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Horticulture Group Therapy with Mentally Ill Older Adults

by

Kristen J. Hill, M.A.

Project submitted in partial satisfaction of
the requirements for the degree of
Doctor of Psychology

September 2011

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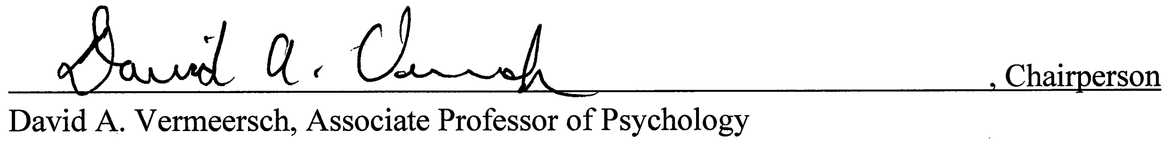
Each person whose signature appears below certifies that this project in his/her opinion is adequate, in scope and quality, as a project for the degree Doctor of Psychology.



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ABSTRACT

Horticulture Group Therapy with Seriously Mentally Ill Older Adults

by

Kristen J. Hill

Doctor of Psychology, Graduate Program in Psychology
Loma Linda University, September 2011
Dr. David Vermeersch, Chairperson

With a greatly increasing number of older adults due to advances in medical care, all baby boomers in the United States will be 65 or older by 2029. As the number of older adults grows, so does the number of those with severe mental illness. Treatments are needed to address older adults with severe mental illness that include the negative side effects of medications. Due to the nature of severe mental illness, lower levels of required cognitive processing allows for those admitted to inpatient psychiatric settings to participate, including those with dementia. Horticulture therapy has proven useful to address severe mental illness and improve quality of life among older adults. However, an approach addressing both is not available. This doctoral project addresses severe mental illness in the older adult population utilizing Naomi Feil's validation therapy and horticulture group therapy as a framework for a 10 session treatment program.

Horticulture Group Therapy with Mentally Ill Older Adults

Chapter 1

History of Horticulture Therapy

"Though an old man I am but a young gardener."

\- Thomas Jefferson

As of 2012, approximately 10,000 people living in the United States will reach their 65th birthday each and every day (Centers for Disease Control and Prevention, 2004). Though the American population has tripled since 1900, the older adult population has grown eleven-fold with 71 million expected to comprise this age group by 2030. On average, older adults have three chronic conditions (hypertension, arthritis, coronary heart disease, cancer, diabetes, and stroke were the leading conditions as of 2001) and take five prescriptions, a significantly larger number than their young adult counterparts. The numbers are astronomical and speak to the need for practitioners to pay attention to this unique population, particularly as the baby boomer generation nears 65 and retirement. Older adults present special needs that younger persons may have difficulty meeting if they do not begin to acknowledge and prepare for this shift, not only in the workforce, but also the population's needs as they age.

Currently, 5.3 million people have been diagnosed with Alzheimer's disease in the United States and it is the sixth leading cause of death in 2006, the fifth for those 65 years or older (Alzheimer's Association, 2009). Caring for these individuals costs 148 billion dollars per year, not including 9.9 million unpaid caregivers such as spouses and

children. In addition, every 70 seconds, a new case of Alzheimer's disease occurs. The first baby boomers are approaching retirement within the next two years, and by 2029 all of the baby boomers will be 65 years or older, an estimated 70 million people in the United States. Subsequently, the number of cases and cost of care will grow, as those with dementias are the largest consumers of healthcare treatment and long-term assistance.

There is an increasing need for an integrative approach to treatment provision for older adults as they are a more "heterogeneous group than both younger and middle-aged adults" (Hillman & Stricker, 2002). This population varies greatly across such demographics as their economic situations, health statuses, cultures, occupational statuses, living arrangements, and organizations with which they interact. Accordingly, approaching their care in a "one size fits all" model would reduce treatment efficacy. Rather, it would behoove therapists to take an integrative approach to therapeutic treatment. The authors purported that there are a number of meta-analyses on evidence based treatments with this populations, specifically including interpersonal, behavioral, cognitive-behavioral, and reminiscence therapies. Studies such as Mackin and Areán (2005) have shown that these modalities are likewise effective treatments for treating both young and older adults with mood disorders.

Though it may be tempting for therapists to solely practice one modality, Hillman and Stricker argue that, "therapists also must place emphasis on therapeutic flexibility and integration, particularly in work with an older adult population." Integration often involves the mating of two or more modalities to best fit the individual. The client's difficulties are then seen as a "function of related affects, cognitions, dynamics,

environmental factors, behaviors, body chemistry, and physiology as well as prevailing social expectations and norms." Unlike when in their younger years, these clients now face challenges that younger adults rarely experience: dementia, many of their peers dying, permanent placement in facilities, and more frequent visits to various doctors. However, there are many positive aspects of becoming an older adult which should be acknowledged such as the gaining new perspectives on life, a wealth of experience, maturation and gaining of wisdom, new social norms, and the tenacity to have lived a long life. In the case of older adults, clinicians must be also aware that the environment plays a large role, one that may be well out of the client's ability to control such as the dynamics of their relationship with their caregivers or limited financial resources. This is particularly poignant for those who suffer various maladies such as facility, brain injury, chronic mental illness, are "socially injured," or are in long-term care facilities. To this end, the authors call to integrate therapeutic interventions with the older adult's environment, history, physical abilities, and interpersonal relationships and skills. Hillman and Stricker (2002) state, "psychologists who work with older adults often do not have the luxury of working exclusively within the patient-therapist dyad, as many practitioners may be able to do effectively with a young or middle-aged adult in outpatient treatment." This is particularly true in inpatient hospitals where the clinician sees the client in an unconventional setting, interacts with families and outside treating physicians, and attends treatment team meetings. A balance needs to be struck between age-related factors and non-age-related factors that affect the whole being of the client.

Chapter 2

What is Horticulture Therapy?

"Gardening is a kind of self-prescribed preventative medicine, good for all ills."

- Sheryl London

Horticulture therapy is in the beginning stages of obtaining quantitative data supporting its use; however, this modality has been used for quite some time with those who have mental illness. Haller and Kramer (2006) define horticulture therapy as:

> …A professionally conducted client-centered treatment modality that utilizes horticulture activities to meet specific therapeutic or rehabilitative goals of its participants. The focus is to maximize social, cognitive, physical and/or psychological functioning and/or to enhance general health and wellness. (p. 5)

In its essence, horticulture therapy is a means of conducting therapeutic intervention through a tangible, hands-on format. In fact, the first horticulture therapy program was established in Philadelphia in 1798 by Dr. Benjamin Rush who signed the Declaration of Independence and is considered the "father of American psychiatry" (AHTA, 2009). He noted that working on farms had healing effects on those who had mental illness. He further elaborated in his work *Medical Inquiries and Observations upon the Diseases of the Mind*:

> "It has been remarked, that the maniacs of the male sex in all hospitals, who assist in cutting wood, making fires, and digging in a garden, and the females who are employed in washing, ironing, and scrubbing floors, often recover, while persons, whose rank exempts them from performing such services, languish away their lives within the walls of the hospital" (p. 226)

It is in the context of these familiar activities that the mind can grasp onto some semblance of affective normalcy. Not only does gardening allow a break from monotony on an inpatient unit, it allows older adults to participate in an activity that they enjoy. Beyond being merely enjoyable, horticulture therapy has many benefits for both the mind and body.

The American Horticulture Therapy Association (2007) has noted many benefits for those who participate in horticulture therapy and therapeutic gardens. There are many cognitive benefits including improved attention, concentration, goal achievement, and memory stimulation. Psychological benefits include improved levels of anxiety, depression, relaxation, mood, personal satisfaction and worth, quality of life, pride and perception of accomplishment, self-esteem, sense of control and stability, stress, and well-being. Social benefits also exist such as improved group cohesiveness, healthier interpersonal patterns and relationships, social interaction, and social integration. This type of therapy also allows for physical improvement such as reduced stress and heart rate, increased physical health, improved immune systems, increased fine and gross motor skills, and improved hand-eye coordination.

Research points to reduction of perceived patient stress with the use of plants in healthcare facilities. Dijkstra, Pieterse, and Pruyn (2008) conducted an experiment in which 77 subjects (35 males, 42 females, $\bar{X} = 21$ years-old) were given photographs of hospital rooms that simulated real rooms. Subjects were then provided with a scenario that described being hospitalized with a legionella infection. They were then asked to imagine experiencing the symptoms associated with legionella. In the scenario, subjects were referred to a hospital for further medical care and were then shown a photograph in

which one condition contained indoor plants in the room and the other, a painting of an urban setting. Subjects were asked to rate levels of perceived attractiveness of the room, completing a 10-item bipolar adjective scale (e.g., "pleasant—unpleasant"). In order to measure perceived levels of stress, subjects were also given the Stress Arousal Checklist. An independent samples *t* test showed statistically significant results indicating a difference between stress level perception between the room with indoor plants and that with the painting, $t(75) - 2.34$, $p = .022$. A regression analysis was also performed and showed that subjects perceived the room with plants to be less stressful ($\beta = -.39$, $p = .022$) and that the plants increased the subjects' perception of room attractiveness ($\beta = .41$, $p = .017$). Upon further analysis, it was determined that attractiveness serves as a mediator in the relationship of indoor plants and perceived stress ($Z = -2.02$, $p = .042$). Regardless, the presence of plants served to reduce perceived stress and may likely serve the same purpose in inpatient facilities.

Horticulture Therapy with the Seriously Mentally Ill

Gigliotti and Jarrott (2005) attempted to explore "generationally appropriate activities" for those with dementia utilizing horticulture therapy. As those with dementia have difficulty planning as well as initiating activities, many turn to facilities to create a structure in which these individuals can thrive more fully. Using an environmental press model in which activities are facilitated to achieve a good person-environment fit through matching the level of activity's challenge with the client's functional abilities, the researchers conducted horticulture therapy once a week for 30 minutes per session for 9 weeks at four various adult day services programs in rural southwest Virginia: one

university setting, two Veterans Administration campuses, and one community program. Subjects included 26 males and 22 females with an average age of 90 (SD = 11.0) ranging from age 46 to 98 years-old with an average Folstein Mini-Mental Status Exam score of 13.07.

The experimenters hypothesized that the activities would lead to more positive affect, more adaptive behaviors, and lowered amounts of non-engagement in the adult day services clients. Progress was measured via a modified dementia care mapping technique in which the observers coded behaviors and emotions in response to the treatment according to the clients' demographic information, cognitive abilities, engagement, and affect. Every five minutes, the clients were given behavior codes (social interaction, horticultural behavior, productivity in engaging in non-horticultural activities, and non-engagement in activities and non-social) as well as an affective rating. Analysis of the data using paired-samples *t* tests showed that horticultural interventions led to higher levels of activity ($t_{47} = 13.47, p < .001$), more positive emotions ($t_{47} = 5.15, p < .001$), and lowered amounts of non-engagement than traditional adult day services activities ($t_{47} = 13.42, p < .001$) regardless of the cognitive disturbances experienced by the clients.

Horticulture therapy has also been seen to have a positive effect on persons with dementia in regards to agitation, cognition, and sleep (Lee & Kim, 2008). Twenty-three persons with dementia who lived in various institutions displayed sleep problems and/or agitation. During the first and fifth weeks of the study, measurements were taken of the subjects' levels of agitation, cognition, and sleep patterns using a revised Hasegawa Dementia Scale, Modified Cohen-Mansfield Agitation Inventory, and sleep diary

maintained by the nurses or nursing assistants. The researchers utilized both edible dropwort and bean sprouts when assisting indoor gardening participation in older adults with dementia. The subjects were given a choice of container and type of plant(s) they would grow in the unit's dayroom and were exposed to indoor gardening each morning and afternoon for five weeks. Statistically significant improvement was seen in sleep, specifically decreased waking after initially falling asleep ($t(26) = 3.57$, $p = .002$) and nighttime sleep efficiency ($t(26) = -3.05$, $p = .006$). There was also a significant decrease in naps taken ($t(26) = 6.48$, $p < .001$). Results also indicated significant changes in both agitation ($t(26) = -4.00$, $p = .001$) and cognition ($t(26) = -12.04$, $p < .001$). However, the time of initial nighttime sleep, time awakened, and total amount of sleep was not affected by the use of plant therapy. Horticulture therapy appears a viable option to decrease agitation, improve cognition, and induce sleep.

Horticulture Therapy with Older Adults

At the Alzheimer Society of Ontario, Hewson (2001) addressed the usefulness of improving older adults' quality of life during the Alzheimer's disease process. As a theoretical framework, the presenter utilized the humanistic approach; specifically, a Rogerian approach to working with this special population. At its core, client-centered therapy focuses on the idea that people are meant to be experienced and understood, allowing them to help themselves in the process. The therapist then, adopting a therapeutic stance outside of an office setting, takes on the role of both "therapist and horticulturist." Hewson further stated that horticulture therapy allows for enhancement of affective well-being in a non-threatening environment, helps bolster self-esteem, provides

a sense of accomplishment, allows for intellectual stimulation, assists in preventing disabilities, improves physical health through increased strength, range of motion and cardiovascular health, decreases isolation and increases socialization, gives a frame of reference to the time of year, allows for a creative outlet and use of imagination, and prompts clients to have fun. When outdoors, the sunlight helps in establishing a wake-sleep pattern and helps vitamin D levels. When indoors, contained scents stimulate the olfactory portions of the brain that are strongly connected to the limbic system, known for being an emotional center. In either location, older adults are provided an environment in which many memories may be elicited of gardening over the lifespan.

Other research has focused on how older adult couples experience loss when one spouse continues to live alone at home while the other is placed in a skilled nursing facility (Martin, Miranda, & Bean, 2008). One-hour horticulture therapy sessions were conducted with six couples for a 10-week period utilizing basic gardening activities such as growing seeds, propagating cuttings and bulbs, maintaining plant growth, transplanting plants to new locations, and allowing the couples to have choice as much as possible in regards to various aspects such as selecting plants. Large planters and a community garden were available to the couples at a height that allowed easy access without strain for those in wheelchairs. At least one spouse of each couple had found horticulture a "meaningful activity" in the past. Of the couples, five of those who were residents at the facility were men. The participants ranged from 65 to 89 years-old (M = 76 years, SD = 7.6). The average length of stay ranged from one to four years with their current marriages ranging from 18 to 63 years. Pre- and post- semi-structured interviews were conducted with the couples and observations were given to the couples, which were

followed by discussions throughout the study. These discussions were often initiated by the question, "What are the perceptions of spouses separated by disability regarding changes and challenges in their daily living patterns since separation?" Results of a thematic analysis of these discussions revealed that the spouses living at home reduced their social activities in order to maintain the level of interaction and relationship with their spouses, some replacing their former relationships with those found within the nursing facility, and maintaining a caregiving role. Changes such as occupation and adaptation to their new roles as living separate from their spouses were common themes. As a result, the experimenters suggested that spouses be included into nursing facility programs in order to facilitate healthy marital roles post-placement.

The use of gardening with older adults has also proven an effective means of incorporating exercise. Park, Shoemaker, and Haub (2008) noted that exercise is vital in the process of healthy aging to preventing many diseases and loss of previous strength. Since gardening and yard work are common leisure activities of older adults, they are a means by which older adults can increase their amount of daily exercise. For this reason, the researchers desired to determine the level of exercise older adults experience while gardening. Forty persons, 60 years-old or older participated in the study at the Kansas State University Gardens in return for a free health assessment. Those who had physical disabilities or uncontrolled chronic diseases, physical limitations (i.e., inability to kneel), smokers, or those who did not gain a physician's consent were excluded. Six men and two women were selected (M = 77.4, SD = 4.1) and had an average resting heart rate of 71.0 and a controlled chronic disease (e.g., high blood pressure, diabetes, cancer, arthritis, asthma, blood clots, and memory loss). Three had earned college degrees and five

graduate degrees. The participants were asked to rate their confidence to garden for 30 minutes, list moderate intensity physical activities they did for a minimum of 15 minutes in duration, how many days per week they moderately exercise, and the total minutes exercised each day. They were given the Short Form-36 Health Survey as well. The participants were given nine gardening tasks (e.g., hand weeding, mixing soil, transplanting plants, etc.) to complete in the morning in 16-8' x 4' garden plots provided by the researchers; tasks were to be done for 10 minutes followed by a five minute rest period. The tasks were then repeated twice on different days in the same week followed by a second week that mimicked home gardening. Researchers measure both steps and heart rate. Utilizing Duncan's multiple range test and *t* tests, results indicated that the participants spend an average of two hours per day doing moderate intensity physical activities, primarily consisting of gardening, mowing the lawn, swimming, yard work, walking, and using exercise machines. Seventy-five percent noted they were completely sure they were able to garden for a minimum of 30 minutes on five or more days per week. Results of physical measures indicated that gardening tasks provided low to moderate levels of intensity for healthy older adults. Thus, use of gardening may provide similar health benefits as less pleasurable forms of exercise.

Horticulture Therapy with Seriously Mentally Ill Older Adults

Brawley (2001) has noted several aspects of environmental design that help improve the quality of life for those with Alzheimer's disease. Fall hazards, light sensitivity, sensitivity to glare, and sensory stimulation are all oft forgotten aspects of care. Pertinent to the current discussion, Brawley observed that being outdoors in natural

light is necessary for the well-being of those who have Alzheimer's. While this is not always optimal in all environments and seasons, daily exposure to sunlight allows the body to align to a more natural sleep pattern and absorption of vitamin D. Consequently, it may behoove clinicians to conduct plant therapies outdoors in a well-designed setting. While outdoor therapeutic gardens are often eliminated due to budget cuts, they can be carefully designed to be both cost effective and stimulating for those with cognitive impairment. Particular attention should be given to physical impairment and the ability to move about therapeutic gardens with ease. The area can serve a dual function, allowing patients to participate in activities such as gardening while enjoying fresh air and sunlight. Brawley also noted that many outdoor activities formerly carried out at home can be conducted in the inpatient setting, thus stimulating long-term memories. In addition, the colors, sounds, and smells provided by various plants and flowers provide a wide variety of stimulation that can be beneficial to those in inpatient facilities.

Validation Therapy

One of the frequently seen difficulties faced by older adults is dementia. In 1906, Alois Alzheimer first described what was later known as Alzheimer's disease (Maurer & Maurer, 2003). His patient, Auguste Deter, died not long after, but her case has long impacted the medical and mental health fields, particularly those focused on providing care for older adults (Alzheimer's Association, 2009). Approximately 50% of dementia cases are due to Alzheimer's disease, which is often not diagnosed until there are significant levels of degeneration and pathology. Furthermore, many older adults with Alzheimer's disease are placed in nursing facilities or psychiatric hospitals. Though there

is a 1-2% incidence rate of dementia in older adults, this risk increases two-fold every five years. By the time a person reaches the age of 85, they carry a 16-32% chance of having some form of dementia.

Naomi Feil's establishment of validation therapy has proven useful not only in the therapeutic treatment of older adults with Alzheimer's disease, but also those suffering from various other mental illnesses (de Klerk-Rubin, 2006). Similar to Erik Erikson's final development stages, Feil's final stage of life is *resolution*. Older adults attempt to resolve various relationships so that they can "die in peace." However, this process can be complicated by dementia's four phases of moving away from resolution: malorientation, time confusion, repetitive motion, and vegetation. In malorientation, the person is oriented, yet has a dysfunctional part of their personality and is unable to express or admit this. The person who is experiencing time confusion is not oriented to person, place, or time and is unable to abide by social norms. The third phase, repetitive motion, involves using movements or sounds when a person is no longer able to communicate using words. During vegetation, the last phase of resolution, the person has a "complete withdrawal from reality" and will be seen sitting or lying without movement or seeming to understand what is occurring around him or her. It is the goal of the therapist, facility staff, family, and friends to help the person move toward resolution through validation of their experience instead of hindering their resolution process.

Feil and Altman (2004) have noted that validation is not simply agreeing with patients, pacifying them, or lying to them. Rather, they denounce lying as being anything but therapeutic as the purpose of validation is to establish trust. As such, the two theorists have offered a clarified view of validation that includes 11 principles:

1. Acceptance.
2. Value regardless of the level of malorientation or disorientation.
3. Acknowledgement that there is a reason behind observed behaviors.
4. That resolution of "unfinished life tasks, crises, or other business" is common for older adults.
5. Retrieval of early memories to balance out loss of recent memories.
6. Use of the "mind's eye" to see or hear sounds of the past as vision and hearing fail.
7. Regression and accessing old memories when current experiences are uncomfortable.
8. Validating expression of pain will decrease its experience. Ignored vocalization of discomfort will exacerbate experienced pain.
9. Empathetic listening "builds trust, educes anxiety, and restores dignity."
10. Many older adults simultaneously experience different levels of awareness at the same time.
11. Affect experienced in the present can trigger memories of similar affective experiences.

The question remains, why is validation an important factor in horticulture therapy? What does validation theory bring to the table to assist in the effectiveness of using plants with mentally ill older adults? De Klerk-Rubin (2006) stated that:

> Validation theory holds that very old people have an important task that we should not only value it but also assist the older person by accompanying her in this task...All that we can do is be there, have empathy, and share the feelings—and that often is enough. (p. 20)

In other words, it is the validating of both the older adult and their emotions while providing support that can have a large impact on the well-being and quality of life of older adults. At times, all one is able to do is come alongside older adults and share in their emotions. For this reason, it is important to carry out some sort of intervention in an inpatient setting. Those who have cognitive decline or severe emotional disturbance are seen at times as being beyond reach, other than through medical interventions. Feil, as well as horticulture therapists, argue that this is where empathy and tactile therapeutic activities can make a difference without harsh medicinal side effects and waiting for prescriptions to take effect. The effects of both validation and horticulture therapy, particularly when combined, can be monumental for the older adult placed in an inpatient unit.

Integrated Approach

While treatment manuals exist for the use of horticulture therapy with the mentally ill as well as those with the older adult population, there is no treatment manual available for horticulture therapy specifically for mentally ill older adults. This deficit leaves a large hole in what could be a beneficial service provided in inpatient psychiatric hospitals. Thus, the following treatment manual is proposed as it would prove useful for application to inpatient facilities. It can be done for little money, has no side effects, and has many benefits for patient well-being. Explanation is given as to not only how to conduct horticulture therapy, but when and where necessary adaptations are necessary as well as the integration of spirituality, which has also been lacking in other treatment

manuals. The integration of horticulture therapy and validation theory will be provided throughout the rest of the text as well.

Chapter 3

Why Utilize Horticulture Therapy: Mental Illness Issues

"All my hurts my garden spade can heal."

- Ralph Waldo Emerson

Though potential application of horticulture therapy is endless, its usefulness for mental health issues among older adults makes it a valuable resource, particularly as severity of symptoms increase. According to the Surgeon General's report (2001) on older adults and mental health, nearly 20% of persons 55 and older have been noted to have diagnosable disorders which cannot be attributed to normal aging. More so, 2.7% of adults 65 years or older reported experiencing serious psychological distress during the 30 days previous to the 2008 National Health Interview Survey (Centers for Disease Control and Prevention, 2009). Medications are often used to treat severe distress, but can easily lead to toxic levels in an older adult's bloodstream as metabolism slows with age. There is great applicability and need for interventions that meet client needs and ability levels without the possibility of chemical side effects. Thus, the remainder of this treatment manual will focus on horticulture therapy with older adults who struggle with mental illnesses. Modifications to meet individual needs can be made to allow for different diagnoses.

Depression

Statistics. Major Depressive Disorder is indiscriminate regardless of education attainment, socioeconomic status, ethnicity, and marital status (APA, 2000). Research has pointed to prevalence rates ranging from 10 to 25% for women across the lifespan and 5 to 12% for men. As of 2006, 17.9% of women and 10.1% of men 65 years or older reported "depressive symptoms," a number which held stable over the previous eight years of data collection using the Center of Epidemiological Studies Depression Scale (CES-D) (The Federal Interagency Forum on Aging-Related Statistics, 2010). Prevalence rates increased with age as 18.8% of people 85 years or older reported depressive symptoms; those under 85 reported symptoms ranging from 12.9% to 16%. Of interest is the increase in percentage of men reporting dysthymic affect (close to 18%), which was nearly twice that of all other older adult males. Older women reported the highest incidence rates between the ages of 75 and 79 (20.2%).

Horticulture therapy and depression. By the time a depressed individual reaches old age, he or she has likely experienced multiple depressive episodes, which often lengthen in duration and deepen in depth of dysphoria. Older adults who are admitted to an inpatient psychiatric unit for Major Depressive Disorder struggle greatly with hopelessness as they have likely experienced several depressive episodes. Hence, they can grapple with issues of self-esteem, which compounded by what Erik Erikson (1997) described as an aspiration for wisdom over despair. Erikson's highlighted crisis for this age group is particularly applicable in light of suicidal ideation or suicide attempts, which can lead to an older adult's admission to an inpatient unit.

As noted earlier, horticulture therapy has many uses with depressed individuals. The question arises as to how to apply this therapy to the older adult population. Horticulture therapy allows individuals to focus on something outside of themselves, which is a common during depressive episodes. It is easy to concentrate on what is wrong or flawed in one's life; redirecting one's attention to what is good, strong, or growing stronger takes a fair amount of exertion in the midst of despair. The tactile nature of horticulture therapy grounds the older adult in the present and allows for a shift of focus to things within his or her control. The horticulture therapist comes alongside those who are downhearted and view themselves as broken to foster a sense of intrinsic value. With depression, it can take some coaxing to bring older adults out of their hospital rooms to participate in groups as it is common to stay in bed during the daytime. To that end, validation of the effort exerted to get out of bed is a good initial intervention. Reframing the horticulture group as a social activity for resistant individuals instead of an intensive group can lower defensiveness toward participation.

Benefits of using horticulture therapy. This therapeutic approach allows for intervention in a more subtle means that older adults may find less invasive. Mastery over plants may also allow an older man to feel bolder during future tasks. In the face of feelings of inadequacy that often accompany Major Depressive Disorder, the ability to accomplish a goal and nurture a living thing can bolster self-esteem and counteract self-deprecating thoughts.

Bereavement

Statistics. Approximately 800,000 old adults are widowed each year in the United States (Department of Health and Human Services, 2010). According to the Surgeon General, 10 to 20% of widows and widowers experience a depressive episode within the first year of the death of their spouse. Therefore, early intervention is important to prevent increased severity of symptoms and distress on the part of the bereaved.

Horticulture therapy and bereavement. The longer a person lives, the greater the number of losses they experience. Losses such as the death of a spouse, parent, close friend, and siblings become increasingly common. Some lose a sense of purpose upon retirement. Companion pets die. Acute and chronic disease processes such as cancer and heart disease occur; an increased number of medications are subsequently required. For some older adults, aging necessitates a need for a location that can provide higher levels of care to meet their growing health problems, such as an assisted living facility. While independence may continue, leaving the comfort of one's home is difficult.

With cases of bereavement, horticulture therapy can allow for elements of the loss to be discussed in a manner that elicits memories such as recalling the flowers used at a wedding or plants from the family farm. Furthermore, a discussion regarding the seasons in life can prove fruitful, especially in relation to the continuation of a legacy or future generations, just as a plant provides seed for the next generation. Focusing on both what the client will miss and—equally important—will not miss will help him or her to hold both the "good" and the "bad" of the loss at the same time. Though one may appreciate the bloom of a rose, very few enjoy the thorns. The same concept is readily applied to interactions with others; a person may miss the intimate connection with a loved one, but

not that he or she was irritable in the morning before a cup of coffee. Another may miss a sense of purpose that he or she had as a productive member of society, but not the workplace politics. This will allow the client to neither idolize nor demonize the loss he or she faces.

Using horticulture as a means of memorializing can prove helpful for many. Memorialization may occur through the planting of a loved one's favorite flower or tree. Incorporating plants in this process may prove as simple as creating a pot or grow flowers for a gravesite bouquet. There may be a scent associated with a person or place the client misses (e.g., lavender) which the group can plant in the therapy garden. Again, it is important to discuss with the client what would prove salient and helpful for them, which often entails reminiscing as they work in the dirt or trim wayward plants.

Benefits of using horticulture therapy. Some people, particularly men, are more comfortable expressing their emotions about loss when participating in an activity rather than sitting across from a therapist in a traditional clinical setting. Requirements of eye contact and sitting still are removed when utilizing horticulture therapy. Those who are processing grief may have experienced the loss of a loved one, a functional ability such as walking, employment, or residence. Horticulture therapy provides the opportunity to talk about these things in an environment that allows for a degree or two of removal from the high level of eye contact involved in sit-down conversations. Also, due to the less formal setting, it allows for the client to explore his or her feelings more in-depth. For the grieving, talking about seasons and the cycle of life is fruitful, particularly when speaking of legacies loved ones leave behind and how the older adult can continue that legacy and invest it in others.

Bipolar Disorder

Statistics. Bipolar I Disorder has an observed lifetime prevalence rate of 0.4 to 1.6% in community samples (American Psychiatric Association, 2000) and Bipolar II has a prevalence rate of approximately 0.5% of people. Depp and Jeste (2004) reported that though it "becomes less common with age," Bipolar Disorder accounts for 8 to 10% of psychiatric admissions in the older adult population.

Horticulture therapy and bipolar disorder. As horticulture therapy was first developed with people experiencing manic episodes, it is not surprising that this therapy is an effective treatment for managing symptoms of Bipolar Disorder. The tactile nature of the therapy both literally and figuratively grounds the older adult to what is present rather than their perceptions, which at times are clouded by mania or depression. Depending on the point in the bipolar cycle, the horticulture therapist may want to approach treatment as mentioned above in the depression section. When in the midst of a hypomanic or manic episode, a person experiences a fair amount of energy. Tasks requiring careful and deliberate actions are ill advised as attention to detail and inhibitions often decrease during manic episodes. As the therapist desires to create a situation in which the older adult can obtain success, assigning tasks which require more energy exertion is quite beneficial. These tasks include the older adult using a small spade to dig holes for plants in the ground or pulling weeds. An older adult may have an artistic flare and provide a vision for arranging plants in a manner that is aesthetically pleasing. Watering plants can also provide an outlet for the person to release some of the increased energy that is associated with a hypomanic or manic episode.

Benefits of using horticulture therapy. Those who have this mental illness may have a sense of instability and—at times—equate who they are with the chemical imbalance they experience. Creating stability through tasks which focus on the five senses and validates both emotions and memories provides an experience which can be healing in and of itself. For those experiencing aspects of depression or mania with psychotic features, tasks which appeal to the senses and draw the person toward his or her present reality are beneficial. This allows for an increase in his or her sense of fulfillment and self-worth when depressed. He or she can also see improvement in the area of unfocused energy as well as a sense of being more centered in between the two extremes found within Bipolar Disorder.

Psychosis

Statistics. The American Psychological Association (2000) noted prevalence rates of Schizophrenia between 0.5 and 1.5% and that Schizoaffective Disorder "appears to be less common than Schizophrenia." It was also reported that 1 to 2% of inpatient admissions were due to Delusional Disorder and it is estimated that this occurs in 0.05 to 0.1% of older adults. Psychotic Disorder Due to a General Medical Condition was estimated to occur in up to 20% of people with "untreated endocrine disorders, in 15% of those with systemic lupus erythematosus, and in 40% or more of individuals with temporal lobe epilepsy. Sigström, Skoog, Sacuiu, Karlsson, Klenfeldt, and Waern, et al. (2009) have reported an approximate psychosis prevalence rate of 10% among Swedish persons 85 and older. The experimenters discovered that 0.9% of non-demented adults who were 70 years-old, 1.2% of women 78 to 82 years-old, and 2.6% of women between

the ages of 78 and 82. Dean, et al. (2007) noted a significant level of "violent victimization" among those who had living in urban United Kingdom settings in which 23% of those with psychotic disorders reported one experience of violence during the previous two years. Increased risk for trauma included isolation from family, early onset of psychosis, comorbid personality disorders, and previous victimization. Though occurring in another country, the findings of Dean et al. show a higher incidence rate of traumatization and potential for more areas to address in treatment than psychosis for this population. Sensitivity to these issues may prove vital for a breakthrough in therapy.

Horticulture therapy and psychosis. With psychosis, a group leader must tend to the older adult's perceptual disturbances. He or she may attempt to eat inappropriate materials such as potting soil due to these disturbances. Some aspects of plants may contain toxins (e.g., roots, leaves, etc.) and horticulture therapists need to research plants before introducing them to a group, particularly to this population. Thus, it is imperative to implement close monitoring without squelching any opportunity to make choices. Allow for the older adult to join in the group and validate his or her contributions to the process and discussion if applicable. This can counteract times when an older adult is told he or she is doing something "wrong" and may have rarely experienced praise for his or her actions.

Benefits of using horticulture therapy. Those experiencing psychosis are detached from reality. The focus on the tactile aspect of therapy and using the senses serves as a source to ground the older adult in reality as opposed to what they perceive. When the mind is focused on tasks which distract from delusions and/or hallucinations, it can free up enough psychological resources to allow deeper levels of processing to occur.

At times, the horticulture therapist will see an older adult with a disorganized thought process become much more organized and glean a large amount of information about their background and current experience. Horticulture therapy can also open a window to carry out treatment interventions that would otherwise prove unsuccessful.

Delirium

Statistics. Though it occurs for a variety of reasons, including pharmacological toxicity and urinary tract infections, delirium is not an uncommon experience as people age. For those who are 18 and older, there is a 0.4% prevalence rate, which increases to 1.1% for people who are at least 55 years-old (American Psychiatric Association, 2000). However, when looking at adults who are hospitalized for a medical illness, the rates increase and range from 10 to 30%. Among older adults, 10 to 15% have been diagnosed with delirium when admitted and 10 to 40% receive the diagnosis while hospitalized. The numbers greatly increase for older adults who are in nursing homes with as many as 60% experiencing delirium at any point in time. Again, this number becomes larger as age and severity of illness increases, as seen in those with terminal illnesses; this population faces up to an 80% prevalence rate.

Horticulture therapy and delirium. People experiencing delirium are highly disoriented. They may present in a similar manner to those struggling with schizophrenia, dementia, and depression. As with each of the aforementioned conditions, incorporation of horticulture therapy with validation therapy can allow for more effective interventions as traditional psychotherapy falls short with this population. Since cognition is distorted while in a delirium, these clients likely will need the group tasks to focus on basic skills

and activities such as digging holes and filling in soil around plants. Some may find tasks such as using a watering can problematic as they may not have the capacity to know how much water is enough or even water objects other than plants. It is important for the horticulture therapist or group assistants to focus a fair amount of attention on the group members with delirium because they are at a higher risk of eating non-food objects such as soil and plants. However, if an edible garden has been planted, the client may find the use of flavors and scents elicit memories such as various meals that surrounded significant periods in their lives.

Benefits of using horticulture therapy. For those with delirium, the world is a confusing place. Horticulture therapy provides a framework by which they can reconnect with reality through the basic senses. Focusing on what clients can see, smell, taste, touch, and hear reorients them to their current experience in a very tangible and sometimes meaningful manner. Benefits mirror those seen with psychoses.

Dementia

Statistics. In 2006, Alzheimer's disease was ranked as the seventh leading cause of death among all ethnicities for people 65 and older, sixth for Caucasians, eleventh for African Americans, ninth for Asians or Pacific Islanders, and ninth for both American Indians and Hispanics or Latinos (The Federal Interagency Forum on Aging-Related Statistics, 2010). This increased to fifth overall for Americans 85 years or older as well as for all ethnicities except for African Americans for which it was the seventh leading cause of death. This is not unexpected as prevalence rates of Alzheimer's disease increase as a person ages.

Horticulture therapy and dementia. The use of horticulture therapy with those who have dementia varies depending on the type, stage, and progression. As Alzheimer's disease is a progressive neurodegenerative process which occurs over many years, there is a wide variety of functioning levels one might see in a therapy group. For those in an outpatient setting, the person may be in the early stages, in which there is awareness of his or her diagnosis. For this reason, the horticulture therapist may wish to have the client tell stories of more recent events to reinforce the neural networks for those recalled. Also, recall of memories which contain happiness, hope, or dreams fulfilled can help reduce the negative affect and depressive symptoms commonly seen in the early stages of Alzheimer's.

Clients seen in inpatient settings often have more progressed stages of dementia and are often hospitalized due to behavioral issues such as aggression. However, if the client desires to participate in horticulture therapy, one-on-one attention may be required with the assistance of trained staff or nurses who wish to help. If aggressive behavior is a difficulty the client faces, use of their hands alone should suffice as tools may be thrown or used to hit others, particularly when paranoid or psychotic features are involved; however, this alone should not disqualify participants from horticulture therapy. Instead, focusing on the client's sensations becomes more important such as the feel of the dirt on their hands or the smell of a flower.

Benefits of using horticulture therapy. For those just starting to work with people who have dementia, there is a temptation to feed into the person's fixation on the "what" details (i.e., the date, to whom the older adult is speaking, etc.). However, it is important to incorporate the concepts of validation therapy and tune into the emotion

behind speech content. This is particularly applicable to horticulture therapy for those who have dementia. Sometimes a simple walk in a garden can prove the most helpful, especially during more advanced stages when physical abilities are more limited. Strolls in the garden can reduce levels of agitation and negative cognition. As neurocognitive functioning decreases, the use of textures can become increasingly important. Therapists can incorporate textures through the use of pinecones, edible herbs, and crunchy autumn leaves—all items that provide seasonal cues for the older adult as they also often are not oriented to time and date.

Anxiety Disorders

Statistics. According to Wolitzky-Taylor, Castriotta, Lenze, Stanley, and Craske (2010), lifetime prevalence rates in adults 65 and older was 15.3% within the United States. A nationally representative sample in the US found a seven percent occurrence of any anxiety disorder within a 12 month period. The authors also mentioned an increased risk for cognitive decline with sustained anxiety disorders. Consequently, utilization of therapies that teach coping skills not only serves to benefit older adults in the present, but also their future affective and cognitive functions.

Horticulture therapy and anxiety disorders. Clients with anxiety may feel that they are inadequate and will somehow ruin their horticulture projects. They may require a bit more individual attention and coaching initially in regards to the mechanics of horticulture therapy (e.g., digging a hole, spreading the roots, and inserting the plant). However, the process of focusing their attention on something other than their experiences of anxiety helps alleviate the amount of perceived stress as many anxiety

disorders contain a hyperawareness of physical sensations related to anxiety. More so, attempt to not rush these clients and encourage them to take part in the session's activities at a slow, enjoyable pace. Emphasis on positive reinforcement will assist in decreasing stress and increasing a relaxed state.

Benefits of using horticulture therapy. Horticulture therapy addresses struggles with anxiety on several fronts. For some clients, aspects of horticulture therapy that allow heavier levels of physical activity tend to prove useful such as digging, hoeing, pruning, and gathering vegetables (Hewson, 1994). The physical exertion of gardening expels excess energy, producing a calming effect. There are several plants that are known to help with insomnia, a common side effect of anxiety, through use of aromatherapy. The clinician should heed caution regarding ingestion of aromatherapy plants. Night blooming flowers can be useful in the treatment of anxiety and the horticulture therapist should consider incorporating them into the therapeutic garden. Lavender also has a calming effect and may also prove a beneficial addition.

Chemical Dependency

Statistics. Of interest is the shifting dynamics of substance abuse users as baby boomers approach retirement. In 1992, adults 50 years or older comprised 6.6% of all substance abuse treatment admissions (Office of Applied Studies, 2010). This doubled to 12.2% in 2008. During this time, those who were older reported less alcohol abuse as their primary substance from 84.6 to 59.9%. However, heroin abuse increased from 7.2 to 16%, and the number of those abusing multiple substances increased from 13.7 to 39.7%. Notably, adults 50 or older who began abusing their primary substance during the five

years prior to 2008 (25.8%) were much more likely to be abusing prescription pain medications than in 1992 (5.4%).

Horticulture Therapy and Chemical Dependency. Those working through chemical dependency treatment may display resistance to horticulture therapy as a concept. Patience and understanding is necessary as this treatment—including working with plants and flowers—might be seen as emasculating or not addressing addiction treatment issues. Thus, it is vital to emphasize that developing other coping strategies to address life challenges other than using substances is an important part of their treatment and recovery process. For those who are more energetic or agitated in nature, focusing on pulling weeds is productive for the therapy garden.

During a group session, the therapist can draw a parallel between the weeds in the garden as well as the "weeds" in their lives that encompass toxic relationships, substance use, financial troubles, or maladaptive behaviors. As they think of these things they wish to remove from their lives, allow them to put their hands in the dirt and uproot each weed. Those weeds in which the whole root is removed can serve as a reminder that it is possible to change aspects of their lives that allows room for them to grow and thrive. Weed roots which are partly removed serve as a reminder that some things require several attempts to fully uproot such as engrained behaviors, thoughts, and beliefs.

Regardless of the content of sessions working with this population, attending to the emotions behind the process often allows for the most salient experiences as, previously, emotions were avoided through substance abuse. To learn that emotions and their associated memories will not destroy the person is equally as important as is

creating a new experience in which they are able to tangibly experience what they are processing in treatment.

Benefits of using horticulture therapy. Addiction to substances at times proves deceptive to observers. Individuals undergoing treatment for addiction typically show limited physical tolerance even though they can appear healthy, mostly due to the effects of withdrawal. The horticulture therapist should attend to level of physical strength as well as stamina. Alcoholics, particularly those who are male, can be sensitive to what may be perceived as a feminine activity. Thus, utilizing activities that do not use flowers (i.e., such as herb gardening and vegetable cultivation) is a good starting point. Activities should work up to other tasks that would have initially been more threatening to gender norms such as working with flowers.

Chapter 4

Who: Multicultural Considerations

"To forget how to dig the earth and to tend the soil is to forget ourselves."

– Mahandas K. Gandhi

Age and Generational Issues

Many who conduct horticulture therapy are younger than their older adult patients; as such, one should observe differences between generational cohorts. Those who lived through the Great Depression are more likely to view the therapist with deference for authority. They are often more reserved when expressing emotion and be more prone to reminiscing than their younger counterparts. This cohort of older adults has a wealth of life experience from which they can draw upon. As the baby boomers near the 65+ age group, the dynamic of the older adult population will shift. These are the children of those who lived through the Great Depression and are more attuned to emotion. However, they also want to discover truth themselves instead of being told something is true. This "younger" generation also challenges authority figures more frequently than previous generations and this may be seen in their interactions with group leaders.

Regardless of the generation, it is important to keep in mind several key concepts. Erik Erikson (1997) believed that those who are 65 and older are struggling with having a fulfilling life in the midst of struggling with developing integrity instead of despair in old age. In the end, people desire to look back on their lives with a sense of fulfillment and

having accomplished something. However, clients may reflect on their lives and focus on disappointments in life rather than successes or lessons learned. For the patient to change from despair to a sense of integrity requires development of wisdom, particularly in regards to seeing their failures as experiences in which they were able to grow. Naomi Feil's therapeutic focus on validation (2002) allows for a nurturing, safe environment in which older adults can explore development of a fulfilling life and integrity.

Gender Roles

Each culture has values and beliefs related to acceptable behaviors. In some cultures, gardening is a hobby in which Bonsai trees or large gardens are cultivated. For others, it is considered an activity for women only. Viewing gardening as a female activity is particularly true for those who hold to the concept of "machismo," the idea that men are to avoid anything that can be considered feminine. For men coming from cultures that embrace this value, horticulture therapy may prove a challenge to their beliefs regarding gender roles. However, the purpose of horticulture therapy is not to induce a sense of insecurity related to ones gender. Rather, this therapeutic treatment can allow for a fair amount of expression of masculinity as horticulture is not merely about decoration and flowers. With those who are apprehensive due to beliefs about gender roles, it may help to approach them in a manner that focuses more on the cultivation of plants and yard work rather than the floral aspects.

Socioeconomic Status

As with most programs, large amounts of funding can produce a wide assortment of resources which allows for greater flexibility in a horticulture therapy program. A horticulture therapist's dreams of anything from formal therapeutic gardening tables to a wide variety of plants and irrigation are potentially fulfilled provided a large supply of money behind his or her program. Fountains make lovely garden centerpieces as well as provide an attraction for birds and provide relaxing sounds. Unique varieties of flora and fauna are purchased if funds are adequate that give the garden a large amount of variety. There are gardening tools made specifically for those who have arthritis. These tools are ergonomic with soft grips and large handles. Smocks, aprons, sun hats, and leather gloves also can add a nice addition to a horticulture program and assist in preventing sunburn and sunstroke.

Many mental health facilities face restricted funds which impact their treatment protocols. One of the benefits of horticulture therapy is that it is possible to conduct for little money and with few resources. Seeds are easily purchased for little money. Cuttings from vines can be grown in window sills into fully-viable transplants. Often times, people will ask how they can help organizations and asking for horticulture therapy donations can result in a vibrant therapy garden. Nurseries, rotary clubs, landscaping businesses, hardware stores, and various horticulture societies (i.e., those focused on organic gardening or specific plants) have shown willingness to donate resources in the past if contacted. There may also be community groups who show an eagerness to contribute time and resources to your horticulture program. Kneeling pads to cushion older adults' knees can be created out of old clothing or cushions. Inpatient unit bed sheets can

substitute for table cloths for conducting sessions indoors during very hot or cool weather, which allows for quick clean-up. Surgical gloves used in the facility allow clients to keep their hands clean and are relatively inexpensive. Pots may be reused or reallocated as seen fit. Scraps of leftover ribbon from people's home are easily made into bows, which when attached to popsicle sticks or tied around pots, serve as decoration for plants. Also, succulent plants are relatively inexpensive and propagate quickly, providing clippings to transplant to new pots or areas of the therapy garden.

Regardless of the funding provided for a horticulture therapy program, it is possible to conduct it with a wide variety of costs. It is beneficial for clients to take home a part of their experience in the form of a small, potted plant. This allows for continuation of the treatment and an object that tangibly shows that he or she, too, has grown, yet may appear fragile to the casual observer. Clients are often more hardy and not given the credit deserved as they can survive harrowing environments and illnesses. Just as they often nurture their plants to blossom and thrive, so they too undergo the same process. While the type of pot and plant may vary based upon funding and availability, clients often voice an appreciation for the opportunity to take something home with them upon discharge.

Veterans

There are an increasing number of therapy gardens found on Veteran's Administration properties, particularly those found within warmer climates. Those with cooler winters may have greenhouses on their properties where veterans can participate in horticulture therapy. There is great potential for the implementation of horticulture

therapy groups with those who also have serious and/or pervasive mental illness on inpatient units. There are also temporary employment positions in greenhouses at some facilities through the Compensated Work Therapy program.

Medical Concerns

While American older adults have many challenges, the most frequent includes issues related to aging, chronic illnesses, and previous accidents. The difficulties they face include decreases in strength and stamina, arthritis, cardiovascular disease as well as physical, orthopedic, and visual disabilities. Of course, not everyone faces difficulties related to aging and this should be kept in mind when working with older adults. Focusing on areas of vitality can validate strengths and show them that in the midst of mental illness, they have some wonderful qualities—something many are unable to do while in the throes of severe pathology. It is also foolish to ignore how medical aspects of health affect clients' abilities to carry out various aspects of horticulture therapy. Thus, several common medical difficulties and adaptations are addressed below.

Strength issues. Muscle mass is lost as one ages and becomes increasingly difficult to maintain. Hence, older adults may have difficulty with tasks that involve standing for extended periods of time. Tables and chairs can be provided if working with pots to ease the burden standing produces. Instead of having group members lift heavy bags of soil, provide small washbasins in which to put dirt alleviates strain on their arms and backs. Old containers that contained pots from nurseries make for inexpensive and appropriately sized scoops for transferring of soil.

Strength is needed for various aspects of typical yard work and horticulture therapy interventions; however, modifications are possible. If pots will be moved to another location, using those of a smaller size allows for less back and arm strain as well as avoiding dropping plants. However, if a larger container is used, planting items at the desired final location spares both the clients and therapist from lifting a potentially very heavy object and subsequent injuries. If this is done, provision of pads to kneel or sit on can allow for greater levels of comfort and less distraction from the therapy process.

Disabilities. Of concern for some older adults is the presence of chronic disabilities. In many ways, these limit their level of independence and have proven a frustration in the past, regardless of the level of adaptation in the present. Disabilities such as glaucoma and blindness, loss of limbs, difficulty walking, the effects of strokes, and chronic obstructive pulmonary disease among many medical problems that can make life more difficult for older adults and present a unique challenge for the horticulture therapist.

Visual impairment. Visual disabilities present a challenge for participation in horticulture therapy. In many ways, those who cannot see or have difficulty seeing adapt by strengthening their other senses. Their brains often "reroute" to increase sensations of texture, scent, hearing, and the like. Focusing on the texture of the soil and leaves, the smell in the air after a rainfall, and even taste of some edible plants allow for a fuller and more enriching experience. If there is one or more group members that have visual limitations, planting of an aromatherapy garden can allow for a greater sense of inclusion. It also allows for use of scents that affect emotions in various ways such as peppermint increasing alertness for those who are struggling with depression. Chamomile and

lavender have a calming effect on anxiety and aggressive behaviors. Rosemary can also be used in cooking and the crushed herb for reduction of pain.

Smell is strongly associated with memories as the olfactory area in the brain is in very close proximity to the hippocampus. Therefore, when working with those who have visual impairment, the horticulture therapist can ask the clients to pay attention to the scents of the garden and any memories that are evoked. These memories are often rich in content and emotion, providing salient experience with which validation therapy and reminiscing can be used.

Physical disabilities. As people age, various aspects of daily wear on the human body and single-incident injuries become more common. Whether this takes form in the shape of car accidents, medical complications, sports injuries, or chronic illnesses, the physical manifestation can lead to impairment of daily functioning. Physical disabilities present a unique subset of challenges for the horticulture therapist as limitations vary from person to person and are not uncommon in the older adult population.

Wheelchair-bound. Those who are unable to move without the assistance of a wheelchair tend to have difficulty with aspects of horticulture therapy such as lifting and moving of objects. Not only do these limitations occur because of medical reasons, but also the impediment of wheelchairs themselves. Kneeling down to place plants in the earth or pull a weed is not an option for this population. However, several modifications are easily made to include those in wheelchairs as fully-active members. First, it is important to provide a table that is of an appropriate height under which a wheel chair can fit. This will allow for less strain reaching as well as a greater feeling of inclusion in the group activities. Second, use of pots which are heavy or containers which are too tall

for the older adult can lead to unnecessary frustration. Third, this population is similar to those who experience muscle weakness with age in that they are not able to lift heavy weights. The use of light and small pots is more likely to provide an experience that does not point out the older adult's disability, but rather his or her strengths.

Strokes. Cerebrovascular events such as traumatic brain and spinal cord injuries can result in a wide variety of physical expressions depending on the location of the injury and the volume of brain matter effected. Some may show no signs of a cerebrovascular event while others may experience paralysis, aphasia, and other disabling effects. If a group member has experienced a stroke with more severe consequences, he or she may face difficulties in various areas of functionality.

In the case of hemiparesis (weakness on one side of the body) or hemiplegia (total paralysis of one side of the body), the necessary modifications for horticulture therapy are similar to those with strength difficulties and possibly in wheelchairs as mentioned above. However, the older adult may be able to do more than those who have overall strength issues depending on the widespread effects of their stroke. Subsequently, those with hemiparesis or hemiplegia may find they have made modifications for their daily tasks that have built up strength on their more functional side of the body, allowing them to use a hoe or spade. Persons facing the aftermath of this medical difficulty may also be able to carry moderately heavy pots depending upon muscle mass.

Some may find they have difficulty speaking due to the injured area's location in the brain. While speech is necessary for most forms of traditional therapies, it is by no means a requirement for horticulture therapy as silence while carrying out a task can be a strong intervention. This is particularly true for times during a session when the group

members are asked to focus on particular memories or on the emotions which arise while working in the dirt. To have a means by which these older adults can communicate allows for them to bypass the frustration often experienced with language impairment. Older adults then can process emotions and aspects of their mental illness in a very tangible medium. With this particular type of stroke victim, validation of their emotional experience is imperative. The horticulture therapist may desire to state that he or she understands how it must be frustrating to have difficulty verbalizing the many emotions with which he or she struggles in the midst of his or her mental illness. He or she may be prone to self-deprecation more than others due to the inability to effective express him or herself and compare his or her current level of functioning to that which was previously in place.

Regardless of the physical manifestations of their medical issues, positive reinforcement of ability goes a long way to encourage greater levels of self-esteem and self-efficacy. Their physical disabilities may contribute to a greater severity of mental illness symptoms, which may in turn can exacerbate physical symptoms of cerebrovascular injuries. It is imperative to increase a sense of value in the face of disability through small successes, such as that which horticulture therapy provides.

Arthritis. This medical issue is one often associated with the aging process whether through the wear and tear of daily activities, injuries, or autoimmune diseases. It has a profound effect on a person's ability to carry out fine motor tasks if located in the hands and maintain a position for extended periods of time if in the spine. Those who have arthritis in the knees will likely have difficulty with tasks which require kneeling. Using raised garden beds allows for chairs to be positioned alongside the work area and

creates a low-impact activity. Movement is good for those with arthritis as idleness leads to stiffer joins, particularly those with osteoarthritis; however, pressure may produce large levels of pain for some, particularly with large changes in barometric pressure. Thus, implement tasks that avoid gripping items tightly such as bags of soil or garden tools. For some, pressing down on dirt, separating roots of transplants, and lifting pots may prove too difficult. For those whom the aforementioned tasks prove impossible, focusing instead on the senses is an easy modification. The horticulture therapist can ask group members to mention memories that may arise while directing others during the group, even if the memories seem unusual or random. These individuals may also find it a rewarding experience to focus on other senses rather than touch, particularly if the therapy garden contains plants that are edible or very aromatic, sounds are heard from outside of the unit, or they see a plant which has some nostalgic association. Also, tools with large, rubberized handles can provide some relief and modification for those with arthritis.

Cardiovascular disease. After receiving a diagnosis related to cardiovascular disease, older adults can become quite hesitant in their approach to life. Their concerns have an impact on self-efficacy, willingness to participate in tasks, and confidence. Thus, some coaching as to not needing to lift objects or raise heart rates can allay fears of this type of group member.

Chapter 5

Where: In the Hospital and Going Home

"More and more, I feel the need for a house and a garden."

- Marie Curie

At times, intervention in acute inpatient facilities prove too advanced for the older adult's level of functioning such as cognitive behavioral therapy's dysfunctional thought records or gestalt's here-and-now focus. Older adults are often left without treatment that neither addresses their level of functioning nor implemented in a manner which is effective (i.e., presentation of material verbally when mental illnesses often affect attention and memory abilities). For older adults, particularly those with dementia, they may simply not receive any psychological services. As previously mentioned, many treatment manuals have focused on specific treatment locations such as inpatient units or community gardens, but little has discussed the transition between levels of care ranging from long-term residential facilities to the home setting. Thus, the wide range is explored as follows; in particular, the transition from an inpatient stay to being discharged to various living situations outside of the realm of a psychiatric hospital.

Levels of Care

Horticulture therapy groups can occur in various levels of caregiving placements upon discharge from the hospital. Living arrangements vary largely depending upon availability and financial resources of the older adult. Implementation of horticulture

therapy may be pursued according to facility rules and regulations as well as the client's ability level.

Home alone. If possible and safe to do so, living alone can provide a large amount of flexibility for older adults leaving a psychiatric hospital. A clinician should assess whether the person is a harm to self, particularly those who were admitted for suicidal ideation or expressed a desire to "give up" during their admission. If not a risk, there are several ways in which the older adult can continue horticulture therapy after returning home.

When available, taking home a small, potted plant from his or her stay can provide a continuation of the horticulture intervention. This is particularly true as the therapist emphasizes that just like the plant, he or she will need to continue to daily tend to his or her well-being. While they may feel frail and weak, like the plant, those who struggle with mental illness are hardier than they suspect. Too much water or attention smothers the roots and can lead to feeling suffocated and withered. Too little sunlight and nurturance leads to a cold and lonely experience. With the correct amount of tending, the older adult can thrive as will his or her plant.

When plants are not available to take home, non-poisonous plant seeds along with simple instructions serve as a nice substitute. Granted, the instructions should be in a large font due to presbyopia, which is associated with normal aging. This is a relatively inexpensive means to continue treatment at home. The patient can usually find a small container and gather dirt form outdoors if their income is limited. A pot may be placed in a windowsill or the seeds planted in the ground. Opportunities also exist in some areas in the form of community gardens.

The older adult may already have plants in or around the home. He or she can continue self-application of the techniques and principles learned. Older adults may have plants associated with certain memories such as the flowers given to a loved one, decorations for a special event, or the smell associated with a particular person. Upon discharge, they can be instructed to focus on pulling weeds as a metaphor for removing thoughts, emotions, or behaviors of their lives that have prevented living life fully. Clippings can be brought into the home and propagated. Through the use of horticulture therapy, older adults can think about how they nurture new aspects of themselves or others as a means of a legacy. Forced bulbs can remind them that even in the midst of what feels like a winter season in their lives, unexpected growth can occur if given the proper encouragement.

Home with family. Due to the severity of mental illness or medical issues older adults face, many are moving out of their homes and into other types of facilities. One such location is with family members. Some are able return home to a spouse or a roommate. However, many older adults are moving into their children's homes where they receive better supervision and are provided greater levels of interaction with their grandchildren. In these cases, medication management and compliance is more readily accomplished as is at-home horticulture therapy.

Family members can come alongside the older adult with mental illness and promote continuation of care through joining them in the activities. Caregivers may share memories that allow for recognition by the older adult such as the flowers used at a wedding or their favorite thing to grow in the garden as a child. Herbs may be cultivated both for cooking as well as eliciting scents that trigger memories.

A continued emphasis on seasons of life can be emphasized in the home setting, particularly if grandchildren are present. Just as plants produce seeds to bring forth life in another generation of plants, so too does the older adult through children and grandchildren. Older adults have the unique opportunity, particularly with the presence of mental illness, to "plant seeds" of wisdom and carry on an oral tradition of stories from when they were young and about generations long gone. This is a rich and rewarding experience for both the older adult and child as the elder can share memories about when he or she was the child's age and worked in the garden with his or her parents.

Senior living facility. Independent senior living residences may have gardens in which residents can continue to benefit from horticulture therapy. Older adults in these facilities can also create a gardening club among the residents or facilitate a reminiscing group that meets while gardening. If an outdoor garden is not available or it is winter, horticulture therapy can be brought indoors (see Chapter Six). In particular, plants help to make an independent living area feel more like home and provide warmth to a room. To this end, the older adult may desire to pursue container gardening, forcing bulbs during the winter season, or creation of new plants from clippings. Any of the aforementioned activities allow for the work done in the hospital to continue, just as their growth will continue after they are discharged.

Assisted living facility. For some, level of impairment serves as an impediment to returning home. Moving into an assisted living facility may be necessary due to a needing a greater level of care or unavailability of other caregiving resources. One of the distinct differences from living in the home is the presence of nursing staff to help the

older adult with daily living skills. Thus, he or she may be able to also provide some help continuing horticulture therapy post-discharge from a psychiatric hospital.

Group activities at the facility can include a weekly gardening group during which facility residents can work with and maintain plants in communal areas. After winter, he or she can help maintain the outdoor landscaping as a means of both applying horticulture therapy principles as well as feel a sense of accomplishment. In a culture that at times does not value older adults, activities with measureable outcomes (e.g., aesthetics, plant growth, etc.) contribute to an improved sense of self-worth.

Board and care facility. Board and care facilities allow for greater levels of autonomy than hospice care. These facilities are fitting for those who need medications dispensed and meals provided due to severity of mental or physical illness. The facility may have an area in which a garden may be cultivated. If not, container gardening may be implemented.

Horticulture therapy may take a more individualized approach in this setting due to the lack of daily structure other than scheduled medication dispensing and meal times. The older adult will likely need to be provided with the necessary materials for carrying out horticulture therapy in a board and care facility. Therefore, family members should be provided with a list of plants which are appropriate and nonpoisonous upon discharge from the hospital. Horticulture therapy in this setting can take on the appearance of daily maintenance of a plant or two as doing so allows them to see that they are able to accomplish a task well, increasing self-esteem and self-efficacy.

Continuing Horticulture Therapy in the Home Setting

Forcing bulbs. The process of growing bulbs in the winter is called "forcing" as one forces the flowers to bloom out of season. When choosing a bulb to use, look for bulbs free from mildew and mold (Yoemans, 1992). Discoloration or peeling of the outer layer indicates disease or decomposition. Heed caution when choosing bulbs as to avoid those which are poisonous. Some bulbs are easier to force than others, though typically require anywhere from eight to 14 weeks of "cold sleep" followed by two to three weeks to bloom. It is helpful if the horticulture therapist takes the pots into a cool area such as a refrigerator to mimic the dormancy period. Afterward, remove the container to a slightly warmer area approximately 60-68 °F. If the bulbs are in a warmer area, stems tend to grow long, but weak. Pay attention to moisture levels on a daily basis. Use popsicle sticks if needed for support while growing.

In order to force a bulb, chose a container such as a small clay pot. Fill the pot with approximately 1" of gravel or rocks. Then layer approximately two inches of potting soil or enough to position the bulb just below the pot's rim. Place the bulbs with their roots down. If there is enough room, it is acceptable to place than one bulb in the pot. Cover the bulb with soil.

Another approach is to grow tender, small bulbs (e.g., narcissus) utilizing the water method (Lerner, 2005). A small bowl, dish, or jar approximately two to three inches in depth is required. Fill this container with bulb fiber, course sand, pearl chips, or pea gravel. Position the bulbs so that the "neck" of each bulb is exposed and fill the container with water so that the waterline is ½" below the bulbs. It is important to not fill the water so as to touch the bulb itself as this will lead to rotting. Place the container in a

well-lit location where the temperature hovers around 60-70 °F as higher temperatures lead to weak stems and poor growth. Refill the water as needed to maintain the water level.

Cultivating clippings and cuttings. Clippings and cuttings are relatively easy to grow and an extremely inexpensive way of cultivating plants for a horticulture therapy program (Rubin, 2011). Plants such as honeysuckle, jade plant, lavender, and rosemary are fairly easy to propagate. To begin, cut at an angle just below a stem node where the leaf or bud joins the stem; for large plants with long stems, a 4-6" branch suffices. Avoid branches with buds on the end as well as those with a woody exterior as they either rot or are too weak to support their own weight. Place these in a bucket of water immediately after cutting as water loss can lead to plant loss. With larger cuttings, place them in pots, spacing them approximately 1" apart, first making an indentation in the soil with a pencil or finger. Approximately half to two-thirds of the cutting should be below soil.

Fill the pots with moist potting soil, perlite, sand and peat, or a mix of vermiculite, peat, and perlite. Avoid use of materials containing fertilizers or manure as these tend to dry out the plants leading to poor growth and potentially consumed by those with severe mental illness. Remove leaves a few inches, up to two-thirds, from the bottom of the cutting including side shoots and flowers. Cuttings need a fair amount of water as high levels of humidity help fosters root growth, though this can prove tenuous as too much water rots roots. Place the clippings in a location out of direct sunlight or that has no light (under a tree is adequate). During hot days, attempt to mist the cuttings several times a day with a water bottle. The cultivation process takes several weeks to

complete. As the plants develop roots, they can be transplanted into pots or the therapy garden where they will need a little more attention until firmly rooted.

For leaf cuttings, a small amount of stem is required; up to one and one-half inches. It must contain a bud and a single leaf (Welch-Keesey & Lerner, 2009). The new shoot forms from the bud and often times the leaf decomposes during the rooting process. The stem base may be treated with rooting hormone if desired. Place the bud below the surface of the potting mix with the leaf above as to receive sunlight. This is a good way to develop other plants for succulents.

Approaching nurseries for donations. Many nurseries and landscaping businesses grow more plants than they need and may have extra plants left over from various jobs or orders. Calling various businesses may garner donated plants or gain access to materials at cost. When approaching the businesses, it is important explain the structure of the horticulture therapy program in a 30 second summary as to not overwhelm the business owner or manager and to allow for any questions he or she asks. This allows for the business to not feel pressured and turn down any requests prior to being asked.

Chapter 6

When to Use Horticulture Therapy: Everyday Use and Holidays

"I look upon the pleasure we take in a garden as one of the most innocent delights in human life."

- Cicero

Horticulture therapy is a treatment that is not limited by confounds often seen in highly specified protocols. Rather, it is a highly flexible psychotherapeutic intervention which allows for addressing of life events and holidays. Birthdays, anniversaries, and national holidays are easily incorporated into the therapeutic treatment as further elucidated below. More so, it is very much malleable in addressing seasons, particularly as many clients feel that they are in the midst of an autumn season in life and moving toward winter and his or her death.

Birthdays

Older adults may wish to observe their birthday or that of their loved ones. Within the horticulture therapy setting, a birthday may be celebrated in a number of ways. One simple way is validating the person's emotions whether positive, negative, or indifferent about his or her birthday. Asking questions to assist in memory recall about stories of his or her favorite birthday can tie nicely into sessions, particularly the reminiscing session (see Chapter Eight). Group members may wish to allow the birthday person to take the lead in group or create a plant pot for the older adult to take to their room and home upon discharge.

Seasons

The concept of seasons as a part of the human experience becomes salient in the midst of group therapy sessions, particularly with older adults. The concern about proceeding toward the end of his or her lifespan and leaving a legacy or a mark on the world is raised. It would behoove the horticulture therapist to address these concerns and validate the emotion behind these concerns using the concepts of validation therapy; namely, asking the "W" questions of who, what, when, where, why, and how. While working with the plants and having their hands in the soil, horticulture therapists can draw on the concept that like plants, humans also have seasons in life.

Winter. Many old adults with mental illness will report feeling that they are "at the end" or "do not have much life left to live." Winter is upon older adults in several ways. To avoid acknowledging that he or she nearing the end of his or her life would ignore potentially fertile topics that may need to processing. To face the end of one's life is potentially daunting, particularly as many are anxious about this process and it raises questions about meaning and purpose as well as legacy. Clients can also feel that his or her experience of mental health means that her or she will no longer thrive or contribute to society in some meaningful way. The darkness of winter can mirror their experience of their self-worth ceasing to exist.

In the midst winter, life can seem rather bleak when it is simply part of a cycle with spring soon to arrive. The cyclical nature of some mental illnesses, such as depression, alludes to the concept of winter as a depressive episode. Though it may feel like the symptoms will never end, he or she may have experienced symptom remission before and will likely do so again. On the other hand, if related to palliative care issues,

establishing a legacy is often a pertinent observation to make as plants produce seeds for the next generation to continue on. Whether through children and grandchildren or accomplishments in life, every person leaves a legacy and touches other people's lives. In this sense, they may be in the "winter" of their lifespan, but have a greater purpose and inherent worth through a legacy they can build.

New Year's Eve (December 31st). As the New Year is a time of reflection and goal setting, group sessions occurring around this holiday can draw on these themes. Initial group discussion can start with asking, "In which areas have you seen growth the past year?" and "What things do you want to work on this year?" Group activities can include growing clippings from other plants and talking about how specific areas for growth or planting seeds as a means of introducing discussion about developing new, healthier habits, particularly in regards to mental health and prevention of symptom relapse.

Valentine's Day (February 14th). Due to the focus of love on this holiday, several themes may be drawn upon. Group leaders may desire to talk about who people love and care for in their lives. Discussion can include stating what he or she specifically appreciates and plant flowers in small pots to present to those who play a significant role in the older adult's life. Another method of leading this group is to reminisce about different expressions of love they have experienced over their lifespan with parents, spouses, children, and close friends. Though roses are a traditional Valentine's Day flower, their thorns make this flower inhospitable to the older adult's frail skin. However, thornless roses or miniature roses may be substituted.

Saint Patrick's Day. For Saint Patrick's Day, a green theme adds to festivities in regards to decorating. Planting of clover, which is a non-poisonous and edible plant, can draw on themes of when they may have felt lucky or memories of religious aspects of the holiday.

Spring. Spring evokes images of new life and beginnings in the form of small animals such as chicks and ducklings or the blossoming of trees and return of warmer temperatures. The theme of new beginnings and start of life is easily drawn into horticulture therapy sessions. The older adults attending group may feel like they have been living in the winter of their lives, never to return to springtime. Horticulture therapists can speak to how time in a facility and treatment serve to bring about spring in their lives. It is also important to dispel any beliefs regarding becoming stagnant in their later years and view their current season as one of growth and new beginnings regardless of age.

Cinco de Mayo (May 5th). Those in the Southwest may desire to celebrate Cinco de Mayo. As this holiday is associated with Mexican culture, use of succulents, which are non-poisonous and drought resistant are an apt choice.

Mother's Day (2nd Sunday of May). As everyone has a mother, this day holds importance within American culture. Some group members may be or have been mothers. Group leaders can direct the group's theme and discussion toward favorite memories of his or her mother and what they learned from them. Those who had been mothers may also desire to share what she has learned from or appreciated about being a mother. Plant choice of flowers in season can utilize pansies, whose flowers are also edible.

Memorial Day (last Monday of May). Memorial Day often brings forth decorations of red, white, and blue. Patriotism, honoring veterans, and memories of past Memorial Day celebrations can provide fodder for group discussion. Plant choices can also reflect red, white, and blue colored flowers.

Summer. Sumer is a time in which therapy gardens can thrive provided proper hydration. Often times, people associate this season as a time in which he or she was in the prime of life and achieved goals. As sunshine is often associated with elevated mood, group discussion may begin with a discussion of how summer lifts the spirits. Caution should be taken as quality temperature regulation may decrease with age and the heat found outdoors may prove too much for some around 10 AM to 2 PM to avoid both heat and sunburn.

Father's Day (3rd Sunday of June). Father's Day allows for similar themes to that of Mother's Day. Discussion of things learned from his or her father as well as what the men in the group learned from being a father can prove fruitful. Projects can include planting of more "manly" plants that are free from flowers.

Independence Day (4th of July). A big holiday which most people observe, the Fourth of July is a time for celebration of the United States, its history, and a time to honor soldiers both past and present. Groups surrounding this day can center on past Independence Days and celebrations experienced as well as what it means for he or she to live in this country. Distribute flags to place in planters.

Autumn. This season allows horticulture therapists to utilize fallen leaves of various colors for projects. More so, the preparation of plants for the winter and cultivation of seeds serves as fodder for the idea that seasonal cycles continue and that

sometimes people need to prepare for the more dormant stages. This allows for discussion of relapse prevention (e.g., taking medications, psychotherapy, continuing to practice horticulture therapy, etc.). Gathering of seeds can also prompt conversation and processing the idea that each person leaves a legacy.

Halloween (October 31st). If on an inpatient psychiatric unit, children from another unit may visit to trick-or-treat. The older adults who are admitted may desire to decorate pumpkins with tempura paint. This would also allow for discussion of past Halloweens and favorite costumes from when they were children. Bulbs may be planted or placed in homemade bulb forcers to put in windows.

Thanksgiving (3rd Thursday of November). Group activities for Thanksgiving may focus on validating what each person is thankful for and appreciates about one another. Focus may also be given to gratitude for what he or she has learned because of his or her mental illness. Older adults may desire to create centerpieces for tables in day rooms or their personal rooms that reflect the season, including the use of colorful, fallen leaves.

Religious Holidays

The Pew Forum on Religion and Public Life's *U.S. Religious Landscape Survey* (2008) surveyed 35,000 American adults. Results showed a wide variety of religious affiliations in the United States (see Table 1). Older adults were seen to have a greater level of religiosity than their younger counterparts, particularly those under the age of 30. In accordance with the American Psychological Association's guidelines for ethical practice (APA, 2002), spirituality is not to be overlooked. Subsequently, incorporation of

spirituality into a horticulture therapy program is not only ethical, but acknowledges an integral aspect of most people's worldview. Most religions have traditional holy days they observe, which are easily addressed in horticulture therapy during the calendar year.

Christian holidays. As a majority of those in the United States celebrate various Christian holidays, it would not be unusual for horticulture therapy group members to desire incorporation of these holidays into their horticulture experience. In light of this, several suggestions are made as a means of starting thought of how to address a Christian worldview in light of a horticulture therapy program.

Christmas. One of the hallmark holidays of the Christian faith is Christmas when people celebrate the birth of Jesus Christ. Many businesses, offices, and homes are decorated in festive holiday décor. There are several projects one might incorporate as a seasonally-focused session as follows:

- Rosemary trees. Providing a traditional evergreen tree for each patient can lead to an astronomical cost for horticulture therapy programs. Instead, the use of rosemary tree not only is far more cost effective, but also provides aromatherapy benefits. It also acts as an herb for cooking after the holiday season. Provide decorations for group members to use as they wish on the trees including items such as small pieces of ribbon or candy, though it is wise to provide sugar-free options for those who have diabetes.
- Some may desire to create a wreath, which may serve a decoration for a door, table, or have further function, such as an advent wreath. One such way of constructing these is to have precut items such as fir branches to place into wreath-shaped foam. Older adults' skin is prone to tearing and is sensitive to

abrasions and they may lack the strength required to cut appropriate-sized pieces, so cutting some ahead of time for the group would allow for better use of time in-session. Tiny ornaments, ribbon, and the like can create a beautiful wreath. Ask group members if they wish to bring anything they would like to add to theirs as a means of personalizing further. For those making advent wreaths, inclusion of tapered candles to determine placement of wreath materials allows for them to see what it would look like at home.

- There are several traditional plants that are abrasive to the skin and poisonous. These include holly, mistletoe, and poinsettias. It is particularly important to avoid use of these plants as those who have suicidal ideation or low levels of insight may attempt to consume them.

The wonderful thing about many holidays is that gift giving is a societal norm. Activities done in a horticulture therapy group can also provide gifts for family members or loved ones. Not only does giving gifts reduce perseveration on their own problems, but lends to feeling a sense of capability, worth, and fulfillment. Amongst a population that often feels unappreciated, a burden, and unlovable, the ability to foster more positive affect in regards to both themselves and their interpersonal relationships is important for helping them to thrive.

Easter. This holiday evokes themes of new beginnings whether older adults approach it with a religious or non-religious viewpoint. Group discussion can focus on these themes whether it is new beginnings as seen in the focus on new life springing forth or redemption and renewal as celebrated by those who place a value on the religious aspects. Group leaders can also take another approach through focusing on Easter

traditions in group members' families when a child and as an adult. It is important to note that due to lilies being toxic, they should not be used as part of the group activity.

Jewish holidays. Some areas of the United States have a larger concentration of people of Jewish descent and faith. The Jewish calendar has many festivals and holidays which are observed world-wide. Two of the celebrated holidays are Passover and Hanukah.

Pesach (Passover). Passover allows for discussion of times when group members experienced close calls, were provided for, or experienced miracles in their own lives. The horticulture activity for this group may include cultivation of parsley for use on the Seder plate.

Hanukkah. A time of celebration and gift giving, group members who observe Hanukkah may desire to create or grow gifts for loved ones. Pots of plants, particularly those with culinary use as well, may serve as a nice gift and allow for the older adult to feel included in the observation of this holiday.

Muslim holidays. The two major sects of Islam, Shia and Sunni, have different lunar calendars. However, they both observe two of the main holidays: Eid ul-Fitr (also known as Eid or the end of Ramadan) and Eid al-Adha (the Festival of Sacrifice). If running a horticulture therapy program in an area with a large Muslim population, it will be important to address these important days in the older adult's life.

Eid ul-Fitr. Ramadan is a month of fasting during daylight. The end of these 30 days involves attending a religious ceremony and prayer. At the end of the day, there is often a large feast. Centerpieces for the dining area can be created in group and

discussion surrounding the values emphasized on this day such as taking care of the less fortunate and things learned during Ramadan.

Eid al-Adha. This holiday, also known as the Festival of Sacrifice, celebrates Abraham's willingness to sacrifice his son out of obedience to God. As God provided a ram as a substitute, Muslims separate their animal sacrifice into three categories following a ceremony: one third is retained for the family's use, one third given to relatives and/or neighbors, and the last third is given to those who are less fortunate. As charity and giving to the less fortunate are a major focus of this holiday, this topic can easily be melded into a discussion for the horticulture group.

Native American and American Indian holidays. The various tribes found within the United States have a wide variety of religious practices. Smudging as part of religious ceremonies by medicine men is found in several of the Native American cultures. White sage contains camphor and can alleviate sore throats, thus reducing concern for toxicity. Often times, white sage is used, though lavender, cedar, and other herbs and spices are added sometimes in order to create a more pleasant aroma. Provision of herbs cultivated in the therapy garden can assist in addressing the spiritual needs of those who adhere to traditional beliefs. Tobacco is often used in various ceremonies; however, its use is sometimes prohibited on hospital grounds and may interact with some medications. Hence, planting of tobacco in the therapy garden is not recommended.

Chapter 7

How to Implement Horticulture Therapy

"Gardens are not made by singing "Oh how beautiful" and sitting in the shade."

- Rudyard Kipling

Goals and Objectives

Theoretically, a horticulture therapist can run a group without goals or objectives. However, an aimless group usually leads to aimless results. Preparation is what separates a mediocre session from one that touches on key issues for older adults. Beyond the basics of preparing horticulture materials such as dirt, plants, and spades, keep several goals in mind when approaching each session (Hewson 1994):

- Attempt to increase a sense of self-efficacy and self-esteem through working with plants. This is an opportunity for clients to make "mistakes" in a safe environment where they are encouraged to continue trying. Consistent work allows them to see the fruit of their labor—sometimes literally!
- Facilitate socialization and reduce withdrawal in older adults. One of many wonderful things about horticulture therapy is that one session may primarily focus on use of individual pots, another where each person contributes to a planting a ground-level garden or raised beds, or work on a planter together as a collaborative project. While some may desire to withdraw due to mental illness (e.g., Major Depressive Disorder, Schizophrenia, etc.), the group dynamic of horticulture therapy allows for one client to help another as well

work, art, business, or homemaking. Typically, people find horticulture experiences more valuable when allowed freedom to explore their creativity or apply principles from their lives outside of treatment.

- Allow patients to participate in an activity that is not focused on pathology, but rather on positive aspects of themselves. The mental health field focuses on abnormality in diagnostic manuals, graduate classes, case conceptualizations, and therapeutic interventions. Instead, validate areas where the person is doing well as this builds confidence and a sense of accomplishment. A client may learn that she is able to transplant a plant from a nursery to a pot without destroying it. Another may discover that he has an eye for garden design. A third may find that he or she has far more patience than ever realized or shows bravery in the face of a task he or she believes will result in failure.

General Instructions

Regardless of the setting, there are several basic concepts which to adhere to when conducting horticulture therapy groups with older adults. When using bins or pots, they need to be placed at an appropriate height for accessibility. This may entail utilizing tables, chairs, benches, or raised beds. Also, pot size becomes imperative in the older adult population. Larger pots lend to heavier carry weights, particularly when filled with soil. They may also be too much for older adults to handle and maneuver safely. Thus, utilization of small pots or working in the desired location of a larger pot allows for avoidance of safety concerns.

Program Guidelines

There are several overarching principles that may prove beneficial for clinicians using horticulture therapy as a therapeutic intervention. Though these serve as a guideline and are not prescriptive in nature, they serve as a good place for any new program to begin. The clinician forming a new horticulture therapy group may desire to consider the following (Hewson, 2001):

- Establish a set time for the horticulture therapy group. Doing so provides structure for group members and can prime the person's psyche that at a scheduled time each day or week, they will be participating in the group. Having a prescribed day and time also prevents schedule conflicts with other appointments and encourages commitment on the part of all whether client, staff, or volunteer.
- If possible, set individual goals for treatment with each client prior to starting the program. Preset goals establish a measure of progress or need for treatment plan changes. Also, involving the older adult in the process of goal-setting increases the level of investment on the part of the individual. Collaborating treatment planning with the older adult can also lower anxiety about the process and increase success rates.
- It is important to provide opportunities for active participation. While it is imperative to create realistic goals for each person, it is equally significant that therapy activities are tailored to each person's abilities. Individualizing treatment can prove challenging in an inpatient psychiatric setting as length of stay is often short-term; subsequently, the older adult may attend only one

session. Higher rates of client success are seen when the therapist creates tasks the older adult is able to accomplish. In turn, this reduces expectations on and of persons who are often already anxious and have difficulty coping in pressured situations.

- Opportunities may arise to create specialized groups that curtail treatment to different ability levels. In such a case, smaller sub-groups can be formed in order to increase client success as well as the amount of one-on-one access to the therapist and volunteers.
- The more natural the interaction, the better. Coming alongside the client subtly allows for establishment of rapport and trust, which can take some time for those with severe mental illness. This gentle approach can be drawn out for quite some time in an outpatient setting. In inpatient psychiatric settings, the provider may want to gently invite the client to join them to "take care of the garden or patio." Regardless, it is vital for the client to sense the clinician is both authentic and cares about their well-being. An open communication style allows many older adults to disclose their concerns, feelings, and needs.
- As with any population, it is important to be in tune with your client's affect. Subtle changes in their internal structure can be caused by a variety of stimuli including interactions of medications and the sun as found with some neuroleptics. Life events can also cause a shift in behavior and mood, particularly anniversaries of weddings, birthdays, and deaths of loved ones. It is important to attend to these changes as often the busyness of the hands allows the client to speak more freely.

- Some clients speak more through silence than words. Quietness may be due to many reasons including being non-responsive, rejection of the therapy, tension with other members of the group, boredom, discomfort working with plants, generational cohort effects, and introversion. Hence, clients with mental illness are often overlooked. Instead, it is important to be attuned to those who are more silent and listen intently to what they say. With older adults, appropriate touch provides comfort and leads to vocalization of their thoughts and feelings.
- If clients are openly bored or disinterested, consider varying the style of delivery and content of material to make it more interesting. For some, this entails referencing current events, seasons, or distant memories. Higher-functioning people may also need the level of challenge provided by tasks increased.
- Positive reinforcement is a time-proven method of increasing involvement in an activity. Praise should be freely and sincerely given when a client completes a task or attempts something new, especially when they were apprehensive.
- As with any therapy, variables change from moment to moment. It is the therapist's job to adjust to these fluctuations and have an openness to change plans. For instance, a client may have an alternative method for working with plants that is better suited for him or her. A client may know something the therapist does not about horticulture and teach group leaders a new concept. These moments are great teaching tools for both the client and therapist.

- Have projects that focus on seasons and holidays as these are often pertinent to clients and have associated memories with which to work.
- Often, clients will avoid involvement in horticulture therapy due to hesitancy regarding touching dirt. Aprons, smocks, and hospital gowns can help protect your clients' clothing from being soiled. Medical gloves also protect the hands when older adults are concerned about dirt under the nails or exposing open wounds.
- Establishing strong rapport with support staff is vital to ensuring involvement of clients who need to dress, eat, and take their medications prior to the start of each session. Sometimes nursing staff also enjoys participating and/or assisting clients in the therapy sessions upon completion of their duties.
- Volunteers often provide an enriching presence in horticulture groups. They can take over tasks and allow group leaders to move from person to person, curtailing the experience to individual needs, and contribute to the session. They also can help older adults with tasks which are difficult due to various handicaps such as moving pots and transferring soil from a soil container to a pot.
- Daily routines can lead to forgetting to document beyond basic facility requirements. However, a calendar of events, activities, level of success, and plants used will assist in determining what works best with a specific population and individuals.
- For facilities without locked units, clients may benefit from outings to botanical gardens, horticulture shows, local gardening competitions, and

community and private parks. Just as going to museums can inspire budding artists, exposure to other plants and gardens can stimulate the mind and imagination of all persons involved in horticulture therapy, not just the clients.

- Supplemental materials can include another dimension into your program, particularly if the group has a low turnover rate (e.g., assisted living facilities, community centers, etc.). The use of films, guest speakers, and music can assist in understanding the dynamics of horticulture, mental health issues, and how health is improved through gardening.
- Gardening is a multisensory experience that provides stimulation for each of the five senses. The scent of the dirt and plants, textures, vivid colors, taste of edible plants, and sounds of the environment each play a role in horticulture therapy. Increase the use of the senses through calming music and choose plants specifically designed to stimulate the mind through scent. Vividness of color decreases with age, particularly due to the presence of cataracts. To this end, selection of vibrant shades is helpful.
- Most of all, if your program is to be successful, be yourself! It is easy to become overwhelmed with attending to details, particularly when first starting a horticulture therapy program. However, clients mirror therapists' affect and if anxious, they will often become anxious themselves. Relaxing and having fun with the physical stimuli, clients, and session goals allows room for your clients to explore their internal and external world more thoroughly.

Plant Suggestions

Plants guidelines. Various guidelines have been published regarding the selection of horticulture therapy plants. Each was created with a specific population in mind. However, none have been established regarding older adults with severe mental illness. When horticulture groups are initially formed, many group leaders are overwhelmed with the task of which plants to pick or are unaware of issues specific to this population. To this end, the following is to serve as a guideline for this special group of individuals and is by no means prescriptive.

Consideration should be given to physical changes seen in the aging process. As people become older, their skin becomes thinner and more susceptible to tearing. Also, blood takes a longer amount of time to clot. Subsequently, plants with thorns and other abrasive surfaces should be avoided as the potential for perforation of the skin and bleeding is higher. Keep plants to a reasonable size as lifting large plants can prove difficult for some older adults, particularly those with physical and orthopedic disabilities.

Poisonous plants should be avoided as those with mental illness, particularly dementia and psychosis, have a propensity to not exercise judgment and put plants in their mouths without determining whether a plant is edible. Horticulture therapists should also excise some discernment regarding use of soils sold with fertilizers depending upon the level of functioning among the group members. If the group is comprised of people who are low-functioning, use of organic soils or those without added fertilizers is wiser due to the potential for eating the soil and poisoning. Those who are severely depressed

and active suicidal ideation need close supervision if any of the above materials are used as they may attempt to commit suicide using poisonous plants or chemical fertilizers.

Further considerations by Hewson (2001) are as follows:

- Try to choose plants that have a "distinctive color, shape, and texture" as to elicit stronger stimulation of the senses.
- Select hardy plants that are able to tolerate a range of sunlight and/or watering.
- You may desire to choose plants which serve more than the single purpose of looking beautiful such as planting lavender to later use the flowers for aromatherapy or mint for awakening the senses and culinary needs.
- The plants should help to elicit memories as well as evoke older adults' creativity.

Choosing plants. After reviewing the above guidelines for plant selection, the budding horticulture therapist may wonder which specific plants to choose. The following ten plants are nonpoisonous and very successful in horticulture therapy gardens:

1. Dwarf Orange Tree (*Calamondin Orange*)
2. Geranium (*Pelargonium Clorinda*)
3. Lavender (*Lavendula*)
4. Coleus (*Coleus*)
5. Spider Plant (*Chlorophytum Comosum*)
6. Mint (*Menthe*)
7. Pansy (Viola Tri-Color, Hortense)

8. Wandering Jew (*Tradescantia*)
9. Succulents
10. African Violets (*Saintpaulia*)

Seasonal considerations should take into account growing zones and weather patterns. For example, while many plants are easily propagated in locations such as Redlands, California, or Seattle, Washington, they are likely not to thrive outdoors in places such as Rapid City, South Dakota. Plant availability can wane during winter months, lending to the planting of seeds indoors, starting plant clippings, and forcing bulbs.

Herbal and/or edible plants. Therapy garden designs vary greatly. One possible approach to garden planning is to implement an herbal therapy garden in which culinary herbs are cultivated. Take care to avoid use of medicinal herbs (e.g., Saint John's Wart) as they may interact with the older adult's medications and cause undesirable side effects. Another approach is to create an edible garden in which each plant is edible (e.g., pansies, nasturtium, etc.). This approach allows for safety without concern for plant consumption.

Aromatherapy. Incorporation of the senses into the horticulture experience allows for another point of contact with the present. Various herbs are known to elicit various reactions. Mint increases attention and energy. Lavender decreases agitation and insomnia. Thus, these two may prove beneficial in the psychiatric inpatient therapy garden.

Common poisonous plants. Many people are unaware of which household plants are poisonous (see Table 2). Some of these noxious plants have both toxic and edible parts (i.e., rose roots and rose hips). Due to the potential for someone with dementia or

psychosis to unintentionally consume toxic or abrasive portions of plants, it is vital to pay close attention to the plants introduced to older adults in inpatient psychiatric facilities. There are several common plants to avoid due to either toxicity, interacting with medications, or abrasive components (for an extensive list, see Table 2):

1. Baby's Breath (*Gypsophila*)
2. Bird of Paradise (*Poinciana gilliesii*)
3. Black-Eyed Susan (*Rudbeckia birtaI)*
4. Buttercup (*Ranunculus*)
5. Caladium (*Caladium bicolor*)
6. Crocus
7. Daffodil (*Narcissus pseudonarcissus*)
8. Dahlia
9. Daisy (*Gerbera*)
10. Foxglove (*Digitalis purpurea*)
11. Iris
12. Ivy (*Hedera*)
13. Lilies (*Liliaceae*)
14. Morning Glory (*Ipomea hederacea*)
15. Oleander (*Nerium oleander*)
16. Peony (*Paeonia*)
17. Rose (*Rosa*)
18. Saint John's Wort (*Hypericum performatum*)
19. Tomato (*Lycopersicon lycopersicum*)

Helpful hints. There are several practical aspects of gardening that can make running a horticulture therapy group easier. One such thing is that using large paper coffee filters in the bottom of pots prior to putting in soil allows for excess water to drain from plants. Coffee filters also keep soil in the pot and prevent erosion.

Another thing to consider is the practice of spreading roots. While demonstrating how to transplant plants, emphasize the importance of spreading the roots of the plants as this helps plants to become more strongly rooted. Clients are often afraid they will irreparably damage their plants by doing so. It is important to explain that this allows for the tangled roots to cease competing for nutrients. This practice can also be used as a metaphor for explaining that when people spread their roots, they often feel more satisfaction and fulfillment through established relationships, become stronger and healthier, and have an inherent need for nurturance. When clients allow themselves to become rooted in healthy communities, they thrive. When they are crowded emotionally and relationally, they show failure to thrive. While older adults may sustain life, quality of life is far diminished when crowded in comparison with the potential to have deep, meaningful relationships.

Feasibility of year-round outdoor groups is not possible in all locations. While California is often sunny year-round, those living in the Northeast may not find outdoor therapy groups feasible due to snow. In these cases, a technique called "forcing bulbs" is quite useful. This process requires a clear container, rocks, and a bulb (e.g., tulips). Place several inches of rocks in the container. Then position a bulb with the roots down and top of the bulb pointing upward. Fill in the rest of the container with rocks until the bulb head is peaking out of the rock. The client should place this container in a window. In order to

sustain the plant, water should be maintained at a level just below the roots. If the water is too low, the bulb will not be "forced" to believe it is time to grow and bloom. On the other hand, if the water is too high, the bulb will become saturated with water, leading to mold and decay. A parallel can be drawn during groups in that humans, like plants, need the right amount of nurturing and comfort from others in our lives. Too little nurturing from others and older adults tend not to blossom or grow to their full potential. Too much nurturing tends to leave those with severe mental illness overwhelmed and suffocated, resulting in difficulty sustaining them and growing stronger. The right amount of care, concern, and nurturing allows for those with mental illness to both thrive and sometimes show remarkable growth that surprises even themselves. A word of caution, though, as many bulbs are toxic.

Safety Concerns

Due to aging and the unique challenges faced by those with severe mental illness, safety becomes paramount. Several items come into play that the horticulture therapist should keep in mind while working with this population:

- Fatigue is often seen due to several factors, including strength issues and medication side effects. If an older adult is tiring, it may become necessary to have them sit, rest, or return to their room for a nap as accidents may occur when fatigued (e.g., dropping pots).
- Time of day for the horticulture groups may need adjustment per season. As summer temperatures in some regions will reach well over 100 °F, it is wise to hold group sessions during the morning when temperatures are lower.

Accordingly, during the winter, the therapist may desire to schedule the group time midday during peak temperatures.

- As many older adults avoid sun exposure, shade, sunscreen, or clothing should be considered to prevent sunburn, particularly during summer months.
- Sunstroke is also a concern due to decreased temperature regulation. As such, when it is quite hot outside, the group may need to be moved indoors.
- Dehydration is also a concern as many do not drink enough fluids. This can lead to confusion, disorientation, and symptoms similar to that of delirium.
- As previously mentioned, fertilizers and fertilized soil present a toxic hazard, particularly if ingested. This is a possibility for those who have suicidal ideation as well as those who are experiencing delirium, psychosis, or dementia.
- Hoes and rakes are not only a hazard as an unintentional weapon if swung, but also are a tripping hazard. Use of small hand tools are a wiser choice.
- Insects are also of concern. Monitor the horticulture therapy area for bee, wasp, and yellow jacket nests as well as spider eggs (particularly Black Widow) and red ant hills. If there are signs of insects that bite or sting, one may cautiously hold group in the area. However, due to impulsivity and distorted interpretation of reality for some aspects of mental health, presence of insects may be hazardous.
- Allergies may render participation in the group impossible, particularly during pollination seasons. Place tissue boxes and waste bins within close proximity

of those who wish to still participate. Check to see if antihistamines and hydrocortisone are easily accessible through the nursing station.

- Mulching is a wonderful tool for retaining soil moisture and preventing weeds. It is also a risk for those who eat inappropriate items due to mental illness. Mulching can also lead to splinters for older adults due to delicate skin.

Chapter 8

Horticulture Therapy in Conjunction with Psychotherapy

"Plants in pots are like animals in a zoo; they're totally dependent on their keepers."

- John Van de Water

Group Size

As group size fluctuates greatly on inpatient units, it is important to prepare for the change in numbers which occurs from one group to another. With small-sized groups, the amount of individual attention and time for each to share increases greatly. However, the small size may make discussion difficult if its members are low-functioning. In this case, it may be more beneficial to focus on the action components of horticulture therapy while validating any emotions that arise.

Large groups, particularly those greater than seven people, present their own unique challenges. Due to sheer numbers and limited time, there may be some that are unable to speak or feel safe enough to open up to the group. Limitations also exist regarding materials available for each and the activity portion of group may end more quickly than desired. Space restrictions may also come into play. However, in large groups those who are higher functioning can help those who are struggling. This allows those who help to feel a sense of fulfillment while assisting those who are unable to carry out tasks such as carrying pots or removing seedlings from small containers. With larger numbers, collaboration on horticulture projects forms naturally as members can plant large pots together and arrange flowers together in sections.

Session Outline

The remainder of this manual is a layout of a 10 session treatment program, which one can continually repeat as inpatient settings are constantly in flux. Though it is recommended patients take part in all 10 sessions in order to obtain maximum benefit from horticulture therapy, it is not necessary. Due to the nature of psychiatric hospitals, an older adult with severe mental illness may find themselves admitted for as little as one day up to an extended period of time. It may not be feasible to participate in more than one session. Rather, any combination may prove beneficial. For example, an older adult may attend group sessions six through nine, yet none of the others. An adequate amount of knowledge of how to conduct horticulture therapy can be gleaned prior to discharge from the hospital in order to continue the benefits.

Each session is outlined with goals, objectives, questions for the discussion portion, and metaphors to incorporate. However, one would be remiss not to mention that these sessions are flexible in nature. Unlike other treatment manuals that outline how much time is allotted in single minute increments, horticulture therapy is more about the experience and feeling in the moment than maintaining a rigid session structure. While it is important to reach the goals by the end of the session, clients will have salient thoughts, feelings, and memories that warrant time. Thus, the horticulture therapist should aim to reach the session goals while understanding that it is important to meet clients where they are at in the midst of their experiences. In other words, try to be flexible to meet client needs, even if this entails allocating time more toward one or two of the objectives than the others. In general, horticulture sessions utilizing this model will implement a session structure similar to the following:

- General introduction of group members (5 minutes)
- Presentation of group topic (10 minutes)
- Allocating horticulture materials (5 minutes)
- Implementation of horticulture activity (25 minutes)
- Clean up (5 minutes)
- Discussion of process with group members (10 minutes)

Session 1: Introduction to horticulture therapy. The first session is a general introduction to the "what" of horticulture therapy; what Yalom (2005) calls "imparting information." It is an orientation to the process of this therapeutic intervention, what the clients can expect, and a first experience of working with the plants. The older adults in the group likely have come from various backgrounds ranging from growing up on a farm to an apartment building. They may or may not have had much experience cultivating flora and fauna. Some may have gardened with their families on weekends while others had difficulty maintaining any plants as they had never developed a "green thumb." It is important to gain a cursory understanding of each person's experience prior to starting an introduction to horticulture therapy to determine comfort level working with plants and any previous experiences doing so. Once this is completed, the following steps are recommended:

1. General introduction/orientation to working with plants.
2. Focus on positive affirmations of the clients' actions.
3. If the clients are not demented, talk about what horticulture therapy is and why it is being utilized.
4. Ask: "Think about the last time you planted flowers."

5. Metaphor to use: Spreading roots and becoming firmly planted in a community or meaningful relationships, leading to becoming stronger and healthier.

An hour session may follow the following breakdown of activities:

- General introduction of group members (5 minutes)
- Assessment of past horticulture experience (5 minutes)
- Provide education regarding the what and why of horticulture therapy (10 minutes)
- Demonstration of transplanting seedlings into pots including transferring soil, spreading roots, and filling in surrounding area (5 minutes)
- Encouragement of remembering last time they planted flowers and memories working in the yard or on the farm as a child (20 minutes)
- Arrangement of pots and clean-up (5 minutes)
- Group processing of experiences while participating in the group (15 minutes)

In the midst of the above mentioned, the horticulture therapist should incorporate validation therapy techniques. Attention to the feeling experienced by the older adult instead of accuracy of details allows for group members to have a richer experience. In turn, a safe, nurturing environment is created in which older adults can explore their inner world.

Session 2: Reminiscing. In many ways, humans are comprised of their memories. Personalities, worldviews, and histories form who a person is in the present; without these, confusion reigns and personality disappears. In light of this, reminiscing is a powerful tool. It allows the older adult to use an internal strength to gain perspective, impart wisdom, and see that their experiences are often transitory, particularly times which are more difficult. Being a psychiatric inpatient is rarely desired by older adults—much less any age group. Focusing on their stay as a temporary situation may assist the older adult in developing a positive view of their admission and return home. This session touches on Yalom's (2005) group therapeutic existential factor. In light of the preceding, this session should implement the following goals:

1. Focus on memories elicited while doing HT.
2. Discussion of memories elicited.
3. If the client has no memories that are brought forth on their own, ask questions regarding first memories of flowers, any that were planted around the home when they were children, flowers at different important days such as their wedding, etc.
4. Ask: "Think about the flowers at your wedding. What types did you use?"
5. Metaphor to use: Use the life cycle of the plant from seed to producing seed as an analogy for the lifespan and leaving something (i.e., "planting seeds") for the next generation such as words of wisdom or an oral tradition.

Session two's focus on reminiscing may elicit difficult memories which result in perseveration on negative emotions. This is particularly due to the stigma of mental illness and psychiatric hospitalization that is prevalent among older adults. It becomes vital for the horticulture therapist to gently guide group members to focus on memories associated with happiness, nostalgia, or times of growth. The group leader may flexibly follow this recommended session structure:

- General introduction of group members (5 minutes)
- Assessment of past horticulture experience (5 minutes)
- Provide education regarding the importance of reminiscing and the perspective it brings (10 minutes)
- Demonstration of transplanting seedlings into pots including transferring soil, spreading roots, and filling in surrounding area (5 minutes)
- Encouragement of remembering occasions that are associated with various flowers such as their wedding(s), Valentine's Day, Mother's Day, or family gardens (20 minutes)
- Arrangement of pots and clean-up (5 minutes)
- Group processing of experiences while participating in the group (15 minutes)

Session 3: Seasons. The changing of seasons serves as a cue for nature as well as human beings. It allows people to orient to time of year and serves as a strong metaphor for various phases in life. These phases are organized sometimes by the entire lifespan; sometimes as various key events or age ranges. Accordingly, "seasons" in life become an

important means by which older adults can look back and extrapolate meaning from their experiences. Yalom's (2005) concept of existential factors, socializing techniques, and interpersonal learning are present within this session. Therefore, this session implements the following:

1. Continue cultivating plants.
2. Focus on seasons of plants and draw a parallel to seasons in the clients' lives.
3. Consideration of what season(s) they are currently experiencing.
4. Ask: "What season are you in currently? Are you entering a new season of life?"
5. Metaphor to use: In what may appear to be the autumn or winter of life, unexpected growth occurs in a safe, nurturing environment.

The focus on seasons capitalizes Erikson's (1997) developmental stages, particularly on the older adult's desire to obtain a sense of integrity instead of despair. They are in "autumn" and heading toward the "winter" of their lives. However, it is equally important to emphasize the idea that they are also experiencing mini-seasons in relation to their mental illness. While they may have been struggling greatly, resulting in an inpatient stay, spring is around the corner as treatment becomes successful. Sessions may adhere to the following structure:

- General introduction of group members (5 minutes)
- Assessment of past horticulture experience (5 minutes)
- Discussion of literal seasons as a metaphor for seasons of life (10 minutes)

- Demonstration of transplanting seedlings into pots including transferring soil, spreading roots, and filling in surrounding area (5 minutes)
- Encouragement of spending time considering their current season and how it, too, is transitory (20 minutes)
- Arrangement of pots and clean-up (5 minutes)
- Group processing of experiences while participating in the group (15 minutes)

Session 4: The later years. Unlike the previous group that focused on the "seasons" experienced in mental illness, this session looks at discovering a legacy. Legacies allow for the older adult to feel a sense of validation through contributing to the lives of others. In the midst of this, a sense of their own mortality may arise as friends and family die in increasing numbers. In creating a legacy, the older adult can pass on wisdom and lessons learned, much like the concept of interpersonal learning, existential factors, and installation of hope (Yalom, 2005). Various aspects should be implemented:

1. Discuss how they are in the "fall" season of their lives and what that means for each person.
2. If the topic arises, discuss end of life issues.
3. Talk about how the next generation is the continuation of the cycle of plants' lives.
4. Ask: "What legacy do you wish to leave your loved ones?"
5. Metaphor to use: When plant dies, its seed continues on as a part of the plant just as their children and/or grandchildren do.

Each person's response to facing the eventuality of death differs. One group member may express bitterness toward life experiences and loved ones. Another may say that he or she has nothing of worth to give or leave others. Some may become tearful. Others may find that they have thought some about leaving their mark on this world. Regardless of the reaction, it is important to validate each experience as the person attempts to develop a sense of integrity and vanquish despair. The following is suggested as a breakdown of minutes for an hour-long session:

- General introduction of group members (5 minutes)
- Assessment of past horticulture experience (5 minutes)
- Discussion of the aging process, Erikson's view of stage struggles, and how they are in the "autumn" of life (10 minutes)
- Demonstration of transplanting seedlings into pots including transferring soil, spreading roots, and filling in surrounding area (5 minutes)
- Planting seeds as a reminder that they leave a legacy behind in the form of future generations, regardless of whether they are biological or mentored younger people (20 minutes)
- Arrangement of pots and clean-up (5 minutes)
- Group processing of experiences while participating in the group (15 minutes)

Session 5: Validation. Naomi Feil's focus on validation (2002) highlights an important aspect of mental health treatment that is often forgotten. As older adults age, they may find various activities and responsibilities removed as well as the decline of

physical health. As such, they may feel a sense of inadequacy and being treated like a child by others who are much younger. Therefore, it becomes imperative to validate the person's experience in the context of horticulture therapy as seen in the group process of universality and existential factors (Yalom, 2005). Goals for this group include:

1. During this session, focus on the emotions that the client feels while working with the plants.
2. Discuss how some feel inadequate due to others' reaction to their mental illness.
3. As a group leader, validate any emotions that arise.
4. Ask who, what, when, where, why, and how questions while focusing on the emotions behind the content.
5. Metaphor to use: Though flowers may appear fragile, they are often far heartier than some suspect; able to stand harsh conditions and thrive regardless of difficult conditions. People who struggle with serious mental illness are like these flowers and will grow under unfavorable conditions.

This session is affect driven while the group leader emphasizes who, what, when, where, why, and how questions Feil (2002) emphasizes without becoming distracted by inaccuracies in details. It is important to stay with the older adult's emotions and allow them to direct the therapy to a large extent during this session. To this end, the following session outline is recommended:

- General introduction of group members (5 minutes)
- Assessment of past horticulture experience (5 minutes)

- Discussion of ways in which they have and have not felt emotionally validated or inadequate (10 minutes)
- Demonstration of transplanting seedlings into pots including transferring soil, spreading roots, and filling in surrounding area (5 minutes)
- Encouragement of older adults to see what they are doing well while working with the plants (20 minutes)
- Arrangement of pots and clean-up (5 minutes)
- Group processing of experiences while participating in the group (15 minutes)

Session 6: Self-esteem. Sometimes when people are in an inpatient psychiatric hospital, they say that they have reached a "low" in their lives and feel worthless, broken, unlovable, and inadequate. This session focuses on building a sense of worth that comes from who they are rather than what they are able to accomplish. During the activity portion of group, the horticulture therapist may desire to ask the older adults what they think of tender plants surviving in harsh environments. Feedback from the other members allows for interpersonal learning, group cohesiveness, development of socializing techniques, and universality (Yalom, 2005). Therefore, the following goals are implemented in this session:

1. Building self-esteem and efficacy through a focus on ability to succeed at keeping a plant alive and ability to do much more in their lives.
2. Increase a sense of self-worth.

3. Provide feedback for other group members regarding value of one another.
4. Increase sense of ability to survive under harsh conditions at times.
5. Ask: "What qualities do you appreciate in each other? Do you see some of these in yourselves?"
6. Metaphor to use: Discuss the connection of how they are like that plant—able to survive in the face of great difficulties, particularly mental illness.

Implementation of Naomi Feil's validation techniques in this session allow for building upon the previous session. This entails a continuation of validating emotional experiences and helping the older adult to interpret memories in a manner that fosters integrity. Group leaders may give sincere feedback regarding positive attributes of each older adult. Along the same line, encourage the same for group members to bolster self-worth in each older adult. In order to implement this session's goals, the following structure is suggested:

- General introduction of group members (5 minutes)
- Assessment of past horticulture experience (5 minutes)
- Initial discussion regarding words they feel describe themselves, their worth, and ability to complete tasks (10 minutes)
- Demonstration of transplanting seedlings into pots including transferring soil, spreading roots, and filling in surrounding area (5 minutes)

- Encourage each older adult to focus on what they are able to do instead of what they are unable to do and their internal experience during the activity portion of this session (20 minutes)
- Arrangement of pots and clean-up (5 minutes)
- Group processing of experiences while participating in the group and how they, like the plants, may appear fragile, but can survive in difficult circumstances (15 minutes)

Session 7: Self-care. At times, older adults find themselves on inpatient units as their ability to take care of themselves has greatly diminished. For some, previous coping strategies are no longer effective. For others, their mental illness may have prevented taking care of themselves adequately. This group session focuses on the simple care needed to not only sustain a plant's life, but allow it to thrive. Parallels are to be drawn to the group members and the care they need to implement in order to once again thrive and what Yalom (2005) describes as imitative behavior. Thus, the following session goals are recommended:

1. Discussion regarding the nurturing aspects of HT and how they are able to take care of something outside of themselves.
2. Discussion of self-care and ways of attending to one's own needs.
3. Ask: "What simple things could you do—once again—to take better care of yourself?"
4. Metaphor to use: Like plants, humans need the right amount of nurturing and comfort. Sunflowers rotate their flower heads

throughout the day as to gain the most amount of sunlight, which is necessary for a strong, growing plant.

An emphasis on practical solutions is implemented in this group. For some older adults, previous means of coping with difficulties they faced in life may have ceased to work well. For others, their mental illness includes lack of self-care as a symptom (i.e., staying in bed most of the day, lack of proper grooming, etc.). For others, circumstances may have changed to an extent that they are not able to take care of themselves any longer and require a higher level of skilled living facility. Assisting older adults in thinking of new skills or the courage to begin taking care of themselves again can prove quite fruitful. This is particularly true as taking care of plants is a tangible example of basic skills having a large impact on a living object. As a means of providing structure in the group, this horticulture session's structure may entail the following:

- General introduction of group members (5 minutes)
- Assessment of past horticulture experience (5 minutes)
- Initial discussion about self-care (10 minutes)
- Demonstration of simple plant maintenance and cultivation (5 minutes)
- Encourage each to think of basic ways in which they are taking care of the plants (20 minutes)
- Arrangement of pots and clean-up (5 minutes)
- Group processing of experiences while participating in the group and how they, too, need daily attention to self-care (15 minutes)

Session 8: Self-reflection. In order to see where one is going, one should reflect on the past. To see the progress each older adult has made, he or she would benefit from looking at what they have accomplished over the course of the horticulture therapy program. The group leader will guide the older adults in a time of reflection during this session. The horticulture activity will be primarily focused on the action of doing rather than talking. Each older adult is to think about what they have learned about themselves during the previous sessions, thus implementing the therapeutic factor of existential factors (Yalom, 2005). Goals to implement include:

1. Recap previous sessions and the skills learned.
2. Discuss what they have learned about themselves through the process.
3. Reflect on lessons learned and areas of growth.
4. Ask: "How have you grown over your time here? What have you learned about yourself?"
5. Metaphor to use: Plant growth as sometimes a slow process, but observable over time.

Self-awareness is a goal of most therapies, though can come with some discomfort as growth rarely occurs without it. However, acknowledging difficult aspects about oneself is often the beginning change. As Rogers (1961) aptly stated, "The curious paradox is that when I accept myself just as I am, then I can change" (p. 17). The implementation of keeping the older adult's hands busy can allow for allocation of resources and self-reflection to occur, provided that cognition is intact (i.e., dementia is not severely progressed). Validation of self-reflection and attendance to negative feelings toward themselves can prove a difficult task. Therapists may desire to reframe the content rather

than tend to the underlying emotion, though this potentially robs the older adult of a more meaningful experience. In light of the abovementioned topic, this session's structure should flexibly allow time in each of the following areas:

- General introduction of group members (5 minutes)
- Assessment of past horticulture experience (5 minutes)
- Initial discussion regarding what they have learned thus far during past horticulture therapy sessions (10 minutes)
- Initial set-up and allocation of materials (5 minutes)
- Encourage each older adult to continue reflecting on lessons learned and areas in which they are growing (20 minutes)
- Arrangement of pots and clean-up (5 minutes)
- Group processing of experiences and feedback of what members have seen blossom in one another (15 minutes)

Session 9: Transitioning home 1. Developing a treatment plan for returning home is an important component that encourages the ability to succeed. Horticulture therapy is a skill that older adults can apply in other settings. This session focuses on feelings about going home, existential factors, and review of basic skills to apply after they are discharged from the hospital. Thus, treatment goals for this session include:

1. Introduce what to do upon discharge.
2. Review horticulture therapy skills.
3. Encouragement of thinking about the transition home as an opportunity for growth.

4. Means of implementing horticulture as a continued therapy and coping skill.
5. Ask: "How would you like to continue working with plants at home?"
6. Metaphor to use: Creating a plan for taking care of plant allows for better plant health and growth. Similarly, a plan for continuing treatment at home is more likely to succeed.

For some older adults, returning to independent living is not a viable option. For these persons, an emphasis on opportunities for a better quality of life is important while still attending to validating feelings of loss, whether loss of independence or functionality (e.g., walking, medication management, etc.). Group leaders should tend to the ambivalence many feel regarding returning home as it is normal to feel torn between being happy about symptom improvement and wariness about the challenges that lie ahead. This session's focus on the transition from an inpatient facility to going home can take the shape as the following for a 60 minute session:

- General introduction of group members (5 minutes)
- Discussion regarding feelings about discharge from the hospital (10 minutes)
- Talk about some things they might take home with them (i.e., a small potted plant) (5 minutes)
- Encourage each older adult to focus on what they desire to continue at home, what they have learned, and where they desire to continue fostering growth (20 minutes)
- Arrangement of pots and clean-up (5 minutes)

- Group processing of experiences during this session and parting words of wisdom for newer group members (15 minutes)

Session 10: Transitioning home 2. Building upon the previous session, this group focuses on the details of implementing horticulture therapy in the "home" environment. Execution of the techniques learned during the treatment program should be reviewed as well as the concepts of validation. As a whole, this session focuses on empowerment of the group's older adults and the installation of hope (Yalom, 2005). The horticulture therapist's goals include:

1. Review of home HT activities.
2. Validation of skills built and ability to succeed.
3. Provide encouragement regarding ability to continue growing at home.
4. Validate their ability to continue practicing horticulture therapy outside of the hospital.
5. Ask: "In what ways might you continue success at home?"
6. Metaphor to use: A plant needs daily monitoring and adjustments to care depending upon changes in environment, so do the older adults upon returning home. Coping skills that worked before might not in the present or future. Medications may need adjustment at some point. Living arrangements change. Changing variables that lie ahead; the older adult will need to adjust in order to thrive.

Encouraging each group member regarding his or her ability to implement techniques can improve success for transitioning to home life. However, it is equally important to

emphasize that if the plant does not survive, they can always reuse the pot and cultivate another plant. Session ten's structure may take shape in the following allocation of time:

- General introduction of any new group members (5 minutes)
- Review of horticulture therapy principles and discussion of continuing them upon discharge (15 minutes)
- Encourage each older adult to focus on what they have learned during their time in the horticulture group sessions while working with the plants (20 minutes)
- Arrangement of pots and clean-up (5 minutes)
- Group processing of experiences and saying goodbye (20 minutes)

Chapter 9

Conclusion

"A society grows great when old men plant trees whose shade they know they shall never sit in."

- Old Greek proverb

As America's older adult population increases because of the addition of the baby boomers and longer lifespans, an increase in numbers will be seen within mental health facilities. Due to the severity of their mental illness, some older adults may not be able to attend to basic aspects of a typical psychotherapy or psychoeducational group. However, implementation of techniques, such as those found in validation and horticulture therapy, allows for many to participate in treatment, regardless of pathology. It is the author's hope that this program will prove as fruitful for others as it has in the author's own practice in multiple treatment settings.

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Appendices

Appendix A

Religious Affiliation Table

Table 1

Religious affiliation of adults 18 years and older

Religion	Adult Population %	60-69 Years	70+ Years
Christian	78.4	84	88
Protestant	51.3	57	62
Catholic	23.9	24	23
Mormon	1.7	2	1
Jehovah's Witness	0.7	1	1
Orthodox	0.6	< 0.5	1
Other Christian	0.3	1	< 0.5
Jewish	1.7	2	2
Buddhist	0.7	1	< 0.5
Muslim	0.6	< 0.5	< 0.5
Hindu	0.4	< 0.5	< 0.5
Other world religions	< 0.3	< 0.5	< 0.5
Other Faiths	1.2	1	1
Unaffiliated	16.1	10	8
Atheist	1.6	1	1
Agnostic	2.4	2	1
Nothing in particular	12.1	3	3
Do not know/refused	0.8	1	1

Note. Adapted from "U.S. Religious Landscape Survey, Religious Affiliation: Diverse and Dynamic" by the Pew Forum on Religion and Public Life, February 2008, *Summary of Key Findings,* p. 5, 37. Copyright 2008 by the Pew Research Center.

Appendix B

Common Poisonous Plants Table

Table 2

Common Poisonous Plants

Common Name	Latin Name	Concerns
Aconite, Wolfsbane, Monkshood	*Aconitum napellus*	The poison is concentrated in the unripe seed pods and roots, but all parts are poisonous. Causes digestive upset, nervous excitement. Often fatal.
Amaryllis	*Hippeastrum*	
Anemone, Windflower	*Anemone*	
Angel's Trumpet	*Brugmansia*	All parts of the plant contain the tropane alkaloids scopolamine and atropine. Often fatal.
Arrowhead Vine	*Syngonium podophyllum*	
Azalea	*Rhododendron*	All parts of the plant are poisonous and cause nausea, vomiting, depression, breathing difficulties, coma. Rarely fatal.
Baby's Breath *	*Gypsophila*	
Bird of Paradise	*Poinciana gilliesii*	
Bittersweet Nightshade	*Solanum dulcamara*	All parts are poisonous, containing solanine and causing fatigue, paralysis, convulsions and diarrhea. Rarely fatal.

Black-Eyed Susan *	*Rudbeckia hirta*	
Black Locust	*Robinia pseudoacacia*	Pods are toxic.
Black Nightshade	*Solanum nigrum*	All parts of the plant except the ripe fruit contain the toxin glycoalkaloid solanine.
Black Snakeroot, Cohosh, Bugbane, Fairy Candle	*Actaea racemosa*	All parts of the plant are poisonous, causing nausea, severe upset.
Bleeding Heart	*Dicentra cucullaria*	Leaves and roots are poisonous and cause convulsions and other nervous symptoms.
Boston Ivy	*Parthenocissus tricuspidata*	
Buttercup	*Ranunculus*	
Caladium, Elephant Ear	*Caladium bicolor*	All parts of the plant are poisonous. Symptoms are generally irritation, pain, and swelling of tissues. If the mouth or tongue swell, breathing may be fatally blocked.
Calla Lily	*Zantedeschia aethoipica*	
Castor Bean	*Ricinus communis*	
Castor Oil Plant	*Ricinus communis*	Contains ricin, an extremely toxic water soluble protein, which is concentrated in the seed. Also present are ricinine and an irritant oil. Causes burning in mouth and throat, convulsions, and is often fatal.
Chinese Lantern Plant	*Physalis alkekengi*	
Clematis	*Clematis*	
Cotoneaster	*Cotoneaster*	
Crocus, Autumn	*Colchicum autumnale*	The bulbs are poisonous and cause nausea, vomiting, diarrhea. Can be fatal.

Croton	*Codiaeum veriegatum*	
Cyclamen	*Cyclamen*	
Daffodil	*Narcissus pseudonarcissus*	The bulbs are poisonous and cause nausea, vomiting, and diarrhea. Stems also cause headaches, vomiting, and blurred vision. Can be fatal.
Dahlia *	*Dahlia*	Mostly in the bulb, but also found in the leaves
Daisy	*Gerbera*	Exception: Common Daisy used to make daisy chains.
Daphne	*Daphne mezereum*	The berries (either red or yellow) are poisonous, causing burns to mouth and digestive tract, followed by coma. Often fatal.
Darnel, Poison Ryegrass	*Lolium temulentum*	The seeds and seed heads may contain the alkaloids temuline and loliine.
Datura	*Datura*	Contains the alkaloids scopolamine and atropine. Can induce hallucinations.
Deadly Nightshade	*Altropa beladonna*	All parts of the plant contain the toxic alkaloid atropine. The young plants and seeds are especially poisonous, causing nausea, muscle twitches, paralysis. Often fatal.
Dieffenbachia, Dumb Cane	*Dieffenbachia seguine*	All parts are poisonous, causing intense burning, irritation, and immobility of the tongue, mouth, and throat. Swelling can be severe enough to block breathing leading to death.
Doll's Eyes	*Actaea pachypoda*	Berries are highly poisonous, as well as all other parts.
Elderberry	*Sabucus*	The roots are poisonous and cause nausea and digestive upset.
Elephant's Ear	*Alocasia macrorrhiza*	
English Ivy	*Hedera helix*	
Eucalyptus	*Eucalyptus*	

European Holly	*Ilex aquifolium*	The berries are poisonous, causing gastroenteritis.
Ficus Tree *	*Ficus benjamina*	
Foxglove	*Digitalis purpurea*	The leaves, seeds, and flowers are poisonous, containing cardiac or other steroid glycosides. These cause irregular heartbeat, and generally digestive upset and confusion. Can be fatal.
Gardenia *	*Gardenia*	
Gifblaar	*Dichapetalum cymosum*	A livestock poison in South Africa; contains fluoroacetic acid.
Gladiola	*Gladiolus*	
Hemlock	*Conium maculatum*	All parts of the plant contain coniine which causes stomach pains, vomiting, and progressive paralysis of the central nervous system. Can be fatal.
Henbane, Stinking Nightshade	*Hyoscyamus niger*	Seeds and foliage are poisonous.
Holly	*Ilex*	Berries cause vomiting, nausea and diarrhea if ingested.
Hyacinth	*Hyacinthus orientalis*	The bulbs are poisonous, causing nausea, vomiting, gasping, convulsions, and possibly death.
Iris	*Iris*	
Jack-in-the-Pulpit	*Arisaema triphyllum*	
Jequirity	*Abrus precatorius*	The seed is highly poisonous.
Jerusalem cherry	*Solarum pseudocapsicum*	All parts, especially the berries, are poisonous, causing nausea and vomiting. It is occasionally fatal.
Jimson Weed, Thorn Apple, Stinkweed, Jamestown Weed	*Datura stramonium*	All parts, especially the berries, are poisonous, causing nausea and vomiting. It is occasionally fatal.
Lantana	*Lantana camara*	

Larkspur	*Delphinium*	Contains delsoline. Young plants and seeds are poisonous, causing nausea, muscle twitches, and paralysis. Often fatal.
Lilies	*Liliaceae*	Most are poisonous.
Lily-of-the-Valley	*Convalleria majalis*	
Lobelia	*Lobelia*	
Manchineel	*Hippomane mancinella*	All parts of this tree, including fruit, contain toxic phorbol esters.
Marsh Marigold	*Caltha palustris*	
Mayapple	*Podophyllum peltatum*	Green portions of the plant, unripe fruit, and especially the rhizome contain the podophyllotoxin, which causes diarrhea and severe digestive upset.
Mistletoe	*Phoradendron villosum*	
Monkshood	*Aconitum columbianum*	All parts of the plant are highly poisonous. Causes burning, tingling, and numbness in the mouth, then the intestine, followed by vomiting. Leads to death by asphyxiation.
Moonseed	*Menispermum canadense*	The fruits and seeds are poisonous, causing nausea and vomiting. Often fatal.
Morning Glory	*Ipomea hederacea*	
Mother of Millions	*Kalanchoe tubiflora*	These plants are deadly to livestock and there is every indication that they are toxic to humans.
Mother-in-law's Tongue	*Sansevieria trifasciata*	
Narcissus	*Narcissus*	Mostly in the bulb, but also found in the leaves.
Nightshade	*Solanaceae*	

Oleander	*Nerium oleander*	All parts are toxic, but especially the leaves and woody stems. Cause severe digestive upset, heart trouble, contact dermatitis. Very fatal.
Peony	*Paeonia*	
Periwinkle, Myrtle, Vinca	*Vinca*	
Philodendron	*Philodendron*	
Poinsettia **	*Euphorbia pulcherrima*	
Pokeweed	*Phytolacca americana*	Leaves, berries and roots contain phytolaccatoxin and phytolaccigenin.
Potato (all green parts)	*Solanum tuberosum*	
Pothos, Silver Vine, Centipede Tongavine, Devil's Ivy, Solomon Islands' Ivy	*Epipremnum aureum*	
Privet	*Ligustrum*	Berries and leaves are poisonous. Berries contain ligustrin and syringin, which causes digestive disturbances, nervous symptoms. Can be fatal.
Rhododendron	*Rhododendron*	
Rhubarb Leaves	*Rheum rhabarbarum*	
Rosary Pea	*Abrus precatorius*	
Rose *	*Rosa*	Thorned varieties are abrasive to delicate skin.
Umbrella Tree *	*Schefflera arboricola*	
Spindle Tree	*Euonymus*	
Saint John's Wort	*Hypericum perforatum*	Interacts with many psychotropic medications.

Statice *	*Limonium*	
Stinging Tree	*Dendrocnide excelsa*	The plant is capable of inflicting a painful sting when touched. Exacerbated by touching, rubbing, cold. Can be fatal.
Tomato (Plant & Unripe)	*Lycopersicon lycopersicum*	
Virginia Creeper	*Perthenocissus quinquefolia*	
Wandering Jew *	*Tradescantia*	
White Snakeroot, White Sanicle	*Ageratina altissima*	All parts are poisonous, causing nausea and vomiting. Often fatal.
Wisteria	*Wisteria*	
Yellow Jessamine	*Gelsemium sempervirens*	All parts are poisonous, causing nausea and vomiting. Often fatal.
Yew	*Taxus baccata*	All parts of the plant except for the fleshy red fruit contain taxane alkaloids. The seeds are poisonous and fatal when ingested.

Note. Adapted from Bruce, H. (1999). *Gardens for the senses: Gardening as therapy.* Rancho Rio, NM: Petals & Pages, p. 112, and Hewson, M. L. (1994). *Horticulture as therapy: A practical guide to using horticulture as a therapeutic tool.* Enumclaw, WA: Idyll Arbor.

* These plants may cause skin irritation or allergic reactions.
** This plant may cause skin irritation, and mild nausea or vomiting.

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