

**Recreational Therapy Evidence Based Practice Day Conference**  
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**The Use of Horticulture-based Programs to Promote Engagement for Older Adults with Dementia**

**Search Terms:** Horticulture AND engagement; horticulture AND engagement AND dementia; dementia AND horticulture, gardening AND engagement

**Years:** 1991-2014

**Databases:** Ageline; CINAHL; Garden, Landscape, & Horticulture Index; PsycARTICLES; PsychINFO

**Number of Articles:** 6 (additional 7 articles were used to support the background information)

**Summary of Research Findings**

It is projected that dementia will affect 1 in 85 people by the year 2050 (Rocca et al., 2011). Unfortunately, no treatments or medications currently exist that can stop the progression of dementia (Nowrangi, Rao, & Lyketsos, 2011); therefore, therapeutic interventions typically focus on maintaining quality of life and reducing behavioral symptoms. Previous literature has suggested that programming involving plants and gardening can serve as a source of stimulation for people with dementia and can lead to positive outcomes by sparking memories of earlier, pleasurable experiences (Cohen & Weisman, 1991; Haas, Simson & Stevenson, 2003). In addition, horticulture-based activities are typically creative, result in tangible end products, provide exercise for a wide range of physical and cognitive skills, and enhance social interaction (Edwards, McDonnell, & Merl, 2012).

This literature review includes six studies that examine the use of horticulture-based activities in improving engagement in older adults with mild to moderate dementia (Detweiler, Murphy, Myers, & Kim, 2008; Gigliotti, Jarrott, & Yorgason, 2004; Gigliotti & Jarrott, 2005; Guaita et al., 2011; Jarrott, Kwack, & Relf, 2002; Jarrott & Gigliotti, 2010). In these studies, horticulture-based activities were presented in a variety of ways, including planting, cooking with herbs, crafting, sensory stimulation, and engagement in outdoor gardens. Other than one group of individuals diagnosed with psychosis, all participants had a diagnosis of dementia, an average age of 80 years, and were either participating in an adult day program or resided in a long-term care facility. Group sizes ranged from four to 42 and data were collected on nine to 129 total participants. The activities in five of these studies were conducted in a group setting, for 30 minutes to an hour, one to three times per week, for six to ten consecutive weeks during the spring and/or summer in the southeastern United States (Gigliotti et al., 2004; Gigliotti & Jarrott, 2005; Guaita et al., 2011; Jarrott et al., 2002; Jarrott & Gigliotti, 2010). However, one study lasted 12 months and included the observation of participants' use of a wander garden (outdoor garden for use by residents) (Detweiler et al., 2008).

Findings presented in these six articles revealed that participants engaged frequently in activities, interacted positively with their peers, and frequently visited the outdoor garden spaces. In Guaita et al. (2011), participants with lower levels of cognitive functioning engaged in the outdoor gardens more than those functioning at higher levels. They also reported that engagement was significantly higher in the morning than in the afternoon and greater in the summer months as opposed to the spring. Detweiler and colleagues (2008) interviewed families and staff and found that engagement in outdoor gardens improved the mood, ability to reminisce, and quality of life of the individuals with dementia. Lastly, Gigliotti, Jarrott, and Yorgason (2004) found that productive behavior was higher for participants engaged in horticulture-based activities than during traditional activities. Looking more closely at this study, when three different horticulture-based activities were considered (e.g. cooking, crafts, and planting), there were no significant differences in levels of engagement.

Due to small sample sizes, the reviewed studies had limited power to detect the effects of horticultural programs in promoting psychological well-being (Detweiler et al., 2008; Gigliotti & Jarrott, 2005). However, Detweiler and others (2008) suggested that therapists should still consider psychological benefits as a possible outcome as staff and caregivers of those with dementia provided anecdotal information regarding reduced agitation and improved quality of life when the individuals with dementia engaged in outdoor gardens. Additionally, Gigliotti and Jarrott (2005) found that, even though the results did not reach a statistically significant level, improved affect was observed during horticulture-based activities. Finally, one concern that should be noted is that physical incidents increased in one study due to participants being mobile and engaged in the outdoor garden (Detweiler et al., 2008).

Overall, horticulture-based programs may lead to a variety of positive outcomes including the promotion of engagement, along with some possible improvements in psychological well-being for individuals with dementia. The next section will discuss how to structure the horticulture-based program while avoiding possible negative outcomes.

**Knowledge Translation Plan**

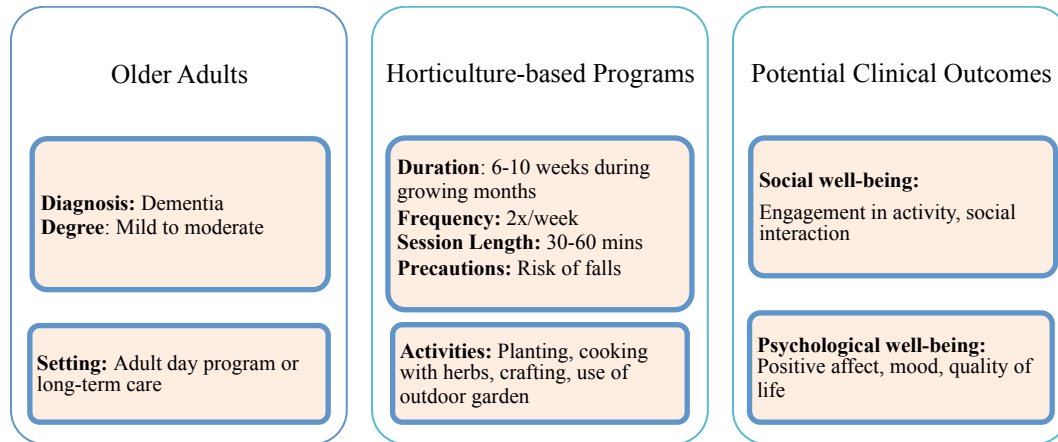
Healthcare professionals often find it difficult to engage individuals with dementia in meaningful activities since many of these clients experience social isolation, negative behavioral symptoms, and can lack motivation to participate in activities among their peers (Ice, 2002; Teri & Logsdon, 1991). Based on findings from the previously mentioned studies, recreational therapists should take advantage of horticulture-based interventions to improve levels of engagement, positive interaction with peers, and psychological well-being.

Using an average of the activity duration in the studies reviewed, recreational therapists should consider providing horticulture-based programs approximately twice per week with each session lasting 30 minutes to an hour (Detweiler et al., 2008; Gigliotti et al., 2004; Gigliotti & Jarrott, 2005; Guaita et al., 2011; Jarrott et al., 2002; Jarrott & Gigliotti, 2010). This time frame should be adequate for keeping participants engaged while still allowing time to gather supplies, engage in the activity, and properly clean up—all of which participants should be included in to maximize engagement. The horticulture-based program should last approximately six to ten weeks during the growing months of the year. This would correspond to spring and summer in the southeast United States, but may vary in other geographic regions. This length of time should be

conducive to producing a tangible end product; for example, participants looked forward to taking some of the grown plants home at the end of the intervention (Jarrott et al., 2002). Details on program structure, suggested activities and potential outcomes are referenced in *Figure 1*.

We suggest that the horticulture-based program be facilitated by recreational therapists with training in activity facilitation, horticulture, and dementia. The recreational therapists should employ safety precautions, such as the use of non-toxic materials (Gigliotti et al., 2004; Jarrott et al., 2002; Jarrott & Gigliotti, 2010), protection from the sun and insects, monitoring of extreme temperatures (Detweiler et al., 2008; Gigliotti & Jarrott, 2005), and supervision when participants are at risk of falling (Detweiler et al., 2008). Group size should be dictated by the activity, with the following considerations: 1) the activity should be facilitated in a group setting to foster social interaction (Gigliotti et al., 2004), and 2) the ratio of clients to care staff should maximize the ability to deliver person-centered care (Gigliotti et al., 2004; Gigliotti & Jarrott, 2005; Jarrott & Gigliotti, 2010). Since person-centered care approaches have been shown to contribute to sustained attention, the recreational therapists should provide an array of activities in order to meet the needs and abilities of each individual in the program (e.g., standing activities, seated activities, and tasks like filling water cans). Since participants in the aforementioned studies indicated that they enjoyed engaging in horticulture-based activities, therapists should meet individuals who are motivated with treatment which will further assist in obtaining the desired outcomes of the horticulture-based program.

Figure 1: Recommendations for Conducting Horticulture-based Programs for Older Adults with Dementia.



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