Community Gardening: Basic Psychological Needs as Mechanisms to Enhance Individual and Community Well-Being

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Abstract

Community gardens have been associated with a number of positive outcomes, including community and individual well-being. We used self-determination theory as a framework to interpret the social-psychological characteristics of community gardens that may determine their role in sustaining need satisfaction and well-being. Semistructured face-to-face interviews were conducted with 5 experienced community gardeners and 10 aspiring community gardeners. Data were analyzed via a framework approach to thematic analysis. Findings support the proposition that satisfaction of community-level needs may be the precursor to communities and individuals experiencing well-being, via experiences of participating in community gardens. Findings have implications for how community-based interventions could be optimized via targeted integration of theories of motivation and perspectives of well-being. Key Words: Community garden—Self-determination theory—Needs—Well-being—Health.

Community gardens refer to land gardened collectively for collaborative growing of produce by community members. There is evidence suggesting that community gardens can be an important contributor to both individual and community well-being; numerous and diverse physical, social, and psychological benefits of community gardens have been reported (Anderson, 2015; Francis & Hester, 1990). These include improvements in health, access to fresh foods, money saving, education, reduced crime, increased safety, environmental sustainability, improved life satisfaction, environmental equity and increased biodiversity, and social cohesion (Guitart, Pickering, & Byrne, 2012). Despite the potential benefits, many garden initiatives do not reap such well-being benefits and are short-lived (Pearson & Firth, 2012).

Typically, studies examining the role of community gardens for well-being have not been informed by theoretical perspectives on determinants of well-being. However, such theories can provide important insight into reasons *why* community gardens are more or less enduring and more or less successful in fostering of well-being. In the present study, we apply basic psychological need theory (BPNT; Ryan & Deci, 2000) as a framework to explore potential mechanisms accounting for changes in individual and community well-being via community gardening.

At the individual level, well-being has been conceptualized in a range of ways depending on the theoretical stance taken but typically involves the individual's subjective evaluation of feeling states and level of satisfaction. Community well-being has been defined as "the combination of social, economic, environmental, cultural, and political conditions identified by individuals and their communities as essential for them to flourish and fulfil their potential" (Wiseman & Brasher, 2008, p. 358). Well-being is studied at the individual level more often than at the community level. In the present study, in the context of community gardening, we explored whether processes involved in fostering well-being that are typically applied

to understand individual functioning are relevant to understand how communities seek to, and experience, well-being. BPNT, a subtheory of self-determination theory (SDT; Ryan & Deci, 2017), proposes that an individual's well-being is dependent on experiencing satisfaction of the basic psychological needs for autonomy (i.e., personal endorsement, choice), competence (i.e., sense of mastery and ability to bring about desired outcomes), and relatedness (i.e., being meaningfully connected to others). The social environment exerts an important influence on the degree to which the three psychological needs are supported. To date, the SDT literature exploring determinants of individual well-being has tended to focus on the social environment in settings characterized by an inherent hierarchy (such as schools, workplaces, families), where the support from an agent in a position of authority (e.g., a teacher, work leader, or a parent) is examined regarding agents' effects on the need fulfillment of the recipients. How these processes work among "equals" such as community members is, by contrast, relatively unstudied. It is possible that people look to their communities for opportunities for need fulfillment, although this proposition remains unexplored.

Community activities, such as community gardens, may provide an avenue for individuals to seek out and experience need fulfillment. For example, community gardens create a space where diverse community members can communicate, share experiences, bond, and learn from each other, enhancing social capital (Firth, Maye, & Pearson, 2011). Further related to building social capital is the opportunity for community members to work toward a common goal in setting up and running a garden, thus potentially strengthening the social connectedness in neighborhoods (Teig et al., 2009). Collectively, these examples highlight the scope for community gardens to be a source of individual and community autonomy, competence, and relatedness fulfillment.

Aims of the study

The aims of this study were to explore the mechanisms through which community activities, in particular community gardens, could contribute to individual and community well-being. Specifically, we explored (i) the relevance of psychological need fulfillment to individuals' desire to participate in a community garden (via interviews with aspiring community gardeners) and (ii) the degree to which community garden participation may lead to need fulfillment and experiences of well-being (via interviews with experienced community gardeners). Using BPNT (Ryan & Deci, 2017) to guide analyses, we aimed to delineate whether affordances of need fulfillment within the community might underpin motivation to engage in community gardens, and we also explored the relevance of basic psychological needs to individual and community well-being.

Method

Participants and procedure

This study was reviewed and approved by the Human Research Ethics Committee at Curtin University. The study was conducted in Perth, Australia's fourth-largest city, with almost 2 million residents in 2016 (ABS, 2016). The city sprawls more than 150 km of coastline with low-level population density of 320 residents per square kilometer. With the majority of residents living in detached homes, the demand for community gardens is not due to a lack of garden space. Aspiring community gardeners comprised 10 residents (5 male, 5 female) aged 25–63 ($M = 43$) who had expressed interest in a proposed community garden. Participants were recruited using purposive sampling whereby author three attended a community garden committee meeting to invite attendees to participate. The site of the proposed garden is in a blue-collar area, with a median weekly income 11% below the average of Greater Perth. The experienced gardener group comprised five individuals (1 male and 4 females aged 37–78, $M = 61$), from five different community gardens. To ensure that we recruited a highly experienced sample, we targeted individuals who had taken organizational roles in community gardens. They were, however, still community members and neighbors (and thus "equals") of other garden participants. These participants were recruited by e-mailing established community gardeners in the Perth metropolitan area with an invitation to participate. Prior to each interview, participants were asked to read an information sheet. They were then offered a chance to ask questions before signing a consent form.

For the experienced gardeners, all interviews occurred at their respective community garden. Aspiring community gardener interviews were conducted either at the site of the planned community garden or at a café convenient to their workplace. Interviews were semistructured and followed a standardized interview guide. For experienced community gardeners, questions explored their experience of being involved in a successful community garden, and the challenges faced in establishing and maintaining the garden. For aspiring gardeners, we asked questions to prompt exploration of their experiences of living in their neighborhood and their perceptions of community gardening. Full interview guides are available from the first author on request. Interviews lasted between 15 and 57 min and were audio-recorded and professionally transcribed verbatim. The audio files were then listened to while reading through the transcript by the third author, and mistakes were corrected. Data were analyzed using QSR NVivo10.

Analysis

Thematic analysis (Braun, Clarke, & Terry, 2014) with a framework approach (Braun et al., 2014; Ritchie, Lewis, Nicholls, & Ormston, 2013; Smith & Firth, 2011) was adopted as the data analytical

approach. This systematic analytic method applies a series of five stages to facilitate interpretation and apply meaning to the phenomena under investigation: (1) Three researchers each independently familiarized themselves with the interview data and noted recurrent themes and ideas relevant to the research aims. (2) An initial coding framework was developed based on those emergent themes. The themes were discussed and refined, to create representative broad key themes. Subthemes within key themes that provided a deeper representation of the perceptions or experiences of one or both sets of participants were also derived. (3) The third author then systematically applied the agreed framework to deductively analyze the data set. (4) Via an iterative process, the research team continued to review the data, the themes and their relative dominance, and to discuss refinement until consensus was reached on the appropriate

categorization of data and labeling of themes. (5) Themes were organized upon a "basic needs map" which represented the interrelated basic needs and facilitated interpretation through the lens of BPNT. Specifically, this process enabled us to illustrate to which basic needs the themes were most relevant. Analytic rigor was promoted via strategies including multiple coders for triangulation, provision of thick description, theme discussion reflection, refinement, and transparency (Lincoln & Guba, 2000).

Results

Figure 1 displays the thematic map that was created as a result of the analysis. Four key themes (captured with a dashed gray line) were identified. Aligned with the study aims, the themes reflect factors relevant to participants' desire to participate in a community garden,
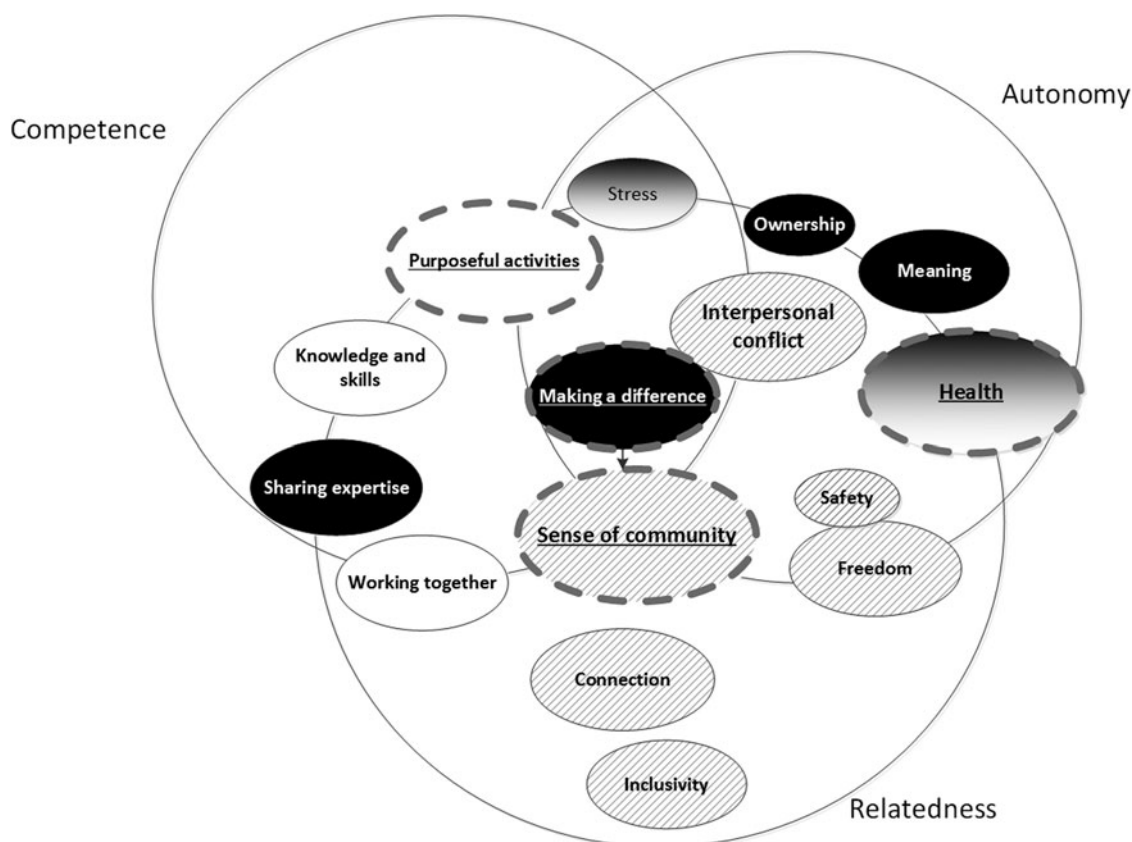
Fig. 1. The thematic map of interview findings. The backdrop to the map is three overlapping rings, representing the needs for autonomy, competence, and relatedness. Broad key themes are represented with dashed lines. Subthemes are represented in the same color as the broad data theme under which they are nested. Size of the theme represents its prominence in the data.

and the narrative descriptions draw out where there is congruence with the concept of psychological need fulfillment. These were *sense of community, purposeful activities, making a difference,* and *health.* In Fig. 1, subthemes were subsumed under the key themes and share the same background style as the key theme under which they nest. In the case of the aspiring gardeners, the focus of our coding was to identify themes that might reflect conscious or subconscious aspirations for need fulfillment (for oneself, for the collective community, or for others) in this context. For experienced gardeners, however, the data themes captured how community garden participation may fulfill or undermine basic need satisfaction.

The backdrop to the map is three overlapping circles that represent the three basic needs, with size of the circles representing the overall emphasis of each need throughout the data set. Theme placement on the map represents the degree to which the theme was interpreted by the research team to be expressed as relevant to one, two, or all three needs.

What follows is a brief narrative description of each key theme. Illustrative quotes exemplify the connection between the themes and the three basic needs.

Sense of community

Subthemes within sense of community were *connection, inclusivity, freedom,* and *interpersonal conflict.*

Connection. This theme emphasized the overriding value of fostering a sense of community relatedness via connection as motivation to establish a garden. This was expressed as a lived experience for some experienced gardeners:

> I think most of the people are more interested in community building and having a nice place for their kids to grow up rather than sustainability and food production … from the beginning the focus has really been more about the community. (Experienced Gardener, 4)

Some participants expressed the personal and social individual impact that this had: "for me personally it's had a profound effect, because I've gotten to know … My social circle has just expanded exponentially, and I know so many more people" (Experienced Gardener, 5). Interestingly, this was also recognized by aspiring gardeners in their vision of what was needed to make a garden a success, "We need to do things that make people feel that they belong otherwise your garden will fall apart" (Aspiring Gardener, 2). Aspiring gardeners sought the creation of a context via which positive affect would be experienced from connection with others: "you would think that it

would be a happy environment and a place where people can just be happy to forget their worries … And connect, yeah. This is an opportunity for a stronger community" (Aspiring Gardener, 5).

Inclusivity. Aspiring gardeners expressed that few opportunities existed for newcomers to feel welcomed and believed gardens could

> bring together people who perhaps are isolated at home. [I] come across quite a number of people … who are hidden in suburbia are really quite lonely and want something to do and want to participate and want to belong and all that. (Aspiring Gardener, 1)

Aspiring gardeners recognized the importance of fulfilling the *need* for relatedness and the potential for community gardens to satisfy this need. For example, one aspiring gardener noted "It's about developing a sense of belonging for people, perhaps who are new to the area, new to the country, may not have English as their first language. Then it does reinforce that we are inclusive" (Aspiring Gardener, 1). Experienced gardeners confirmed that gardens have the potential to deliver on this promise and agreed that community gardens could help foster inclusivity:

> The most important thing, is … People of different cultures, they're too scared to mix with another culture, but here in the garden they're all friends. They exchange telephone numbers, meet for a cup of coffee. It's great social life … [the garden] definitely hasn't created a division, it has brought people together. (Experienced Gardener, 1)

Freedom. This subtheme reflected the feeling that one was free to experience the public and social space within one's community without any physical (e.g., boundaries, fences) or emotional (e.g., fear, uncertainty) restriction: "It makes people happy to walk through this garden. Therefore, I don't like to fence the garden, so people will respect the garden, and I will respect them" (Experienced Gardener, 1). *Safety* emerged as a further subtheme, nested within *freedom.* Reflecting deprivation of a sense of community autonomy as well as relatedness, one reoccurring sense from the aspiring gardeners was their feelings of unease at the rates of crime in their neighborhood. The interviews with experienced gardeners supported the potential role of the garden in addressing safety concerns with related benefits for relatedness and autonomy need satisfaction: "It's proven itself to be a really good community builder and really good for people's connectivity, and even passive security issues like we can now walk to the back of the [community centre] through here." (Experienced

Gardener, 5). The feelings of freedom to act volitionally without fears for safety are likely to be relevant to the need for autonomy.

Interpersonal conflict. Conflict was highlighted as a minor issue for a couple of experienced gardeners only. For example, one experienced gardener noted that internal conflict in running the gardens was not a big problem but generally pertained to relatively trivial issues: "Not really. I think the biggest internal conflict is about how to manage weeds … we're all kind of … I think we're all on the same path." (Experienced Gardener, 4)

Purposeful activities

The subthemes within the theme of purposeful activities were *knowledge and skills* and *working together.*

Knowledge and skills. Aspiring community gardeners described an unmet need for an informal community setting, where competence could be fostered via purposeful activities that facilitated working, sharing, and learning together. Several participants suggested that a community garden would fill this gap: "I think it'd be a great alternative to what's currently available. From my view, what's currently available is sport" (Aspiring Gardener, 3).

Both experienced and aspiring community gardeners saw the garden as creating an opportunity for learning about food which could serve to increase children's feelings of competence and contribute to more informed decisions about behaviors (such as eating or growing healthy foods). Aspiring and experienced community gardeners alike wanted community gardens to be used for education and training, particularly for school groups and the underprivileged. The importance of fostering individual's perceptions of competence was prominent. One way to do this could be by creating opportunities for success:

> A lot of people who come to the garden are really new gardeners, they want to be successful, and it's really heartbreaking if you come and snails have mashed your whole garden in the two days you've been absent. We want people to feel success. My opinion is that in gardening especially success grows success. (Experienced Gardener, 3)

Working together. Data from the experienced gardeners highlighted that workload was not always shared. Another experienced community gardener explained that often a small group of dedicated volunteers were left to do the brunt of the work, and members resented that other people in the community benefitted from their efforts. Thus, working together was a desired characteristic with the potential to fulfill all three needs. In reality, however, this did not always result, and the need for autonomy and relatedness of those who did contribute was potentially not supported, as a result of lack of contribution of others.

Experienced community gardeners also described difficulty in gaining sufficient support from community members to work in the gardens: "the people that come down are pretty much the ones who put their hands up … it needs to be sustainable in turning over the veggies but also in who wants to come down" (Experienced Gardener, 5).

Making a difference

Within this broad category, the subthemes were *meaning, sharing expertise, ownership,* and *sustainability.*

Meaning. There was a strong sense through both sets of interviews that community gardens should be and could be about something of deeper meaning than the act of gardening. Aspiring gardeners expressed that they would like, "somewhere not just to go and get my hands dirty and contribute, but more somewhere where I could feel part of" (Aspiring Gardener, 6). This quote illustrated the role of autonomously contributing to change as being viewed as instrumental to feeling a sense of autonomy and relatedness. Several experienced gardeners spoke of their sense of satisfaction in being able to make a difference to others in need through their involvement and work in the garden. Considerable research has shown that volitionally giving to others expresses and satisfies autonomy needs (e.g., Martela & Ryan, 2016). For example, one of the experienced gardeners talked about how the produce from their community gardens fed poor people and how that experience made her feel: "I donate produce to them for their soup kitchen. They have a soup kitchen everyday. I feel very rewarded. I work hard here, and I go and take the food to them. I know somebody's benefiting" (Experienced Gardener, 1).

Sharing expertise. One aspiring community gardener said they would be keen to be involved so that they could give back to the community, "I [would] just come down to meet people and share the experience. Share some expertise if I've got any and maybe provide" (Aspiring Gardener, 1). This quote highlights a potential reciprocal effect of competence need satisfaction; individuals feel capable if they have expertise to share, and they can also feel competent if they have the opportunity to learn from others' expertise. The experience of connection with others also has relevance to the basic need for relatedness.

Ownership. To feel a sense of ownership over what one does is a central feature of satisfaction of the need for autonomy, and this was a prominent theme in the interviews. Experienced gardeners spoke of the importance of feeling ownership for the community as a whole, not just the individual community member:

> It always amazes me … people really are enthusiastic about the garden, and refer to it as their garden. Even though they don't necessarily come and weed every month or don't have a plot, it's still their community's thing, and they're in the community, so rightfully it's theirs. It's not ours, it's not the committee's, it's not mine, it's the community's. (Experienced Gardener, 4)

This quote also reflects experiencing a sense of belongingness (akin to relatedness) in relation to the feelings of ownership.

Health

Gardens were seen as ways to improve nutrition, physical fitness, and environmental sustainability both by experienced and aspiring community gardeners. In particular, the garden was seen as a means to access and to eat more, healthy, fresh, tasty, pesticide-free vegetables and fruit. Opportunities to make a difference on an environmental level were perceived as important, and learning how to do this would be relevant to feelings of competence. Belonging to a garden community was also relevant to psychological health benefits associated with feeling relatedness satisfaction, experienced alongside physical health gains: "what you take away with friendship, laughter, happiness, meeting people, exercise, fresh air, it's a lot" (Experienced Gardener, 2).

Stress. The most prominent theme within health, however, was *stress*. Aspiring gardeners perceived that the garden would help relieve stress. "Some people that just love gardening or sometimes everybody has an activity they like to do or to release tension. Maybe just pottering around in the garden is what somebody needs. Could be a stress relief." (Aspiring Gardener 7) Through the lens of SDT, doing what one likes interpreted represents an opportunity to be intrinsically motivated, which yields both a sense of autonomy and enhancing feelings of competency.

In contrast to the aspiring community gardeners' vision of a happy group of gardeners growing vegetables together (likely to support feelings of relatedness), experienced gardeners had experienced the administrative side, which was often perceived as a burden and sometimes deceptively hard work. They often lacked the time and energy to engage in the necessary administration. This suggests that the stress relief anticipated from connecting and working with others was not always realized. Feeling pressure from the workload suggests feelings of competence and autonomy may be compromised.

Discussion

This study explored the relevance of psychological need satisfaction to individuals' desire to participate in a community garden, as well as the degree to which community garden participation led to experiences of need fulfillment and community and individual well-being. Findings revealed that seeking need fulfillment was relevant to aspirations to partake in a community garden and basic need satisfaction also characterized experiences of being involved in a garden. However, fulfillment of needs was not an automatic by-product of garden participation. The study revealed that, in some instances, garden participation could undermine need satisfaction, and in turn, well-being.

In the SDT literature, competence and autonomy have typically been considered predominant, on account of their fundamental links with intrinsic motivation (Deci & Ryan, 2000). The perspectives of aspiring gardeners tended to emphasize these two needs more than the reflections of experienced gardeners. Among those who had participated in a garden, however, relatedness was more relevant to their lived experiences and was important to their sustained engagement. Across both groups, relatedness satisfaction infiltrated every theme identified in the interview data (as illustrated in Fig. 1). It is possible that relatedness is particularly prominent in community activities such as gardening, as feeling connected to others is a central part of being "a community" and may be what is sought from community activities. This may differ from other contexts such as school, sport, and the workplace, in which feeling autonomy and competence may be more closely related to the overall purpose of engagement.

We can speculate as to why relatedness may be more strongly emphasized than competence and autonomy in community gardening than in other domains. Aligned with the views of Kasser (2009) concerning initial attempts to engage in ecological sustainability–related behaviors, initial engagement in new behaviors such as community gardening may in fact first manifest as feelings of incompetence. Participation requires moving away from easy, learned behaviors (e.g., spending spare time relaxing or in familiar leisure pursuits rather than digging, or buying vegetables rather than growing them), and individuals must learn new skills and routines to incorporate gardening time into daily life. Thus, specific competence supports may be required if individuals and the community as a whole are to persist. Findings also supported the SDT perspective that individuals will be more likely to experience well-being benefits from participation in the garden with a sense of autonomy—if there is shared opportunity for choice and decision-making and no sense of coercion or

pressure. Pearson and Firth (2012) showed that enhancing the durability of community gardens involves, among issues related to tenure of funding sources, that the local community develops a "sense of ownership."

The findings of this study raise the possibility that basic needs may function at the community level, as well as among individuals. Throughout the interviews, participants referred to the collective, both in their aspirations and when reflecting on their motives, feelings, and experiences. It is possible that the premise of basic need fulfillment might stretch beyond the assumption that a community will function well when each individual has their personal psychological needs satisfied (although we do concur that this will also contribute to a better-functioning community). That is, the concept of community needs may reflect more than the sum of its parts. Findings suggest that a community may function at its best when the members feel that the community as a whole has autonomy through *collective* decision-making and active engagement. As a group, there are the skills and resources to achieve meaningful goals, thus building capacity and a sense of competence. There is also a shared sense of connection, feelings of belonging, closeness, relatedness among community members. However, this premise warrants further exploration across a range of community contexts. Findings also suggested that as a result of differing participation in activities in community gardens, needs for community relatedness may stack up against individual needs for competence. The possibility for tensions between fulfilling community-level needs and individual-level needs may have implications for social sustainability and warrants further investigation in future studies.

Although relatedness appeared prominently in our study, we did not interview those who had been involved in unsuccessful gardens. While the garden may create groups within the community, such social structures will not necessarily be cohesive and characterized by a sense of belonging as was reflected in our data; in some instances, community garden initiatives have been colored by interpersonal conflicts and problems (Glover, 2004; McGlone, 1999). Thus, the community garden will not benefit the overall health of the community if it is installed without the nurturing of social conditions likely to lead to community need satisfaction. The encouragement of need-supportive interactions among community members could be an important step in helping to promote individual- and community-level need satisfaction, well-being, and in turn, sustainable gardens.

Limitations

Despite the contributions of this study, we also note some potential limitations. We specifically analyzed the data with SDT in mind because we were also using the study to explore some questions specific to that theory (i.e., the potential role of basic needs in relation to community well-being). However, we acknowledge that the application of other theories may also contribute to our understanding of the role of community gardens in promoting individual and sustained well-being. Furthermore, due to the qualitative nature of our study design, our findings may be specific to the communities which we purposefully recruited and may not translate to other community settings. Future research using a variety of methods and communities is encouraged, to explore the generalizability of our findings.

Future directions

This study suggests that the integration of BPNT into the design and implementation of community gardens may hold great potential. For example, drawing from BPNT-based intervention research in other domains including education (e.g., McLachlan & Hagger, 2010), healthcare (e.g., Rouse et al., 2014), and physical activity (e.g., Kinnafick, Thogersen-Ntoumani, Duda, & Taylor, 2014), community members could be educated in how to adopt a need-supportive communication style. This style includes encouraging choice and initiative, soliciting input into decision-making, using non-controlling language, providing rationales for requests, taking perspective, showing warmth, care, and respect, and encouraging and praising effort. Approaches to setting goals, approaching challenges, and structuring and organizing that draw from BPNT, and SDT more generally, could be implemented to support community and individual competence. Creating a sense of respect, connection, and belonging among members of the community in relation to engagement in garden tasks could also be addressed. Such education could be delivered via a garden setup workshop or via the production of a tool kit. While such past intervention research has typically targeted those in professional positions of authority or leadership, we propose that similar approaches could be utilized to upskill community members to utilize a more need-supportive communication style when interacting with their peers. This approach could also have application across a range of other community initiatives.

Future research could also explore the role of nature in explaining the link between community gardens, needs, and well-being. Although BPNT typically focuses on the social environment as a determinant of well-being, there are some suggestions that being in nature can help foster feelings of need satisfaction. Previous research (e.g., Weinstein, Przybylski, & Ryan, 2009) has suggested that being in nature can stimulate introspection, a focus on one's own interests, thoughts and aspirations, which may distract from the more autonomy-thwarting sense of fears, pressure, and expectations that may color normal existence.

Summary

In the present article, we considered mechanisms through which community activities, in particular community gardens, could contribute to individual and community well-being. Our study suggests that when a garden is embedded within the community, it can support the needs for autonomy, competence, and relatedness, and that these satisfactions may in turn contribute to the sustainability of garden initiatives. The satisfaction of these basic needs may empower individuals and communities, thereby setting the stage for more resilient communities which are better able to deal with change and adversities (such as economic downturns and spells of crime), another important characteristic of highly functioning, flourishing communities.

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Author Disclosure Statement

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