Boutron, I.; Hoffmann, T.C.; Mulrow, C.D.; Shamseer, L.; Tetzlaff, J.M.; Akl, E.A.; Brennan, S.E.; et al. PRISMA 2020 Explanation and Elaboration: Updated Guidance and Exemplars for Reporting Systematic Reviews. *BMJ* **2021**, *372*, n160. [[CrossRef](#)]
29. Martens, D.; Ozturk, O.; Rindt, L.; Twarok, J.; Steinhardt, U.; Molitor, H. Supporting Biodiversity: Structures of Participatory Actions in Urban Green Spaces. *Front. Sustain. Cities* **2022**, *4*, 952790. [[CrossRef](#)]
30. Anderson, J.; Baldwin, C. Building Well-Being: Neighbourhood Flourishing and Approaches for Participatory Urban Design Intervention. In *Handbook of Community Well-Being Research*; Phillips, R., Wong, C., Eds.; Springer Science + Business Media: New York, NY, USA, 2017; pp. 313–337. ISBN 2468-7227.
31. Vidal, C.; Lyman, C.; Brown, G.; Hynson, B. Reclaiming Public Spaces: The Case for the Built Environment as a Restorative Tool in Neighborhoods with High Levels of Community Violence. *J. Community Psychol.* **2022**, *50*, 2399–2410. [[CrossRef](#)] [[PubMed](#)]
32. Rosol, M. Community Volunteering as Neoliberal Strategy? Green Space Production in Berlin. *Antipode* **2012**, *44*, 239–257. [[CrossRef](#)]
33. Home Office. *The Volunteering Compact Code of Good Practice*; Home Office: London, UK, 2005.
34. O'Brien, L.; Townsend, M.; Ebdon, M. "Doing Something Positive": Volunteers' Experiences of the Well-Being Benefits Derived from Practical Conservation Activities in Nature. *Voluntas* **2010**, *21*, 525–545. [[CrossRef](#)]
35. Adevi, A.A.; Mårtensson, F. Stress Rehabilitation through Garden Therapy: The Garden as a Place in the Recovery from Stress. *Urban For. Urban Green.* **2013**, *12*, 230–237. [[CrossRef](#)]
36. Kam, M.C.Y.; Siu, A.M.H. Evaluation of a Horticultural Activity Programme for Persons with Psychiatric Illness. *Hong Kong J. Occup. Ther.* **2010**, *20*, 80–86. [[CrossRef](#)]
37. Stark, M.A. Restoring Attention in Pregnancy: The Natural Environment. *Clin. Nurs. Res.* **2003**, *12*, 246–265. [[CrossRef](#)] [[PubMed](#)]
38. Vujcic, M.; Tomicevic-Dubljevic, J. Urban Forest Benefits to the Younger Population: The Case Study of the City of Belgrade, Serbia. *For. Policy Econ.* **2018**, *96*, 54–62. [[CrossRef](#)]
39. Page, M.J.; McKenzie, J.E.; Bossuyt, P.M.; Boutron, I.; Hoffmann, T.C.; Mulrow, C.D.; Shamseer, L.; Tetzlaff, J.M.; Akl, E.A.; Brennan, S.E.; et al. The PRISMA 2020 Statement: An Updated Guideline for Reporting Systematic Reviews. *BMJ* **2021**, *372*, n71. [[CrossRef](#)]
40. Nakau, M.; Imanishi, J.; Imanishi, J.; Watanabe, S.; Imanishi, A.; Baba, T.; Hirai, K.; Ito, T.; Chiba, W.; Morimoto, Y. Spiritual Care of Cancer Patients by Integrated Medicine in Urban Green Space: A Pilot Study. *EXPLORE* **2013**, *9*, 87–90. [[CrossRef](#)]

41. Moore, M.; Townsend, M.; Oldroyd, J. Linking Human and Ecosystem Health: The Benefits of Community Involvement in Conservation Groups. *EcoHealth* **2006**, *3*, 255–261. [\[CrossRef\]](#)
42. Townsend, M. Feel Blue? Touch Green! Participation in Forest/Woodland Management as a Treatment for Depression. *Urban For. Urban Green.* **2006**, *5*, 111–120. [\[CrossRef\]](#)
43. Sahlin, E.; Ahlborg, G.; Matuszczyk, J.; Grahn, P. Nature-Based Stress Management Course for Individuals at Risk of Adverse Health Effects from Work-Related Stress-Effects on Stress Related Symptoms, Workability and Sick Leave. *Int. J. Environ. Res. Public Health* **2014**, *11*, 6586–6611. [\[CrossRef\]](#) [\[PubMed\]](#)
44. Währborg, P.; Petersson, I.F.; Grahn, P. Nature-Assisted Rehabilitation for Reactions to Severe Stress and/or Depression in a Rehabilitation Garden: Long-Term Follow-up Including Comparisons with a Matched Population-Based Reference Cohort. *J. Rehabil. Med.* **2014**, *46*, 271–276. [\[CrossRef\]](#) [\[PubMed\]](#)
45. Gray, T.; Tracey, D.; Truong, S.; Ward, K. Community Gardens as Local Learning Environments in Social Housing Contexts: Participant Perceptions of Enhanced Wellbeing and Community Connection. *Local Environ.* **2022**, *27*, 570–585. [\[CrossRef\]](#)
46. Kou, H.; Zhang, S.; Liu, Y. Community-Engaged Research for the Promotion of Healthy Urban Environments: A Case Study of Community Garden Initiative in Shanghai, China. *Int. J. Environ. Res. Public Health* **2019**, *16*, 4145. [\[CrossRef\]](#) [\[PubMed\]](#)
47. Ng, K.; Sia, A.; Ng, M.; Tan, C.; Chan, H.; Tan, C.; Rawtaer, I.; Feng, L.; Mahendran, R.; Larbi, A.; et al. Effects of Horticultural Therapy on Asian Older Adults: A Randomized Controlled Trial. *Int. J. Environ. Res. Public Health* **2018**, *15*, 1705. [\[CrossRef\]](#) [\[PubMed\]](#)
48. Chawla, L.; Keena, K.; Pevec, I.; Stanley, E. Green Schoolyards as Havens from Stress and Resources for Resilience in Childhood and Adolescence. *Health Place* **2014**, *28*, 1–13. [\[CrossRef\]](#) [\[PubMed\]](#)
49. Bang, K.; Kim, S.; Song, M.; Kang, K.; Jeong, Y. The Effects of a Health Promotion Program Using Urban Forests and Nursing Student Mentors on the Perceived and Psychological Health of Elementary School Children in Vulnerable Populations. *Int. J. Env. Res. Public Health* **2018**, *15*, 1977. [\[CrossRef\]](#)
50. Machida, D. Relationship between Community or Home Gardening and Health of the Elderly: A Web-Based Cross-Sectional Survey in Japan. *Int. J. Environ. Res. Public Health* **2019**, *16*, 1389. [\[CrossRef\]](#)
51. Gerber, M.M.; Callahan, J.L.; Moyer, D.N.; Connally, M.L.; Holtz, P.M.; Janis, B.M. Nepali Bhutanese Refugees Reap Support through Community Gardening. *Int. Perspect. Psychol. Res. Pract. Consult.* **2017**, *6*, 17–31. [\[CrossRef\]](#)
52. Booth, J.; Chapman, D.; Ohmer, M.; Wei, K. Examining the Relationship Between Level of Participation in Community Gardens and Their Multiple Functions. *J. Community Pract.* **2018**, *26*, 5–22. [\[CrossRef\]](#)
53. Ding, X.; Zhao, Z.; Zheng, J.; Yue, X.; Jin, H.; Zhang, Y. Community Gardens in China: Spatial Distribution, Patterns, Perceived Benefits and Barriers. *Sustain. Cities Soc.* **2022**, *84*, 103991. [\[CrossRef\]](#)
54. Chauvenet, C.; Sheppard, B.; Siddique, N.; Gallagher, B.; Kearney, W.; De Marco, M. A Qualitative Study of Rural Low-Wealth Participants' Experiences with Community Gardens. *J. Hunger Environ. Nutr.* **2022**, *17*, 224–244. [\[CrossRef\]](#)
55. Xiang, Q.; Yuan, Z.; Furuya, K.; Kagawa, T. Verification of Psychophysiological Effects of Satoyama Activities on Older Adult Volunteers and Young People in Post-COVID-19 Society: A Case Study of Matsudo City, Japan. *Int. J. Environ. Res. Public Health* **2022**, *19*, 10760. [\[CrossRef\]](#) [\[PubMed\]](#)
56. Davis, J.N.; Ventura, E.E.; Cook, L.T.; Gyllenhammer, L.E.; Gatto, N.M. LA Sprouts: A Gardening, Nutrition, and Cooking Intervention for Latino Youth Improves Diet and Reduces Obesity. *J. Am. Diet. Assoc.* **2011**, *111*, 1224–1230. [\[CrossRef\]](#) [\[PubMed\]](#)
57. Kwok, S.; Wu, C.; Tong, H.; Ho, C.; Leung, K.; Leung, Y.; Lui, K.; Wong, C. Effects of the School-Based Integrated Health Promotion Program with Hydroponic Planting on Green Space Use and Satisfaction, Dietary Habits, and Mental Health in Early Adolescent Students: A Feasibility Quasi-Experiment. *Front. Public Health* **2021**, *9*, 740102. [\[CrossRef\]](#) [\[PubMed\]](#)
58. Wolf, K.; Housley, E. Young Adult Conservation Jobs and Worker Health. *J. Environ. Plan. Manag.* **2017**, *60*, 1853–1870. [\[CrossRef\]](#)
59. Wang, D.; Glicksman, A. "Being Grounded": Benefits of Gardening for Older Adults in Low-Income Housing. *J. Hous. Elder.* **2013**, *27*, 89–104. [\[CrossRef\]](#)
60. Austin, E.N.; Johnston, Y.A.M.; Morgan, L.L. Community Gardening in a Senior Center: A Therapeutic Intervention to Improve the Health of Older Adults. *Ther. Recreat. J.* **2006**, *40*, 48–56.
61. Bussell, M.; Bliesner, J.; Pezzoli, K. UC Pursues Rooted Research with a Nonprofit, Links the Many Benefits of Community Gardens. *Calif. Agric.* **2017**, *71*, 139–147. [\[CrossRef\]](#)
62. Harada, K.; Hino, K.; Iida, A.; Yamazaki, T.; Usui, H.; Asami, Y.; Yokohari, M. How Does Urban Farming Benefit Participants' Health? A Case Study of Allotments and Experience Farms in Tokyo. *Int. J. Environ. Res. Public Health* **2021**, *18*, 542. [\[CrossRef\]](#) [\[PubMed\]](#)
63. Heilmayr, D.; Friedman, H. Cultivating Healthy Trajectories: An Experimental Study of Community Gardening and Health. *J. Health Psychol.* **2020**, *25*, 2418–2427. [\[CrossRef\]](#) [\[PubMed\]](#)
64. Hoffman, A. Understanding Principles of Environmental Racism, Climate Change, and the Blob: A Socioecological Approach in the Development of Food Justice. *Environ. Justice* **2023**, *16*, 140–150. [\[CrossRef\]](#)
65. Hopkins, L.; Holben, D. Food Insecure Community Gardeners in Rural Appalachian Ohio More Strongly Agree That Their Produce Intake Improved and Food Spending Decreased as a Result of Community Gardening Compared to Food Secure Community Gardeners. *J. Hunger Environ. Nutr.* **2018**, *13*, 540–552. [\[CrossRef\]](#)
66. Joung, D.; Park, B.-J.; Kang, S. Quality of Life and Mental Health Benefits of Public Participation in Forest Conservation Activities in Urban Areas. *Int. J. Environ. Res. Public Health* **2022**, *19*, 9768. [\[CrossRef\]](#) [\[PubMed\]](#)

67. Lee, S.; Jang, H.; Yun, H.; Jung, Y.; Hong, I. Effect of Apartment Community Garden Program on Sense of Community and Stress. *Int. J. Environ. Res. Public Health* **2022**, *19*, 708. [\[CrossRef\]](#) [\[PubMed\]](#)
68. Mahmoud, I.; Morello, E.; Vona, C.; Benciolini, M.; Sejdullahu, I.; Trentin, M.; Pascual, K. Setting the Social Monitoring Framework for Nature-Based Solutions Impact: Methodological Approach and Pre-Greening Measurements in the Case Study from CLEVER Cities Milan. *Sustainability* **2021**, *13*, 9672. [\[CrossRef\]](#)
69. Pillemer, K.; Fuller-Rowell, T.E.; Reid, M.C.; Wells, N.M. Environmental Volunteering and Health Outcomes over a 20-Year Period. *Gerontologist* **2010**, *50*, 594–602. [\[CrossRef\]](#)
70. Biedenweg, K.; Scott, R.; Scott, T. How Does Engaging with Nature Relate to Life Satisfaction? Demonstrating the Link between Environment-Specific Social Experiences and Life Satisfaction. *J. Environ. Psychol.* **2017**, *50*, 112–124. [\[CrossRef\]](#)
71. Brown, B.; Dybdal, L.; Noonan, C.; Pedersen, M.; Parker, M.; Corcoran, M. Group Gardening in a Native American Community: A Collaborative Approach. *Health Promot. Pract.* **2020**, *21*, 611–623. [\[CrossRef\]](#)
72. Freeman, S.; Banner, D.; Labron, M.; Betkus, G.; Wood, T.; Branco, E.; Skinner, K. “I see beauty, I see art, I see design, I see love.” Findings from a resident-driven, co-designed gardening program in a long-term care facility. *Health Promot. Chronic Dis. Prev. Can.* **2022**, *42*, 288–300. [\[CrossRef\]](#)
73. Gagliardi, C.; Pillemer, K.; Gambella, E.; Piccinini, F.; Fabbietti, P. Benefits for Older People Engaged in Environmental Volunteering and Socializing Activities in City Parks: Preliminary Results of a Program in Italy. *Int. J. Environ. Res. Public Health* **2020**, *17*, 3772. [\[CrossRef\]](#) [\[PubMed\]](#)
74. Hencelova, P.; Krizan, F.; Bilkova, K.; Madajova, M. Does Visiting a Community Garden Enhance Social Relations? Evidence from an East European City. *Nor. Geogr. Tidsskr.-Nor. J. Geogr.* **2021**, *75*, 256–268. [\[CrossRef\]](#)
75. Higgins, O.; Shackleton, C. The Benefits from and Barriers to Participation in Civic Environmental Organisations in South Africa. *Biodivers. Conserv.* **2015**, *24*, 2031–2046. [\[CrossRef\]](#)
76. Koss, R.; Kingsley, J. Volunteer Health and Emotional Wellbeing in Marine Protected Areas. *Ocean. Coast. Manag.* **2010**, *53*, 447–453. [\[CrossRef\]](#)
77. Triguero-Mas, M.; Anguelovski, I.; Cirac-Claveras, J.; Connolly, J.; Vazquez, A.; Urgell-Plaza, F.; Cardona-Giralt, N.; Sanye-Mengual, E.; Alonso, J.; Cole, H. Quality of Life Benefits of Urban Rooftop Gardening for People with Intellectual Disabilities or Mental Health Disorders. *Prev. Chronic Dis.* **2020**, *17*, 200087. [\[CrossRef\]](#)
78. Wilkie, S.; Michialino, P. The Influence of Participative Co-Production Use for Urban Public-Space Regeneration on Residents’ Perception of Life Satisfaction and Social Cohesion. *J. Archit. Plan. Res.* **2014**, *31*, 271–281.
79. Wood, C.; Barton, J.; Wicks, C. The Impact of Therapeutic Community Gardening on the Wellbeing, Loneliness, and Life Satisfaction of Individuals with Mental Illness. *Int. J. Environ. Res. Public Health* **2022**, *19*, 13166. [\[CrossRef\]](#)
80. Yang, Y.; Ro, E.; Lee, T.-J.; An, B.-C.; Hong, K.-P.; Yun, H.-J.; Park, E.-Y.; Cho, H.-R.; Yun, S.-Y.; Park, M.; et al. The Multi-Sites Trial on the Effects of Therapeutic Gardening on Mental Health and Well-Being. *Int. J. Environ. Res. Public Health* **2022**, *19*, 8046. [\[CrossRef\]](#)
81. Styck, A.C.; George, D.R. Evaluating the Impact of Community Gardening on Sense of Purpose for Persons Living with Dementia: A Cluster-Randomized Pilot Study. *J. Alzheimers Dis. Rep.* **2022**, *6*, 359–367. [\[CrossRef\]](#) [\[PubMed\]](#)
82. Buru, T.; Buta, E.; Cantor, M. The Influence of Therapeutic Horticulture Activities on Quality of Life (QoL) Issues. *Sci. Pap. Ser. B Hortic.* **2022**, *66*, 632–637.
83. Chiumento, A.; Mukherjee, I.; Chandna, J.; Dutton, C.; Rahman, A.; Bristow, K. A Haven of Green Space: Learning from a Pilot Pre-Post Evaluation of a School-Based Social and Therapeutic Horticulture Intervention with Children. *BMC Public Health* **2018**, *18*, 863. [\[CrossRef\]](#) [\[PubMed\]](#)
84. Egerer, M.; Ordóñez, C.; Lin, B.; Kendal, D. Multicultural Gardeners and Park Users Benefit from and Attach Diverse Values to Urban Nature Spaces. *Urban For. Urban Green.* **2019**, *46*, 126445. [\[CrossRef\]](#)
85. Falkowski, T.; Jorgensen, B.; Rakow, D.; Das, A.; Diemont, S.; Selfa, T.; Arrington, A. “Connecting with Good People and Good Plants”: Community Gardener Experiences in New York State During the COVID-19 Pandemic. *Front. Sustain. Food Syst.* **2022**, *6*, 854374. [\[CrossRef\]](#)
86. Koay, W.; Dillon, D. Community Gardening: Stress, Well-Being, and Resilience Potentials. *Int. J. Environ. Res. Public Health* **2020**, *17*, 6740. [\[CrossRef\]](#) [\[PubMed\]](#)
87. Kragh, G.; Stafford, R.; Curtin, S.; Diaz, A. Environmental Volunteer Well-Being: Managers’ Perception and Actual Well-Being of Volunteers. *F1000Research* **2016**, *5*, 2679. [\[CrossRef\]](#) [\[PubMed\]](#)
88. Molsher, R.; Townsend, M. Improving Wellbeing and Environmental Stewardship Through Volunteering in Nature. *EcoHealth* **2016**, *13*, 151–155. [\[CrossRef\]](#) [\[PubMed\]](#)
89. Tharrey, M.; Sachs, A.; Perignon, M.; Simon, C.; Mejean, C.; Litt, J.; Darmon, N. Improving Lifestyles Sustainability through Community Gardening: Results and Lessons Learnt from the JArDinS Quasi-Experimental Study. *BMC Public Health* **2020**, *20*, 1–13. [\[CrossRef\]](#)
90. Guerlain, M.A.; Campbell, C. From Sanctuaries to Prefigurative Social Change: Creating Health-Enabling Spaces in East London Community Gardens. *J. Soc. Political Psychol.* **2016**, *4*, 220–237. [\[CrossRef\]](#)
91. Harris, N.; Minniss, F.; Somerset, S. Refugees Connecting with a New Country through Community Food Gardening. *Int. J. Environ. Res. Public Health* **2014**, *11*, 9202–9216. [\[CrossRef\]](#) [\[PubMed\]](#)

92. Jackson, J. Growing the Community—A Case Study of Community Gardens in Lincoln’s Abbey Ward. *Renew. Agric. Food Syst.* **2018**, *33*, 530–541. [\[CrossRef\]](#)
93. Joyce, J.; Warren, A. A Case Study Exploring the Influence of a Gardening Therapy Group on Well-Being. *Occup. Ther. Ment. Health* **2016**, *32*, 203–215. [\[CrossRef\]](#)
94. Kingsley, J.; Townsend, M.; Phillips, R.; Aldous, D. “If the Land Is Healthy . . . It Makes the People Healthy”: The Relationship between Caring for Country and Health for the Yorta Yorta Nation, Boonwurrung and Bangerang Tribes. *Health Place* **2009**, *15*, 291–299. [\[CrossRef\]](#) [\[PubMed\]](#)
95. Menconi, M.; Heland, L.; Grohmann, D. Learning from the Gardeners of the Oldest Community Garden in Seattle: Resilience Explained through Ecosystem Services Analysis. *Urban For. Urban Green.* **2020**, *56*, 126878. [\[CrossRef\]](#)
96. Meyerricks, S.; White, R. Communities on a Threshold: Climate Action and Wellbeing Potentialities in Scotland. *Sustainability* **2021**, *13*, 7357. [\[CrossRef\]](#)
97. Ong, M.; Baker, A.; Aguilar, A.; Stanley, M. The Meanings Attributed to Community Gardening: A Qualitative Study. *Health Place* **2019**, *59*, 102190. [\[CrossRef\]](#) [\[PubMed\]](#)
98. Ward, K.; Truong, S.; Gray, T. Connecting to Nature through Community Engaged Scholarship: Community Gardens as Sites for Collaborative Relationships, Psychological, and Physiological Wellbeing. *Front. Psychiatry* **2022**, *13*, 883817. [\[CrossRef\]](#) [\[PubMed\]](#)
99. Zutter, C.; Stoltz, A. Community Gardens and Urban Agriculture: Healthy Environment/Healthy Citizens. *Int. J. Ment. Health Nurs.* **2023**, *32*, 1452–1461. [\[CrossRef\]](#)
100. Anderson, V.; Gough, W.; Agic, B. Nature-Based Equity: An Assessment of the Public Health Impacts of Green Infrastructure in Ontario Canada. *Int. J. Environ. Res. Public Health* **2021**, *18*, 5763. [\[CrossRef\]](#)
101. Clavin, A.A. Realising Ecological Sustainability in Community Gardens: A Capability Approach. *Local Environ.* **2011**, *16*, 945–962. [\[CrossRef\]](#)
102. Coventry, P.; Neale, C.; Dyke, A.; Pateman, R.; Cinderby, S. The Mental Health Benefits of Purposeful Activities in Public Green Spaces in Urban and Semi-Urban Neighbourhoods: A Mixed-Methods Pilot and Proof of Concept Study. *Int. J. Environ. Res. Public Health* **2019**, *16*, 2712. [\[CrossRef\]](#) [\[PubMed\]](#)
103. Goralnik, L.; Radonic, L.; Polanco, V.; Hammon, A. Growing Community: Factors of Inclusion for Refugee and Immigrant Urban Gardeners. *Land* **2023**, *12*, 68. [\[CrossRef\]](#)
104. Jordi-Sanchez, M.; Diaz-Aguilar, A. Constructing Organic Food through Urban Agriculture, Community Gardens in Seville. *Sustainability* **2021**, *13*, 4091. [\[CrossRef\]](#)
105. Lam, V.; Romses, K.; Renwick, K. Exploring the Relationship between School Gardens, Food Literacy and Mental Well-Being in Youths Using Photovoice. *Nutrients* **2019**, *11*, 1354. [\[CrossRef\]](#) [\[PubMed\]](#)
106. Mangadu, T.; Kelly, M.; Orezza, M.; Gallegos, R.; Matharasi, P. Best Practices for Community Gardening in a US-Mexico Border Community. *Health Promot. Int.* **2017**, *32*, 1001–1014. [\[CrossRef\]](#)
107. Miller, S. Greenspace Volunteering Post-Disaster: Exploration of Themes in Motivation, Barriers, and Benefits from Post-Hurricane Park and Garden Volunteers. *J. Environ. Plan. Manag.* **2020**, *63*, 2004–2021. [\[CrossRef\]](#)
108. Moore, E.; Thew, M. Exploring the Perspectives of “young Adults” (18–24) Who Have Been in Formal Care and Their Experiences of Attending a Socially Prescribed Community Allotment Gardening Group. *Br. J. Occup. Ther.* **2023**, *86*, 26–32. [\[CrossRef\]](#)
109. O’Brien, L.; Morris, J.; Stewart, A. Engaging with Peri-Urban Woodlands in England: The Contribution to People’s Health and Well-Being and Implications for Future Management. *Int. J. Environ. Res. Public Health* **2014**, *11*, 6171–6192. [\[CrossRef\]](#)
110. Poulsen, M.N.; Hulland, K.R.S.; Gulas, C.A.; Pham, H.; Dalglish, S.L.; Wilkinson, R.K.; Winch, P.J. Growing an Urban Oasis: A Qualitative Study of the Perceived Benefits of Community Gardening in Maryland. *Cult. Agric. Food Environ.* **2014**, *36*, 69–82. [\[CrossRef\]](#)
111. Schoen, V.; Caputo, S.; Blythe, C. Valuing Physical and Social Output: A Rapid Assessment of a London Community Garden. *Sustainability* **2020**, *12*, 5452. [\[CrossRef\]](#)
112. Tigere, B.; Moyo, T. Disability-Inclusive Community Development: A Case of a Community Garden in Limpopo Province in South Africa. *Afr. J. Disabil.* **2022**, *11*, 1–11. [\[CrossRef\]](#) [\[PubMed\]](#)
113. Christie, M.A. Benefit Nature, Benefit Self, & Benefit Others: Older Adults and Their Volunteer Experiences of Engagement in a Conservation Themed Urban Park. *J. Ther. Hortic.* **2017**, *27*, 19–38.
114. Huang, L. Developing Place-Based Health during the COVID-19 Pandemic: A Case Study of Taipei City’s Jiuzhuang Community Garden. *Sustainability* **2023**, *15*, 12422. [\[CrossRef\]](#)
115. Patrick, R.; Henderson-Wilson, C.; Ebdon, M. Exploring the Co-Benefits of Environmental Volunteering for Human and Planetary Health Promotion. *Health Promot. J. Aust.* **2022**, *33*, 57–67. [\[CrossRef\]](#) [\[PubMed\]](#)
116. Burls, A. People and Green Spaces: Promoting Public Health and Mental Well-being through Ecotherapy. *J. Public Ment. Health* **2007**, *6*, 24–39. [\[CrossRef\]](#)
117. Delshad, A. Community Gardens: An Investment in Social Cohesion, Public Health, Economic Sustainability, and the Urban Environment. *Urban For. Urban Green.* **2022**, *70*, 127549. [\[CrossRef\]](#)
118. Hale, J.; Knapp, C.; Bardwell, L.; Buchenau, M.; Marshall, J.; Sancar, F.; Litt, J. Connecting Food Environments and Health through the Relational Nature of Aesthetics: Gaining Insight through the Community Gardening Experience. *Soc. Sci. Med.* **2011**, *72*, 1853–1863. [\[CrossRef\]](#) [\[PubMed\]](#)

119. Hartwig, K.A.; Mason, M. Community Gardens for Refugee and Immigrant Communities as a Means of Health Promotion. *J. Community Health Public Health Promot. Dis. Prev.* **2016**, *41*, 1153–1159. [\[CrossRef\]](#)
120. Jackson, C.; Ronzi, S. Residents' Perceptions of a Community-Led Intervention on Health, Well-Being, and Community Inclusion Through Photovoice. *Health Educ. Behav.* **2021**, *48*, 783–794. [\[CrossRef\]](#)
121. McVey, D.; Nash, R.; Stansbie, P. The Motivations and Experiences of Community Garden Participants in Edinburgh, Scotland. *Reg. Stud. Reg. Sci.* **2018**, *5*, 40–56. [\[CrossRef\]](#)
122. Middling, S.; Bailey, J.; Maslin-Prothero, S.; Scharf, T. Gardening and the Social Engagement of Older People. *Work. Older People: Community Care Policy Pract.* **2011**, *15*, 112–122. [\[CrossRef\]](#)
123. Quested, E.; Thøgersen-Ntoumani, C.; Uren, H.; Hardcastle, S.; Ryan, R. Community Gardening: Basic Psychological Needs as Mechanisms to Enhance Individual and Community Well-Being. *Ecopsychology* **2018**, *10*, 173–180. [\[CrossRef\]](#)
124. Ramsden, S. Shoots and Leaves: Exploring the Impacts and Fragile Sustainability of Sustainable Place-Making Projects Working with Marginalised People. *Volunt. Sect. Rev.* **2020**, *11*, 175–191. [\[CrossRef\]](#)
125. Ramsden, S. "It's One of the Few Things That Horizontal Ellipsis 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 Environ.* **2021**, *26*, 283–296. [\[CrossRef\]](#)
126. Sadeghzadeh, C.; Sheppard, B.; de Groot, J.; De Marco, M. Evaluating the Benefits of a SNAP-Ed-Funded Community Garden Intervention Using Ripple Effect Mapping. *Health Educ. Behav.* **2022**, *49*, 141–149. [\[CrossRef\]](#) [\[PubMed\]](#)
127. Wakefield, S.; Yeudall, F.; Taron, C.; Reynolds, J.; Skinner, A. Growing Urban Health: Community Gardening in South-East Toronto. *Health Promot. Int.* **2007**, *22*, 92–101. [\[CrossRef\]](#) [\[PubMed\]](#)
128. Gonzalez, M.T.; Hartig, T.; Patil, G.G.; Martinsen, E.W.; Kirkevold, M. A Prospective Study of Group Cohesiveness in Therapeutic Horticulture for Clinical Depression. *Int. J. Ment. Health Nurs.* **2011**, *20*, 119–129. [\[CrossRef\]](#) [\[PubMed\]](#)
129. Hayashi, N.; Wada, T.; Hirai, H.; Miyake, T.; Matsuura, Y.; Shimizu, N.; Kurooka, H.; Horiuchi, S. The Effects of Horticultural Activity in a Community Garden on Mood Changes. *ECB* **2008**, *46*, 233–240. [\[CrossRef\]](#)
130. Ambrose, G.; Das, K.; Fan, Y.; Ramaswami, A. Comparing Happiness Associated with Household and Community Gardening: Implications for Food Action Planning. *Landsc. Urban Plan.* **2023**, *230*, 104593. [\[CrossRef\]](#)
131. Pollard, G.; Roetman, P.; Ward, J.; Chiera, B.; Mantzioris, E. Beyond Productivity: Considering the Health, Social Value and Happiness of Home and Community Food Gardens. *Urban Sci.* **2018**, *2*, 97. [\[CrossRef\]](#)
132. Jansson, M.; Martensson, F.; Gunnarsson, A. The Meaning of Participation in School Ground Greening: A Study from Project to Everyday Setting. *Landsc. Res.* **2018**, *43*, 163–179. [\[CrossRef\]](#)
133. Lucke, S.; Mamo, E.; Koenigstorfer, J. Exploring the Meaning of Growing Food in Community Gardens to South African Township Residents: A Photovoice Study. *Health Place* **2019**, *55*, 165–176. [\[CrossRef\]](#) [\[PubMed\]](#)
134. Palsdottir, A.; Persson, D.; Persson, B.; Grahn, P. The Journey of Recovery and Empowerment Embraced by Nature—Clients' Perspectives on Nature-Based Rehabilitation in Relation to the Role of the Natural Environment. *Int. J. Environ. Res. Public Health* **2014**, *11*, 7094–7115. [\[CrossRef\]](#) [\[PubMed\]](#)
135. Parr, H. Mental Health, Nature Work, and Social Inclusion. *Environ. Plan. D-Soc. Space* **2007**, *25*, 537–561. [\[CrossRef\]](#)
136. Pitt, H. Therapeutic Experiences of Community Gardens: Putting Flow in Its Place. *Health Place* **2014**, *27*, 84–91. [\[CrossRef\]](#) [\[PubMed\]](#)
137. Sonti, N.; Svendsen, E. Why Garden? Personal and Abiding Motivations for Community Gardening in New York City. *Soc. Nat. Resour.* **2018**, *31*, 1189–1205. [\[CrossRef\]](#)
138. Suto, M.; Smith, S.; Damiano, N.; Channe, S. Participation in Community Gardening: Sowing the Seeds of Well-Being: Participation Au Jardinage Communautaire: Pour Semer Les Graines Du Bien-Être. *Can. J. Occup. Ther. Rev. Can. D'Ergothérapie* **2021**, *88*, 142–152. [\[CrossRef\]](#) [\[PubMed\]](#)
139. Chou, W.; Hung, S.; Chang, C.; Chang, T. Volunteering in Nature: A Win-Win Strategy for Healthy People and Healthy Nature. *Landsc. Ecol. Eng.* **2023**, *19*, 315–325. [\[CrossRef\]](#)
140. Dewi, N.; Komatsuzaki, M.; Yamakawa, Y.; Takahashi, H.; Shibamura, S.; Yasue, T.; Okayama, T.; Toyoda, A.; Shimonishi, H.; Sasaki, S. Community Gardens as Health Promoters: Effects on Mental and Physical Stress Levels in Adults with and without Mental Disabilities. *Sustainability* **2017**, *9*, 63. [\[CrossRef\]](#)
141. Kang, S.-J.; Kim, H.-S.; Baek, K.-H. Effects of Nature-Based Group Art Therapy Programs on Stress, Self-Esteem and Changes in Electroencephalogram (EEG) in Non-Disabled Siblings of Children with Disabilities. *Int. J. Environ. Res. Public Health* **2021**, *18*, 5912. [\[CrossRef\]](#) [\[PubMed\]](#)
142. Litt, J.; Alaimo, K.; Harrall, K.; Hamman, R.; Hebert, J.; Hurley, T.; Leiferman, J.; Li, K.; Villalobos, A.; Coringrato, E.; et al. Effects of a Community Gardening Intervention on Diet, Physical Activity, and Anthropometry Outcomes in the USA (CAPS): An Observer-Blind, Randomised Controlled Trial. *Lancet Planet. Health* **2023**, *7*, E23–E32. [\[CrossRef\]](#) [\[PubMed\]](#)
143. Norman-Burgdolf, H.; Rieske, L. Healthy Trees-Healthy People: A Model for Engaging Citizen Scientists in Exotic Pest Detection in Urban Parks. *Urban For. Urban Green.* **2021**, *60*, 127067. [\[CrossRef\]](#)
144. Ahonen, K.; Lee, C.; Daker, E. Reaping the Harvest: Nursing Student Service Involvement with a Campus Gardening Project. *Nurse Educ.* **2012**, *37*, 86–88. [\[CrossRef\]](#) [\[PubMed\]](#)
145. Grabbe, L.; Ball, J.; Goldstein, A. Gardening for the Mental Well-Being of Homeless Women. *J. Holist. Nurs.* **2013**, *31*, 258–266. [\[CrossRef\]](#) [\[PubMed\]](#)

146. Hond, R.; Ratima, M.; Edwards, W. The Role of Māori Community Gardens in Health Promotion: A Land-Based Community Development Response by Tangata Whenua, People of Their Land. *Glob. Health Promot.* **2019**, *26*, 44–53. [\[CrossRef\]](#)
147. Kingsley, J.; Foenander, E.; Bailey, A. “You Feel like You’re Part of Something Bigger”: Exploring Motivations for Community Garden Participation in Melbourne, Australia. *BMC Public Health* **2019**, *19*, 745. [\[CrossRef\]](#) [\[PubMed\]](#)
148. Kingsley, J.; Townsend, M.; Henderson-Wilson, C. Cultivating Health and Wellbeing: Members’ Perceptions of the Health Benefits of a Port Melbourne Community Garden. *Leis. Stud.* **2009**, *28*, 207–219. [\[CrossRef\]](#)
149. Northrop, M.; Wingo, B.; Ard, J. The Perceptions of Community Gardeners at Jones Valley Urban Farm and the Implications for Dietary Interventions. *TQR* **2015**, *18*, 1–11. [\[CrossRef\]](#)
150. O’Brien, L.; Burls, A.; Townsend, M.; Ebdon, M. Volunteering in Nature as a Way of Enabling People to Reintegrate into Society. *Perspect. Public Health* **2011**, *131*, 71–81. [\[CrossRef\]](#)
151. Ramirez-Andreotta, M.; Tapper, A.; Clough, D.; Carrera, J.; Sandhaus, S. Understanding the Intrinsic and Extrinsic Motivations Associated with Community Gardening to Improve Environmental Public Health Prevention and Intervention. *Int. J. Environ. Res. Public Health* **2019**, *16*, 494. [\[CrossRef\]](#) [\[PubMed\]](#)
152. Shimp, N.; Wesener, A.; McWilliam, W. How Community Gardens May Contribute to Community Resilience Following an Earthquake. *Urban For. Urban Green.* **2019**, *38*, 124–132. [\[CrossRef\]](#)
153. St. Clair, R.; Hardman, M.; Armitage, R.P.; Sherriff, G. The Trouble with Temporary: Impacts and Pitfalls of a Meanwhile Community Garden in Wythenshawe, South Manchester. *Renew. Agric. Food Syst.* **2018**, *33*, 548–557. [\[CrossRef\]](#)
154. Stevens, P. A Hypnosis Framing of Therapeutic Horticulture for Mental Health Rehabilitation. *Humanist. Psychol.* **2018**, *46*, 258–273. [\[CrossRef\]](#)
155. Hitter, T.; Kállay, É.; Olar, L.E.; Ștefan, R.; Buta, E.; Chiorean, S.; Cantor, M.; Papuc, I. The Effect of Therapeutic Horticulture Activities on People in Depression and Kynurenine Pathways. *Not. Bot. Horti Agrobot. Cluj-Napoca* **2019**, *47*, 804–812. [\[CrossRef\]](#)
156. Veldheer, S.; Winkels, R.; Cooper, J.; Groff, C.; Lepley, J.; Bordner, C.; Wagner, A.; George, D.; Sciamanna, C. Growing Healthy Hearts: Gardening Program Feasibility in a Hospital-Based Community Garden. *J. Nutr. Educ. Behav.* **2020**, *52*, 958–963. [\[CrossRef\]](#) [\[PubMed\]](#)
157. Black, Y. “The Play’s the Thing”: A Creative Collaboration to Investigate Lived Experiences in an Urban Community Garden. *Manag. Learn.* **2020**, *51*, 168–186. [\[CrossRef\]](#)
158. Wong, R.; Gable, L.; Rivera-Nunez, Z. Perceived Benefits of Participation and Risks of Soil Contamination in St. Louis Urban Community Gardens. *J. Community Health* **2018**, *43*, 604–610. [\[CrossRef\]](#)
159. Hino, K.; Yamazaki, T.; Iida, A.; Harada, K.; Yokohari, M. Productive Urban Landscapes Contribute to Physical Activity Promotion among Tokyo Residents. *Landsc. Urban Plan.* **2023**, *230*, 104634. [\[CrossRef\]](#)
160. Wells, N.M.; Myers, B.M.; Henderson, C.R. School Gardens and Physical Activity: A Randomized Controlled Trial of Low-Income Elementary Schools. *Prev. Med.* **2014**, *69*, S27–S33. [\[CrossRef\]](#)
161. Charles-Rodriguez, U.; Aborawi, A.; Khatiwada, K.; Shahi, A.; Koso, S.; Prociw, S.; Sanford, C.; Larouche, R. Hands-on-Ground in a New Country: A Community-Based Participatory Evaluation with Immigrant Communities in Southern Alberta. *Glob. Health Promot.* **2023**, *30*, 25–34. [\[CrossRef\]](#) [\[PubMed\]](#)
162. Sanchez, E.; Liamputtong, P. Community Gardening and Health-Related Benefits for a Rural Victorian Town. *Leis. Stud.* **2017**, *36*, 269–281. [\[CrossRef\]](#)
163. Weltin, A.; Lavin, R. The Effect of a Community Garden on HgA1c in Diabetics of Marshallese Descent. *J. Community Health Nurs.* **2012**, *29*, 12–24. [\[CrossRef\]](#) [\[PubMed\]](#)
164. Litt, J.S.; Lambert, J.R.; Glueck, D.H. Gardening and Age-Related Weight Gain: Results from a Cross-Sectional Survey of Denver Residents. *Prev. Med. Rep.* **2017**, *8*, 221–225. [\[CrossRef\]](#)
165. Zick, C.D.; Smith, K.R.; Kowaleski-Jones, L.; Uno, C.; Merrill, B.J. Harvesting More Than Vegetables: The Potential Weight Control Benefits of Community Gardening. *Am. J. Public Health* **2013**, *103*, 1110–1115. [\[CrossRef\]](#)
166. Fernandes, J.N.; Barbosa, A.E.; Finkhäuser, M.; Cardoso, M.A.; Santos, A.J.C.; Antunes, S.; Schultner, J.; Mühlen-Rehmer, H.; Schmidt-Schuchert, S. *Framework of Key Indicators to Assess and Categorize Different Types of Nature Spaces and Their Impact for Therapeutic Indications*; NatureLab: Lisbon, Portugal, 2024. [\[CrossRef\]](#)

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