

8-1-2015

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Recommended Citation

Landry, A. S., Chittendon, N., Coker, C. E., & Weiss, C. (2015). Perceived Effects of Community Gardening in Lower Mississippi Delta Gardening Participants. *The Journal of Extension*, 53(4), Article 14. <https://tigerprints.clemson.edu/joe/vol53/iss4/14>

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Perceived Effects of Community Gardening in Lower Mississippi Delta Gardening Participants

Abstract

This article describes the perceived physical and psychological health impacts of community gardening on participants in the Mississippi Delta. Themes identified include the use of gardening as an educational tool and as a means to increase self-efficacy and responsibility for personal and community health. Additional benefits of gardening as identified by the study include exposure to new types of healthy foods, increased physical activity, and the building of a legacy. Incorporation of gardening into school curriculum could equip young residents with gardening skills and improve the likelihood that community gardens will be maintained.

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Effects of Community Gardening in Mississippi Delta Gardening Participants

Community gardens have garnered attention as a potential means to decrease the rates of chronic disease in rural communities through increased fruit and vegetable intake (Barnidge et al., 2013). Community garden participants have reported increased access to fresh, nutritious foods and decreased household food costs (Baker, Motton, Seiler, Duggan, & Brownson, 2013; Wakefield, Yeudall, Taron, Reynolds, & Skinner, 2007). In addition, community gardeners credit gardening with improving psychosocial health (Wakefield et al., 2007), increasing connection to the community (Comstock et al., 2010), and bolstering feelings of personal pride (Blaine, Grewal, Dawes, & Snider, 2010; Northrop, Wingo, & Ard, 2013). Adults participating in community gardens tend to have lower body mass indices than non-gardening peers (Zick, Smith, Kowaleski-Jones, Uno, & Merrill, 2013), and children participating in a gardening intervention have improved body mass indices (Castro, Samuels, & Harman, 2013). Children who are not interested in competitive physical activity may find enjoyment in gardening (Phelps, Hermann, Parker, & Denney, 2010), and 20 minutes of gardening a

day translates to statistically higher ratings of health in adults (Litt et al., 2011). The act of community gardening represents active behavior change and provides participants with experience in producing and harvesting food, which could change the way communities perceive health, food, and the environment (Ferris, Norman, & Sempik, 2001). Likewise, positive social and psychosocial changes likely occur that may positively affect long-term health outcomes (Teig et al., 2009).

The Mississippi Delta suffers disproportionately from chronic diseases as compared to other parts of the U.S., and most counties in the Mississippi Delta have obesity prevalence rates between 41-47% (University of Wisconsin Population Health Institute, 2010). In 2009, 82% of Delta participants in one nutrition literacy study were classified as overweight or obese (Zoellner, Connell, Bounds, Crook, & Yadrick, 2009); and in 2013, that number grew to 85.3% of participants in one nutrition education intervention (Landry, Connell, Huye, & Crook, 2013). Multiple interventions have attempted to curb the rising obesity rates in this area, and recently gardening has been used as a means to reach the Delta population. In 2012, community gardens were implemented across the Mississippi Delta by a non-profit, community-based organization working to establish sustainable food systems in the Mississippi Delta. This article qualitatively describes the perceived health impacts community gardening had on participants.

Methods

A qualitative study design with a convenience sampling method was used to gather data. Each of the 18 independent garden sites across various communities was composed of people with diverse interests and skills, including Master Gardeners as well as participants from local churches and communities across the Mississippi Delta. For the study, garden leaders for the 18 garden sites were contacted by a researcher (NC) as well as the project coordinator and asked to participate in a focus group. Multiple time and location options were offered in an effort to promote convenience and thus enhance participation. Because of the low response rate and thus small sample size, one focus group was held in a convenient, central location.

Focus group questions were developed using items from the National Research Center's 2006 Community Gardener's Survey (American Community Gardening Association, 2006) that included perceived impact of gardening upon dietary practices, physical activity, and self-perceptions of wellness. Participants were asked 13 scripted, open-ended questions, and a voice recorder was used to document answers; a note taker was also present. Audio recordings were transcribed and then analyzed line-by-line by two trained research assistants using the process of thematic analysis. Next, related data were grouped together into categories and subsequently assembled into broad themes. Another research assistant evaluated the themes and respective data for consistency; any discrepancies were reviewed by the research team until consensus was achieved. All procedures were approved by The University of Southern Mississippi's Institutional Review Board.

Results

Of the 18 garden leaders contacted, only seven individuals consented to participate in the focus group, and participants were from various communities and professional backgrounds, including church garden managers, a school foodservice manager, and Master Gardeners. Information related to age, income, and ethnicity was not collected. Several themes were noted (Table 1), and one theme that

emerged was the use of gardening as an *educational tool* for children and adults. Participants in the focus group shared concerns that children in Delta communities lacked knowledge of how food is grown and noted that children in gardening programs found excitement in watching plants grow from seeds. Participants expressed enthusiasm for the incorporation of gardening into the school curriculum through science, math, and food preparation classes. One participant said:

I teach a medical botany class about all the ways fruits and vegetables help illness. A large body of research supports the benefits of fruit and vegetables and health. Students can see how plants grow, where they come from, understand health benefits. Teaching them in a science lab how to cook, how to use, how to preserve vitamins and minerals would close a loop because I am concerned, as an educator, that a whole generation doesn't know how to feed itself.

Likewise, focus group participants felt that adults who participated in gardening gained knowledge by learning which plants grow well in the Delta, along with new gardening techniques and chemicals. Another individual stated, "Learning about clay is very different; I learned about plants that I could never grow [in the north]. I first grew cotton and okra, so it's been very different from Illinois; I've learned a lot."

Table 1.

Focus Group (n=7) Themes with Quotes.

Theme	Example Quotes
Gardening as an educational tool	<ul style="list-style-type: none"> • "Students have no knowledge of nutrition from an educational prospective." • "Once they [kids] saw it [fruits and vegetables] on the table they didn't know how it got there or anything like that. That's why we started an after school garden program." • "I eat a lot of fruits and vegetables. Now I know what grows here [in the Delta]. It has been educational." • "We took them [4th graders] on a field trip. They would return to their classroom and we would demonstrate planting a seed. They experienced making a planter, placed it in the window seal, watched it, amazed that the seed transformed to a plant. It was exciting to teach." • "We also have canning classes to can vegetables from the garden. And there are eight week classes with the

	<p>county extension service to improve how we use fruits and vegetables in the community."</p>
<p>Increasing self-efficacy and responsibility for personal and community health</p>	<ul style="list-style-type: none"> • "The gardens give me hope for success down the road. If we teach them [students] and they go back and look at vegetable as medicine for longevity of life that will be success." • "People that want to start gardening, just start! There are resources. The resources will come. Ask, ask questions it will work out, it really will." • "If they [the community] plant a garden they will eat the produce and then we will have a healthier community!"
<p>Exposure to new types of healthy foods</p>	<ul style="list-style-type: none"> • "[Gardening] increases your awareness of what goes into food. You feel guilty if you don't eat what you grow." • "We plant for the students to identify. About two years ago we planted collards, broccoli, cauliflower, cabbage. When they are growing they all look the same. One cool afternoon in the fall, a broccoli starts sprouting up and then the cauliflower. The kids were amazed when the collards 'turned' into cauliflower!"
<p>Gardening for physical activity</p>	<ul style="list-style-type: none"> • "[I enjoy] seeing the students play in the dirt. They identify with the garden through the science classes and math classes too. [I enjoy] seeing them get a good workout." • "Working in the garden keeps me in shape-it keeps my weight down- but it's a stress reliever too." • "I get physical activity from walking to the garden from my office, but it's exercise I need so the distance is not a problem for me."
<p>Gardening as a way to build community togetherness and a legacy</p>	<ul style="list-style-type: none"> • "[I enjoy] building a resource that will be valued by the community as a needed resource. It has been fun working on the ground up with this project. I am also an avid gardener. It is fun to share a passion."

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| | <ul style="list-style-type: none"> • "It [the garden] is good for our church because the garden provides fresh food and because it gets people involved." • "I interact more with teachers and students. Foodservice is not just food going to the table. It helps students to know where food comes from." • "It's been great not just for me but for entire community." |
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Incorporating gardening into the educational system was also identified as a way to *increase self-efficacy and responsibility for personal and community health*. Focus group participants viewed gardening as an important skill to be learned early to facilitate healthier eating habits throughout one's lifetime. One focus group participant stated:

I think that especially in the school system, it [gardening] is a lifelong learning process. If the students start at an early age, hopefully when they are adults they will grow their own garden. It [gardening] is not only educational; it helps you physically, emotionally, [and] mentally. It is an all-around experience. Hopefully, it will affect them as they become adults. We have to get away from processed foods because diabetes and obesity are rampant. It is starting with school-aged children, not just adults. We have to do something to prevent the terrible foods that children are eating. It [the garden project] is the beginning of something that will help kids to make better choices.

Exposure to new types of healthy foods was also identified as a benefit of community gardens. Participants of the focus group said they increased the variety of vegetables in their diets based on what was grown in their gardens and tried new foods such as kale, multi-colored squash, red mustards, and purple broccoli. Focus group participants said, "I have always eaten vegetables, but I have begun to eat more different types of vegetables." Participants also said, "I have never eaten kale, but we planted kale and you eat what you grow!"

Another theme that emerged was gardening as an opportunity for improving physical and mental health. In addition to the *physical activity provided by gardening activities*, many focus group participants reported that they walked to gardens, increasing physical activity levels. One participant said, "I get physical activity from walking to the garden from my office, but it's exercise I need; so, the distance is not a problem for me." Another participant said, "[I have] never been a fast food eater. My thing is the weight comes from not getting physical activity. I eat the same fruits and vegetables as before, but the garden provides me with physical activity. Not more fruits or vegetables." Participants identified the extra physical activity from gardening as enjoyable and helpful for weight loss or maintenance.

The last theme was *gardening as a way to build community togetherness and a legacy*. The focus group participants reflected the idea that community gardens provided an opportunity for people to spend significant amounts of time together working toward a common goal. For example, one focus group participant said, "We're constantly going together and coming together with the garden. We are not forsaking our family, but are spending a lot of time in the garden."

Discussion

In general, African Americans in rural areas of the Delta have limited access to grocery stores with adequate offerings of fruits and vegetables (Baker et al., 2006). One garden leader expressed concern over her community's lack of grocery stores, and in her perspective, gardens provided nutritious food to community members. Participants voiced concern that youth in the area had little knowledge of how food is grown and prepared before it is served at home or school. Community gardens have potential to improve food choices of youth and increase physical activity while decreasing chronic diseases such as diabetes and obesity (Alaimo, Packnett, Miles, & Kruger, 2008). It is interesting that, although a majority of the questions were related to personal health and well-being, focus group participants often answered in the context of the benefits for others and how the gardens helped other people. One possible explanation for the projection of benefits on to others is that most focus group participants were Master Gardeners and therefore were already committed to horticulture and helping others in the community. These individuals already had heightened awareness of the impact and possible benefits of gardening. One interesting aspect identified by the focus group participants was the positive impact of gardening on psychosocial health and stress by providing an opportunity to socialize in a safe atmosphere. The social aspect of gardening played a large role in focus group participants' desire to garden, and several mentioned pleasure in building community and socializing with friends. Even when discussing negative aspects of gardening, focus group participants reiterated enjoyment of nature, socialization, and the sense of accomplishment and ownership that gardening provided. The psychosocial benefits observed here mirror those found in previous studies conducted in urban settings (Draper & Freedman, 2010; Firth, Maye, & Pearson, 2011; Hale et al., 2011; Wakefield et al., 2007).

Challenges for Rural Community Gardeners

Gardeners in rural areas shared a few of the same concerns about their plight as urban gardeners (Hale et al., 2011), including fear of vandalism, theft, and lack of volunteers. Unlike urban gardeners, participants in the study reported here mentioned the destruction of crops by insects and challenges related to the weather as their biggest concerns. From information obtained in other settings related to this project, garden participants have said that garden work is "too hot, too hard, and too dirty," and the lack of knowledge of basic gardening skills or expertise frustrates and stymies some. Likewise, project personnel have noted impatience with the garden members' perspective on the growing process, and they often quit participating prior to the harvest of crops. Although travel distance to urban gardens has been identified as a barrier in existing literature (Kingsley, Townsend, & Henderson-Wilson, 2009), participants in the study stated that they enjoyed the extra physical activity involved in reaching their gardens, and most lived within walking distance. Participants stated that finding volunteers to work in the gardens was difficult, and a few people carried most of the labor

load. These findings are not contrary to studies conducted with urban gardeners, who listed volunteer labor as a barrier to maintaining community gardens (Hale et al., 2011; Kingsley et al., 2009).

Dietary Intake of Gardeners

While gardeners in general have been shown to eat more produce, community gardeners have been shown to have diets higher in fruits and vegetables than home gardeners (Alaimo et al., 2008; Litt et al., 2011). However, focus group participants stated that gardening had no impact on produce intake, as they already consumed many fruits and vegetables. Several focus group participants did note they were more willing to try new and varied types of produce due to involvement in the community gardens. Focus group participants subjectively reported a very low intake of processed foods, "junk" foods, fast foods, or packaged foods; however, Delta residents in general report high intakes of fast food, sugar-sweetened beverages, and fat (Flachs, 2010).

Future of Community Gardening in the Mississippi Delta

Literature indicates a correlation between increased education, fruit and vegetable intake, and levels of physical activity (Centers for Disease Control and Prevention, 2011; Flachs, 2010; Mokdad et al., 2003). The poor health statistics of the Mississippi Delta are disconcerting; however, community gardens present an opportunity to provide education that could positively affect the health of residents. Participants in the focus group reported a strong desire to educate students and share knowledge about how fruits and vegetables are grown, the benefits of nutritious foods, and the importance of decreasing obesity and diabetes rates in communities.

Members of the focus group seemed very interested in sustaining gardening projects. The community gardening project was aimed at adults, but participants clearly expressed interest and concern for improving the health of younger generations in the Mississippi Delta through gardening. As fewer and fewer people maintain home gardens, the younger generation may feel intimidated by the prospect of keeping a garden, resulting in reluctance to volunteer in community gardens and failure to learn about agriculture and the importance of eating healthy. Future research should involve development of a comprehensive gardening curriculum integrating biology, chemistry, nutrition, physical education, and food preparation for use in Mississippi Delta schools. Teaching students how to garden could help solve the issue of a lack of volunteers and has the potential to empower students with a new and useful life skill and garner enthusiasm for community gardens. As indicated before, volunteers are crucial to garden success and early on in the Delta garden development period grant money was available to pay volunteers for their time working in the garden; however, after funding periods were over the participation rates sharply declined.

The study was not without limitations, including the fact that it was a qualitative study assessing the perception of garden leaders. The results of the qualitative study are not generalizable to populations of community gardeners outside the Delta or in urban areas. The small sample size presents another limitation, but is appropriate for the focus group format and the limited population of community gardeners involved in the project. We inquired about the low response rate and resulting small sample size and were informed by focus group participants the culture in the Delta makes it difficult for strangers to create relationships. One Master Gardener described Delta residents as "wary of affiliating

themselves with groups or people who are unfamiliar." Though we inquired about changes in dietary intake during the focus group, we had no quantitative measure to assess diet or dietary changes specifically resulting from garden participation. Focus group participants were contacted and voluntarily agreed to participate in the focus group session, so it is likely they are highly motivated individuals who care about the community and success of the gardening projects.

Conclusion

This article reported the perceived impact of community gardening among participants in the Mississippi Delta. While gardens seemed to have little impact upon fruit and vegetable intake of participants, gardens clearly encouraged greater participation in daily physical activity while creating a positive community atmosphere. It is encouraging that participants viewed gardens as a way to increase intergenerational relationships and contribute to reducing the incidence of obesity in the youth of the Mississippi Delta through increased intake of nutritious foods, increased activity levels, and enhanced knowledge of the origin of food. Participants recognized gardens as a source of affordable and nutritious produce in areas with limited access to fresh foods. Lack of volunteers presents a major barrier to the development and sustainability of the gardens, but incorporation of gardening into school curriculum could equip youth with gardening skills and improve the likelihood that community gardens will be maintained.

Acknowledgements

The authors would like to thank Judy Belue and Ryan Betz for their critical work to make the study reported here possible. The research presented in this article represents original work that has not been submitted to another peer-reviewed journal. The content of the research has not previously been published, nor is it being considered elsewhere. There are no known financial or other contractual agreements on the part of the authors that may cause conflicts of interest. No financial support was received for this work. All authors have reviewed and approved the complete manuscript. The Institutional Review Board at The University of Southern Mississippi reviewed and approved the study.

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