Community Gardening in a Senior Center: A Therapeutic Intervention to Improve the Health of Older Adults

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Exercise is known to provide many physical and emotional health benefits whereas physical inactivity can lead to physical deconditioning and deterioration of health. While older adults could benefit from physical exercise, many do not engage in regular physical activity. Gardening can be a source of moderate or vigorous physical activity; however access to private space for gardening may be problematic for this population. Thus, a pilot project was undertaken to examine what effect, if any, a community gardening activity at a senior center might have on the level of functional health, depression, and physical fitness for independent-living elders. This study employed a quantitative one-group, pre-test/post-test design to evaluate each of those areas. The sample consisted of six participants drawn from attendees at a senior center in upstate New York; all participants were ambulatory and lived in private homes or apartments. There was a general trend toward lower, improved, scores for most Dartmouth COOP Functional Health Assessment Charts at the post-test and most notably for Social Activities ($p = .046$). In addition, mean scores for Total Emotional Score ($p = .042$) and the Geriatric Depression Scale decreased from the pre-test to the post-test indicating an improved level of function, and the Six-Minute Walk Test increased indicating a greater distance walked and improved function. Community gardens located in senior centers represent ideal opportunities for health professionals including recreational therapists to collaborate

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with local agencies to encourage healthy lifestyles for older adults. Recreation therapists are particularly qualified to provide the leadership necessary to assist older adults in the development of community garden programs.

Introduction

Despite the known benefits of exercise, many older adults do not engage in physical activity and suffer deteriorating health as a consequence. Deteriorating health may lead to further inactivity and worsening physical condition (Ebersole & Hess, 2001). Healthy People 2010 calls for the promotion of physical activity at least three times per week (US Department of Health & Human Services [USDHHS], 2002).

Community gardening in senior centers represents an opportunity for exercise, economic and nutritional benefits, physical and mental well-being, and increased social contacts (Armstrong, 2000; Hancock, 2001). They are exceptionally well suited for collaborations among various agencies and groups. Gardening also represents one method for seniors to meet the Healthy People 2010 objective for increasing physical activity. Thus, as a recreational intervention, community gardens can significantly improve functional limitations to leisure activities that directly benefit overall health. Therapeutic recreation specialists (TRSs) are particularly qualified to provide the planning, teaching, and leadership necessary to assist older adults in the development of community garden programs. This paper describes a pilot community gardening collaboration between a small County Health Department and a Senior Center.

Literature Review

Exercise has been shown to be effective in improving mental as well as physical health (Ebersole & Hess, 2001; Hurrell, 1997; Palmer, 2005; Singh, 2002, 2004). Exercise maintains functional capacity and strength, enhances self-sufficiency and independence, improves general life-style, preserves mental functional integrity, decreases depression, and reduces risk of medical problems (Ebersole & Hess). Physical benefits include improved cardiac muscle tone, decreased blood pressure, decreased percentage of body fat, improved ability to breathe deeply and effectively, reduced tension, favorable bowel function, and appetite control (Ebersole & Hess).

While older adults could benefit from physical exercise, many do not engage in regular physical activity (Robbins et al., 2001). In 1996, 34.1% of women and 26.2% of men dwelling in New York State reported being physically inactive (New York State Department of Health [NYSDOH], 1998). The elderly, especially women, are particularly at risk for physiologic changes associated with aging that contribute to a decreased muscle mass and deterioration in function. This functional deterioration contributes to a vicious cycle where physical activity is further reduced, exacerbating physical decline (Ebersole & Hess, 2001).

Barriers to exercise include time, physical disability, misconceptions about exercise, lack of appropriate facilities or transportation, disease problems, poor weather, and not being encouraged to exercise by health care providers. Exercise, such as gardening, that involves a low probability of musculoskeletal injury, group participation, emphasis on variety and pleasure, setting of personal goals, assessment of response to training, social support, positive feedback, and enthusiastic leadership and role models is believed to improve exercise compliance (Ebersole & Hess, 2001). Adherence to the recommended modifications is difficult but generally has improved outcomes when participants set personal goals, are involved in similar activities with others, and receive professional support and resources (Robbins et al., 2001; Whittemore, 2000).

Community gardens are spaces of land and activities that allow people the opportunity to work together to grow vegetables, fruits, herbs, or flowers. Gardens build community capital because they are created by and for individual communities and participants are the primary stakeholders and develop their own social network (Hancock, 2001). People tend to work side-by-side learning from each other and sharing information about gardening, food recipes, and other items of common interest.

Infantino (2004) conducted a phenomenological study of elders, aged 65 or older. The results indicated that the gardeners "believed gardening kept them mentally and physically active" (Infantino, p. 14). Additionally, the work stimulated the gardeners to meet a variety of challenges and develop partnerships with other gardeners. From their gardening came "a sense of accomplishment, achievement, and recognition from successfully tending their gardens and sharing the 'fruits of their labors' with others" (Infantino, p. 14).

Armstrong (2000) surveyed the coordinators of 63 community gardens in 56 counties in upstate New York in order to ascertain the potential implications for health promotion programs and community development. She found that, in both urban and rural areas, a predominant reason for the community gardens was a lack of available space available for private gardening. Coordinators reported that people chose gardening for the many health benefits that included access to fresh food, exercise, and mental health. Further, the gardens provided a community focus around which members could gather to share ideas, learn from each other, and create social networks to address other community issues.

In a survey conducted by the American Community Gardening Association (1998), community gardens were located in a variety of settings including neighborhoods (67.4%), public housing units (16.3%), and schools (8.2%). Only 1.4% of community gardens were identified as being located in senior housing or a senior center. Although the variety of locations and populations served by these gardens suggest that community gardens are versatile, the opportunities available to the aging population were few.

Conceptual Model

The Leisure Ability Model (Stumbo & Peterson, 2004) will be used to guide discussion in this paper. The Model outlines three roles of the therapeutic recreation specialist that are evident in the gardening project: (a) therapist, (b) educator, and (c) facilitator. In the Leisure Ability Model, the therapeutic recreation specialist (TRS) adapts his or her role to the changing needs of the client. In the first role, functioning as therapist, the TRS acquires the necessary knowledge to implement a program and creates an intervention specific to deficits noted on assessment. The TRS works with the client who is free to participate in the program and shares responsibility for his/her involvement and achievement. In the second role, the TRS has assumed the duties of "educator" by functioning as an instructor, advisor, and counselor for the goal of acquiring knowledge and skills pertinent to the activity. As the activity progresses, the client assumes more independence and responsibility. The TRS role transitions to that of a leader and facilitator.

Setting

The pilot study was conducted at a senior center in upstate New York administered by the County Office for Aging. The Senior Center provides a variety of activities and opportunities to socialize. The county has a population of nearly 200,000, of whom 16.4% are aged 65 or older, a figure that is slightly higher than the 12.9% for New York State (NYS) (NYSDOH, 1998). Females represent 51.8% of the county population, similar to NYS as a whole; and whites represent 91.3% of the county population compared to 67.9% for NYS.

Development of the Community Garden

In February, 2004, the County Health Department chose community gardening as one component of its "Steps to a HealthierNY" program. The Senior Center was chosen because the Site Supervisor and seniors who used the Center wanted help creating a community garden. The first author (ENA) was an Intern at the County Health Department and became the garden project leader. After acquiring the knowledge key to developing a community garden (Stumbo & Peterson, 2004), the Intern presented community gardening to the County Health Department Partnership and met with the Senior Center group. A timeline was developed to aid with the garden planning (Appendix A).

The Planning Committee was formed at the first garden meeting. It included the Intern, the Site Supervisor, and interested gardeners. The Committee was very proactive in identifying tasks to be completed and dividing the necessary labor. Tasks included looking for tools, supplies, seeds, and the location of the garden. The group agreed to meet on a weekly basis to continue the planning.

The most formidable challenge to the group was the selection of a garden site. Because the Senior Center was located on County property, approval had to be sought from County engineers. The Site Supervisor presented three different locations. The final selection was approved after four months of negotiation. Many garden designs were considered, each having advantages and disadvantages. For example, a raised bed would have provided access for those in wheelchairs or who had difficulty bending over. However, the cost, location, and construction of a raised bed were prohibitive. The final decision was to garden using containers. The container garden was conveniently located next to the Center at the end of a parking lot so it would be accessible to those in wheelchairs and would be close to a water source. The gardens were dismantled and stored for use the following year.

During the planning process, the group addressed other issues related to organization. They chose to become the Northern Broome Senior Center Garden Club and adopted a mission statement to govern the activity in the garden (Appendix B). They decided how the containers would be distributed, and where seeds, dirt, and plants would be acquired. The gardeners decided that they would also meet weekly with the Intern throughout the summer. This schedule allowed them the opportunity to discuss issues as they developed. Further, in the educator role, the Intern provided classes related to composting and the benefits of exercise.

Next, the gardeners had to consider any insurance requirements that would impact the project. For example, outside agency volunteers such as the scouts were not permitted to help with the garden due to insurance coverage issues. Since participation was limited to only those seniors who regularly attended the center, no supplemental insurance was needed.

The actual container gardens were assembled by the Site Supervisor and the Intern. Both acquired the soil required for the garden, the Site Supervisor obtained the containers and filled as many as the gardeners wished to use. This step in the process was very physically demanding and was not possible for the seniors to accomplish by themselves. In all, 10 people wanted to garden and each was provided space, containers filled with dirt, and plants. Each person had the autonomy to choose the plants to be grown.

Eight of the gardeners agreed to participate in a study to assess the impact of their gardening activities on functional status, depression, and physical fitness. Each gardener completed a health assessment with the Intern and chose a specific, health-related goal to accomplish in eight weeks of gardening. Thus in this phase, the Intern, as therapist, engaged each participant in the planned gardening activity while each participant focused on an area for functional health improvement. Six gardeners

activity. Therapeutic recreation specialists have the knowledge and expertise to assist seniors with assessments of their health and appropriate activity planning to accomplish health-related goals. Community gardens that are planned, developed, and cared for by the seniors become a sustainable resource within the community. This study has demonstrated that seniors have the capacity to plan and care for a garden that meets their needs.

Community gardens represent opportunities for intergenerational activities particularly when the project is extended into the community. Children would benefit from the seniors' experiences and the seniors would have help with physical tasks that may be uncomfortable or difficult for them. Community gardens in senior centers do require assistance in some aspects such as planning among agencies, manual work in garden preparation, and the delivery of materials such as soil, pots and plants. Costs, however, can be kept to a minimum. This project was dependent on volunteer assistance from the Intern, and donated plants and dirt. If funding was available from the participating agencies, alternative types of gardens (e.g. raised beds) would be possible. These activities represent opportunities to involve the help of other volunteer groups.

The lack of private space is particularly relevant for special populations such as senior citizens who are transitioning from their independent homes to senior housing. The senior center participants who resided in the adjacent housing complex spoke often of their land-use issues. They were prohibited from planting anything, including flowers and vegetables, around their building. The regulations deprived them of a source of recreation, creativity, and food that was important to their lifestyles. Health professionals need to be aware of the importance that gardening activities may have had in the lives of seniors and that the lack of adequate gardening space is a hindrance for this activity (Armstrong, 2002). Frequently, seniors possess a vast body of knowledge about plants and vegetables that only needs an avenue for expression. They may be denied this outlet if they are unable to garden where they live.

Future Therapeutic Possibilities

The community garden project was limited by size, location, and population. Further research in additional senior centers, in other parts of the country, and with more disabled seniors would provide a larger and more diverse sample with adequate statistical power. Future research could determine long-term effects of gardening on the physical and mental health of seniors, positive dietary changes such as the consumption of more vegetables, and the social and emotional changes that are associated with community gardens.

The group of seniors in this project voiced their support at a County Health Department meeting. In their words, "before the garden we knew each other. After the garden, we became friends." How a person feels about his or her ability to perform an activity may enhance or hinder the ability to accomplish the task (Glanz, Rimer, & Lewis, 2002). Those persons who felt they were successful with the garden will be more likely to engage in gardening again. Indeed, these gardeners began to plan for the second year of gardening at the end of the study.

Conclusion

Exercise is known to provide many physical and emotional health benefits whereas physical inactivity can lead to physical deconditioning and deterioration of health. While older adults could benefit from physical exercise, many do not engage in regular physical activity. Gardening represents one method for seniors to meet current recommendations for increasing physical activity; however, access to private space for gardening may be problematic. This pilot study of a community garden intervention in a senior center offers empirical evidence that gardening has important health benefits, especially in the areas of social and emotional health. Community gardens located in senior centers represent ideal oppor-

tunities for health professionals including therapeutic recreation specialists to collaborate with local agencies to encourage healthy lifestyles for older adults.

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