

## **How Can A Horticultural Therapy Program Within VA's Treat US Veterans in Cincinnati With Symptoms of PTSD?**

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*Image credit: [adobe](#)*

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ID



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“To plant a garden is to believe in tomorrow.”— *Audrey Hepburn*

**Classes**

Spring 2025, Horticulture Final Project, Hort 4092  
Professor Stevie Famulari

Fall 2023, Intro to Nature Based Therapy, Meds 2092  
Professor Barbara Walkers

Spring 2022, Herbaceous Ornamentals, Hort 2032,  
Professor Janelle Allen

Spring 2021, Permaculture II, DAAP 5062  
Professor Doug Crouch

Spring 2021, Urban Landscapes and Roofs Facades  
Professor Jeanie May

Spring 2021, Hort Science I, Hort 1010  
Professor Jim Hansel

Fall 2021, Horticulture Technology, Hort 1010L  
Professor Jim Hansel

## **Abstract**

How Can A Horticultural Therapy Program Within VA's Treat US Veterans in Cincinnati With Symptoms of PTSD?

Horticulture therapy refers to the practice of using gardening and plants for therapeutic benefits.

The use of gardening as means for both mental and physical wellbeing has been a prominent practice for centuries, but the actual practice used in a medical context is still a relatively new field. Meanwhile, U.S veterans today deal with challenges regarding their mental health.

Horticulture therapy has become a form of alternative or complementary therapy for veterans who have sustained trauma during their time in service. This study researches how U.S Veterans can use horticulture therapy as a form of complementary therapy to find ways to live with mental health ailments such as Post-Traumatic Stress Disorder. My hypothesis of this study will be that horticulture therapy will have a positive impact on veterans who deal with the everyday symptoms of PTSD. The methodology of this study will include literature reviews and case studies of both articles and active groups that partake in horticulture as a form of therapy. The end result for this research is to design a therapeutic green room for VA hospitals that veterans can partake in as a form of therapy, classes, or recreation.

**Keywords:**

**Horticulture Therapy:** A therapy treatment that uses plants and gardening activities to improve a person's health and wellbeing

**Therapeutic Horticulture:** Participation in plants and gardening activities, or nature involved activities for a better mental wellbeing

**Horticulture:** Horticulture is the art or practice of garden cultivation and management

**PTSD:** Post-Traumatic-Stress Disorder is a diagnostic term to describe a mental health condition that can develop after experiencing or witnessing a traumatic event.

**VA:** The VA stands for veteran affairs, the United States Department of Veterans Affairs, a federal agency that provides benefits to veterans, including healthcare

## **Problem Statement**

How Can A Horticultural Therapy Program Within VA's Treat US Veterans in Cincinnati With Symptoms of PTSD?

## **Justification**

This research is important to understand because veterans are a struggling minority in the U.S, and horticulture therapy is a growing field.

U.S veterans today face multiple challenges in both mental, physical, and social aspects. Trauma has a major mental health impact on veterans, both young and old, and can lead to symptoms of PTSD such as anxiety, depression, emotional and physical distress, and more.

Physical aspects may include disabilities and physical trauma that were incurred during their service and impact their ability to function in everyday life. On top of the mental and physical challenges veterans may face, there is a social stigma veterans also face when it comes to asking for help, and receiving treatment for mental ailments.



Image Credit: [VA.Gov](http://VA.Gov)

Veterans are known to deal with homelessness, difficulty finding jobs, substance abuse, and public stigmas in their day to day life as well.

**EXHIBIT 5.5: Estimates of Homeless Veterans**  
By State, 2020

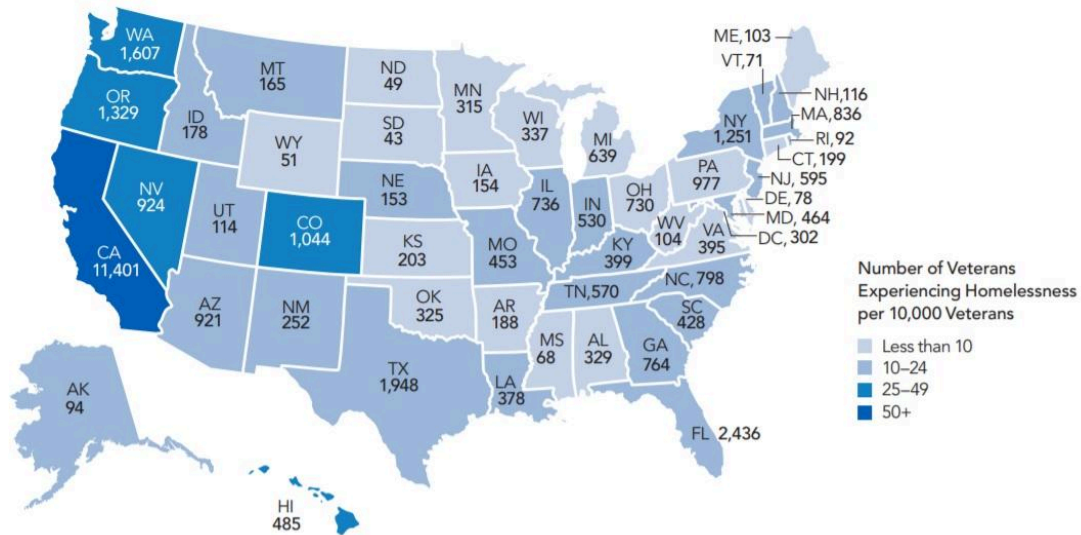


Image Credits: [militarytimes.com](http://militarytimes.com)

Chart from 2020 of estimates of veterans who are experiencing homelessness

Today veterans are given numerous options for help. The Department of Veteran Affairs (VA) offers veterans a variety of help such as healthcare, education, compensation for disabilities, life insurance, and more. There are resources out there for veterans, such as a veterans crisis hotline, as well as various foundations and organizations that support veterans in finding jobs, training, and more.

Horticulture therapy today is a growing field and can be used to treat both mental and physical ailments. The practice of horticulture therapy is using plants, gardening, and multiple aspects of nature, and therapy sessions regarding a person's wellbeing to cultivate an environment of healing, and learning how to manage day-to-day challenges based on ailments.

There are multiple horticulture groups that are based around veterans in order to create a sense of community and healing for those who served. Many of these groups are civilian-based organizations out of professional and medical services. Horticulture therapy isn't not considered a complete therapy option in therapy options for veterans with PTSD. There is also not a lot of research based around the effects of horticulture therapy on veterans. This research aims to examine both existing research, as well as case studies of veteran horticulture organizations and propose a green space for VA hospitals that could be used as a recreational, therapeutic, or educational space for veterans.

A design for a green space VA based around horticulture therapy will offer veterans complementary treatment options alongside current treatments, while also creating a safe space where gardening can be practiced and maintained. The design would provide benefits for a veteran's mental, physical, and social life by offering things such as horticulture classes,

individual and group therapy residing in the space, and recreational time to garden quietly or with mutuals who share similar interests and/or life experiences.

A green space for VA could help improve veterans' lives by providing them a safe space to reconnect with themselves, nature, and others. Many symptoms of PTSD can bring on feelings of solitude and disconnection from the world. A green space for in-patient and out-patient veterans to visit and take part of could help with those feelings of isolation, and provide beneficial aspects to a veteran's everyday life.

### **User/Client Description**

This research is meant for those in healthcare fields who work with or may come across veterans who are seeking treatment for symptoms of PTSD, which include depression and anxiety.

Therapists, psychologists, and doctors may be interested in looking towards horticulture therapy as a treatment option to be included in their plans of treatment for veterans who are currently dealing with symptoms of PTSD. This could also be for those who may be looking for answers towards how horticulture therapy could help veterans.

## **Project Elements**

The green design for this research will be a space built or already accessible in a VA hospital.

The space will be used for multi-purpose, including but not limited to therapy sessions (both group and individual), educational horticulture classes, and recreational purposes for both in-patient and out-patient veterans.

### **Size**

The size of the space varies based on VA facilities and their wants and needs, it could be a large room the size of a gymnasium, or could be a small room the size of an average bedroom. Below are some numbers that the green space could be.

- 40'L x 25'W *or* 1400 sq feet
  
- 20'L x 15'W *or* 300 sq ft

### **Watering**

Watering is an important aspect of gardening. To make quick and easy access to water, a minimum of four sinks should be placed throughout the space, recommended by a sink per wall. This will allow accessibility for each niche of the space. The greenwalls will be implemented with a irrigation system

### **Greenwall(s)**

One main green wall that could be used and maintained by veterans enrolled in horticulture classes.

## Lighting

Windows are a must for this space, at least one wall with windows outside to allow sunlight, and also incorporate a sense of “being outside” with the nature inside the space. Natural lighting will help provide a source of lighting for plants, but indoor lighting should be appropriate for the room, being bright but not uncomfortably. Plant lights should be used as well.



Image credits: [Pinterest](#)

**Accessibility**

Accessibility is a must. Railings must be provided on every wall, pillars if any, etc. Space must be accessible for wheelchair users such as access to elevators if the room is located on a top floor. Tables and chairs that provide physical support and wheelchair-accessible planters must be provided. This is important especially in a hospital environment, to be inclusive and accessible to anyone who uses mobility aids. Wheelchair accessible planters will be offered as well, to give those who use wheelchairs for mobility a chance to garden comfortably.

**Maintenance (Daily, monthly, annual)**

Horticulture classes, therapy sessions, and recreational sessions will help partake in maintenance of watering, transplanting, changing of plants, etc. For green wall maintenance, have a professional come in twice monthly to check irrigation, materials, etc. and update what is required.

**Furniture (chairs, tables, comfort ratio)**

The furniture in this space will be comfortable and accessible. Lift chair recliners will be provided to allow ease in sitting down and standing up. Couches, loveseats also are provided for comfortable seating arrangements. Decorative tables, shelves, will be used in the room as storage.



Image credits: [Amazon.com](https://www.amazon.com)

Example of a lift chair, allows one to easily stand up without having to strain one's body.

**Extra space (i.e. closet space)**

Additional space would be recommended for storage of supplies, such as gardening tools, watering cans, gloves, seeds, etc.



Image Credits: [blesserhouse.com](http://blesserhouse.com)

Examples of what a storage closet for a green space could look like.

## Plants

Plants are a big element to this space. Plants in this space can range from houseplants, trees, annuals, perennials, and succulents.



Image credits: [Better Homes and Gardens](#)

## Project Information

### Site Information



*Image Credits: [redicincinnati.com](http://redicincinnati.com)*

Cincinnati is the chosen location for this study. Cincinnati is located in the United States, in the state of Ohio. Cincinnati's population reaches 311,087 citizens, according to the United States Census Bureau. The Census Bureau also records a population of 11,864 veterans.

Cincinnati is located in Hamilton county, within the state of Ohio. Cincinnati is located within the planting zones of 6a to 5b, and is considered a climatic transition zone. It experiences all four seasons, with temperatures ranging to below freezing, and ninety degree hot temperatures.

Cincinnati is a hilly city, with lots of valleys and hills. Cincinnati has a lot of great parks, such as

the Great Parks system, and Cincinnati Parks, as well as smaller individual township parks that can be found.

The city of Cincinnati is located between multiple military and air force bases, such as the Wright Patterson Air Force Base, Fort Knox, and Fort Campbell. The state of Ohio contains multiple military bases, as well as National Guard bases and military installations. The VA Cincinnati Medical Center (Veterans Affairs) is also a major hospital located in the city catered towards veterans and offers services ranging from healthcare to psychological care.

The VA is the Department of Veteran Affairs. The VA's mission is to provide health care, benefits, cemeteries, and the fourth mission- which is to prepare the United States for emergencies and disasters. The VA's health administration is stated to serve over 9 million veterans a year. The VA provides healthcare ranging from physical, to psychological care.

Cincinnati is a location of interest due to it being an urban environment with a military presence in and around the city. While the city does have local parks and forests, it still has major elements of urban environments where there is not a space of nature provided. A VA located in an urban city having a horticulture therapy program, along with a green space as part of a VA facility could provide the source of nature and healing that a veteran may pursue.

## **Quantitative**

The section of the study contains quantitative data regarding horticulture therapy programs, population, race, and age of veterans in the U.S

Horticulture therapy programs are widespread across the U.S, but according to the American Horticulture Therapy Association, there is no way to have accurate numbers on how many active horticulture therapy programs there are due to the fact that there is no need for said programs to register.

According to census.gov, there are 15.8 million veterans in the U.S, as of 2023. This represents 6.1% percent of the U.S population of U.S citizens 18 and over. 1.7 million veterans are female, which is 10.9% of the veteran population. 27.9% of the veteran population is veterans 75 or older in the United States. 8.3 % of veterans younger than 35.

## Statistics On U.S Veterans 2023



0.6 % veterans who were in WW2

3.5% in Korean war

33.0% Vietnam

24.8% persian golf war

28.0% post 9/11 period (sept 2001-2023)

Image Credit: Savannah Caddo

Statistics on U.S Veterans alive today who fought in wars

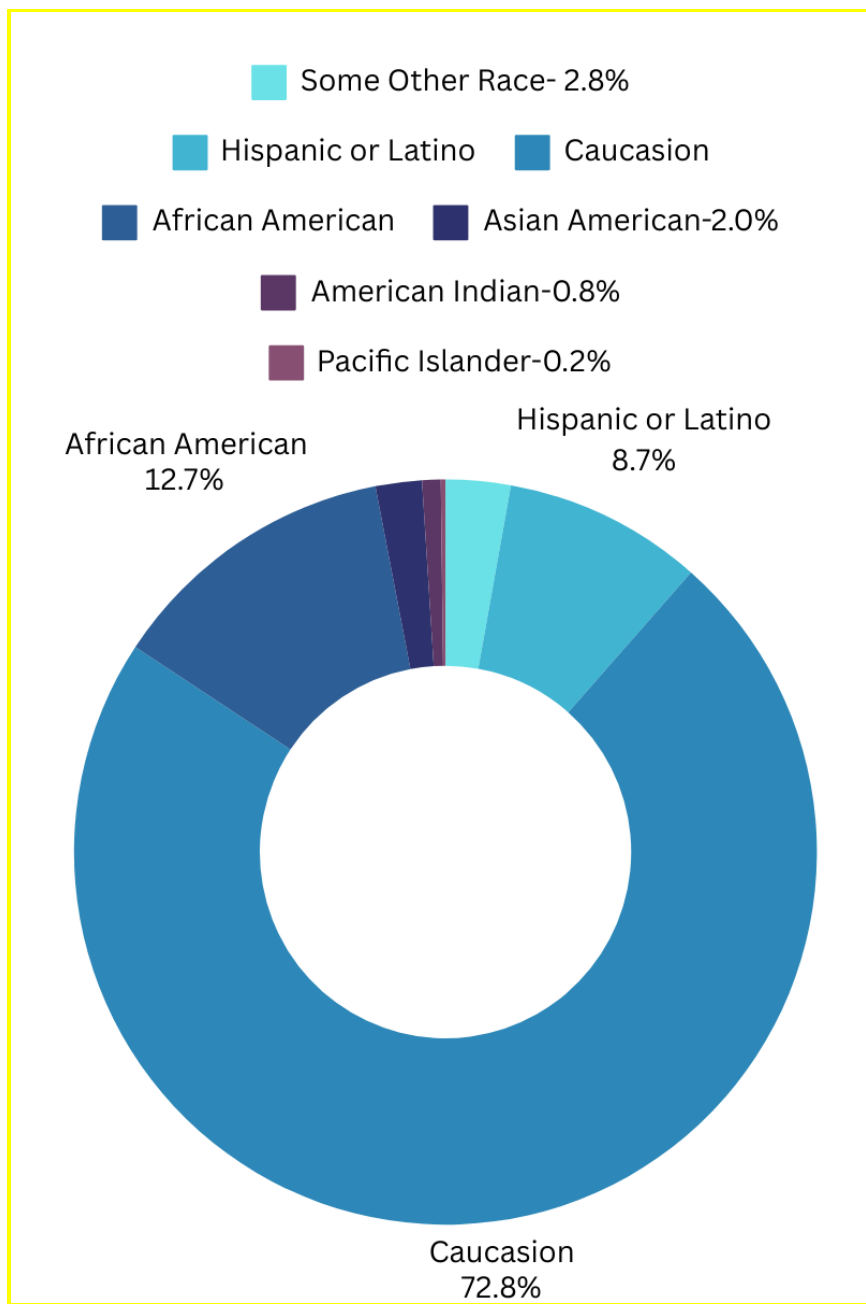


Image Credit: Savannah Caddo  
Percentage of U.S Veteran Races

The VA is reported also to have 1,380 health care facilities, which includes 170 medical facilities, and 1,193 outpatient centers.

## Qualitative

This section contains qualitative data. This data includes information regarding PTSD rates, substance abuse, mental health statistics, and more.

- 1 in 3 veterans from wars in Afghanistan and Iraq develop PTSD
- PTSD rates among female veterans are doubled in male veterans
- About 1 in 10 veterans returning from war in Iraq and Afghanistan struggle with alcohol or drug use
- About 1 in 10 outpatient military clinic appointments is for depression
- The veteran suicide rate is 1.5 times higher than that of the general population

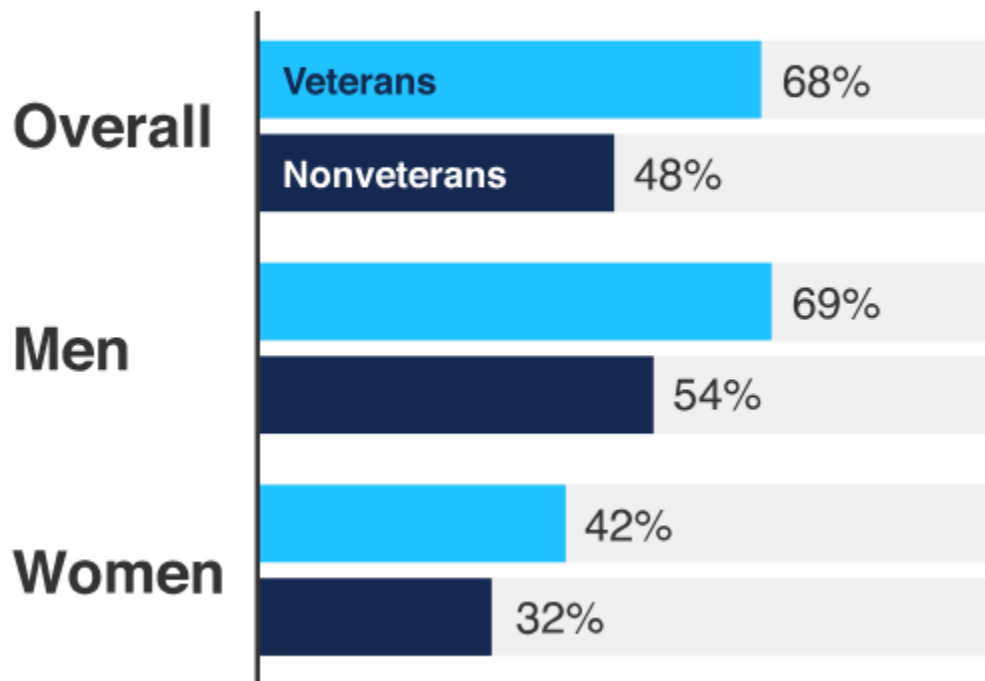


Image credit: [rand.org](https://www.rand.org)

This graph is based on in 2018, 6,435 veterans and 40,075 nonveteran adults died by suicide.

According to rand.org, “the rate of suicide among veterans was 32.0 per 100,000, compared with 17.2 per 100,000 for nonveterans (VA, 2020b).”

## Site Inventory

The site of the design is a VA space located in Cincinnati, Ohio, but the outside conditions of the site are not applicable since the site is an interior space. This design could be varied, and could fit any VA in an urban or country setting.

The site could be added onto an existing VA facility, or an existing room inside said VA facility could be constructed and made into a green space.

The site could include vegetation, ranging from houseplants, annuals, perennials, herbs, vegetables, etc suited for class, therapy, and recreational needs. Some plants that are in the space could be including

- Trees such as Lemon Cypress, mini olives, Bonsai
- Herbs such as basil, lavender, cilantro
- Vegetables: tomatoes, peppers, cucumbers,
- Fruits: blueberries, strawberries,
- Annuals: Marigolds, petunias, Zinnias
- Perennials: Iris, coneflowers, black-eyed susans, phlox

The noise level would be somewhat muted and quieter due to plants' decreased echo and sound vibrations. Speakers could be placed around the space to play music, nature sounds, soft ambiance, etc, and can have requests for ambiance/sound played

Furniture such as sinks would be highly recommended to be included in the site. Ease of access to water for watering plants. Sinks could also help in aiding clean-up with ease of water as well. Also will be used as a place to allow drainage of pots if plants become overwatered. Other pieces of furniture can be couches, chairs, tables, all fit to accessible and comfortable needs. These pieces can vary with the size of the room.

Lights can be a mixture of natural lighting and room lighting. Natural lighting from windows can create a less over-stimulating atmosphere in the green space, while also doubling as to provide lighting for plants. Room lighting can be ceiling lights, lamps, and plant lights to add extra lighting needed so the space isn't dark, and filled with more welcoming lights.

## Site Summary

The site of Cincinnati Ohio is an example of what the location of a VA greenspace can be. This greenspace can be applied to any VA environment. Cincinnati is an urban city, with a high veteran population due to a highly regarded VA medical center, as well as multiple military bases located in and around the city.

Veterans will typically serve for their country for four years unless re-enlisted. When returning home, it can be disorientating especially when it comes to urban environments such as Cincinnati Ohio. A veteran that may be dealing with symptoms of mental health ailments such as PTSD, may find it discomfoting to be in an urban environment that is loud, and crowded.

A space in nature, or a green space can help provide veterans dealing with symptoms of PTSD such as depression, and anxiety, could help one find some quiet and peace within themselves as they face the challenges of everyday life.

## Case Study 1

Eichholz, Cherie, "Therapeutic Horticulture as a Healing Tool for Veterans" (2020).

Doctorate in Social

Work (DSW) Dissertations. 142.

[https://repository.upenn.edu/edissertations\\_sp2/142](https://repository.upenn.edu/edissertations_sp2/142)

The first literature review is about therapeutic horticulture being a healing tool for veterans. This dissertation paper researches therapeutic horticulture, which is different from horticulture therapy in regards that there is no treatment plan, or treatment goals that are made in therapeutic horticulture and instead uses garden-related activities to improve a positive mental outlook, whereas horticulture therapy is defined “as the use of plants and plant-based activity for human healing and rehabilitation.” according to Rutgers School of Environmental and Biological sciences. The purpose of including a review of a paper with similar but different definitions to horticulture therapy is to consider the range of mental health illnesses, such as PTSD that veterans suffer and consider the impact of gardening, and green spaces to help veterans who suffer from mental ailments

The first paper of the dissertation is titled Literature Review: PTSD, Moral Injury, Current VA PTSD Treatments, Alternative & Complementary Treatments, Nature, and Therapeutic horticulture. This literature review is a dissertation written by Cherie Eichholz and was published in Spring 2020. The dissertation consists of two research papers regarding the VA, treatment of veterans mental health, and the usage of therapeutic horticulture and their effectiveness on veterans. The paper describes and addresses PTSD, the history of PTSD, as well as other mental

health ailments and information regarding treatment options. The second paper begins to address key findings the researcher found regarding horticulture therapy use in VA programs and how it positively affected veterans who took part in these programs.

Eichholz starts with the history of PTSD, mainly in how it came to be classified, its connection to military veterans, and the symptoms and treatments. PTSD, post-traumatic stress disorder, is a mental health ailment that today is classified as part of the DSM IV, a handbook used by professional healthcare workers and as a guide for diagnosing mental ailments. PTSD, according to *Psychiatry.org* is defined as; “Post-traumatic stress disorder (PTSD) is a psychiatric disorder that may occur in people who have experienced or witnessed a traumatic event, series of events or set of circumstances.” The symptoms of PTSD can fall into four categories

1. Intrusion
2. Avoidance
3. Cognitive and mood alterations
4. Arousal and reactivity alterations

This is all according to *Psychiatry.org*. There are various treatment options for PTSD, such as cognitive processing therapy, and prolonged exposure therapy, as well as medication, and other complementary and alternative therapies.

Eichholz begins her assessment of PTSD using the evolution of the DSM (Diagnostic and Statistical Manual of Mental Disorders). When the first edition of the DSM came out in 1952, PTSD was not officially declared and named. A variant of PTSD was referred to as Gross Stress Reaction, mainly regarding soldiers of wars. Eichholz states this as “DSM-I offered the diagnosis

of “‘gross stress reaction’ under the category of ‘transient situational personality disorders’” (APA, 1952; Echterling, Field & Stewart, 2015, p. 192)” (Eichholz, 2020, pg.2) Eichholz further describes that it was viewed as having a short recovery period. It was regarded as something that could dissipate if treatment was quick.



Image credits: <http://mghmcleanpsychiatry.partners.org>

“Interestingly, it is noteworthy that despite the DSM-I offering a specific name for this condition, and despite the fact that up to 25% of the soldiers who fought in Korea (i.e. in the early 1950s) “were eventually found to have an associated psychiatric problem,” (Gambert, 2013), during the first half of the twentieth century military clinicians elected to use the labels operational fatigue or operational exhaustion to conceal the neurotic features of the illness from both the soldiers coping with it as well as their supervisors, in order to minimize the condition and rapidly return them to the battlefield (Grinker &

Spiegel, 1945; Grinker & Spiegel, 1963; Hyams, Wignall & Roswell, 1996; Pols & Oak, 2007).” (Eichholz, 2020, pg.3)

Gross Stress Reaction was removed from the DSM II for unknown reasons. The DSM II, released in 1968, left no category for responses to trauma. The DSM II did have a condition referred to as “transient situation reactions”, which was changed to “transient situational disturbances” Eichholaz also adds “The APA submitted that transient situational disturbances “occur in individuals without any underlying mental disorders and that represent an acute reaction to overwhelming environmental stress” (APA, 1968, p. 48), implying that absent an underlying psychological illness, the individual’s experiences and 5 attendant responses would decrease as the stressor faded in memory (Yehuda & Bierer, 2009). (Eichholz, 2020, pg. 4-5)

Post-Traumatic Stress Disorder was finally recognized as a legitimate condition in DSM III, when it was published in 1980. Eichholaz states how the DSM III describes the condition and They have symptoms

“Per the DSM-III, to be given a diagnosis of PTSD the individual had to demonstrate at least four symptoms from three clusters of symptoms: 1) re-experiencing fear memories, 2) avoidance of trauma reminders, and 3) hyperarousal symptoms (APA, 1980). The DSM-III stipulated that a PTSD diagnosis required having experienced a catastrophic trauma and that that trauma not be one that is usually well tolerated by others (APA, 1980). Additionally, the DSM-III further widened the landscape in terms of what constituted “trauma,”

explicitly including rape, severe physical assault, and unusually serious automobile accidents alongside military combat (APA, 1980).” (Eichholz,2020, pg.6)



Photo Credit: (AP Photo/Horst Faas)AP [Syracuse.Com](https://www.syracuse.com)  
Infantrymen praying in the Vietnamese jungle, Dec 9, 1995, during memorial service for comrades killed

This was big especially in regards to Vietnam veterans at the time. The veterans who have been home for some time since DSM III was published were depicted as largely troubled. When DSM II was posted, Eichholaz states that “The DSM-II was drafted and published as medical professionals were downplaying the psychological consequences of combat in Vietnam, in part because the US military instituted the “Salmon” program which positioned a

psychiatrist in every battalion located in a Vietnamese combat area (Stein, 2015), effectively dropping the rates of in-theater psychiatric casualties (Horwitz, 2018; Scott, 1990; Tiffany, 1967; Wessely & Jones, 2004).” (Eichholz, 2020, pg.7)

Afterward, Eichholaz mentions that by the time DSM III was published, mental health professionals who have interacted with Vietnam veterans between the period of DSM II and DSM III have found that “hundreds of thousands of military veterans had deployed to Vietnam and returned to the US, battered both physically and emotionally.”(Eichholz, 2020, pg. 7) This also takes into account that Vietnam was different in war, in that there weren’t battle lines, and most fights were taken by surprise and at night, and combatants were faced with multiple traps crafted to be mines, explosives, and more. Before the DSM III came out with the condition of PTSD, and there was no diagnostic to be used before hand, Eichollaz mentions “adherence to the nomenclature for purposes of treating patients varied according to therapists’ personal and clinical experiences” (Scott, 1990, p. 299)(Eichholz, 2020, pg. 7-8) The labels “gross-stress” reaction, and “post-Vietnam syndrome” were coined in regards to veterans who were dealing with symptoms of PTSD. Also because of no diagnostic term, Vietnam veterans were often misdiagnosed, and referred to as being “delusional”

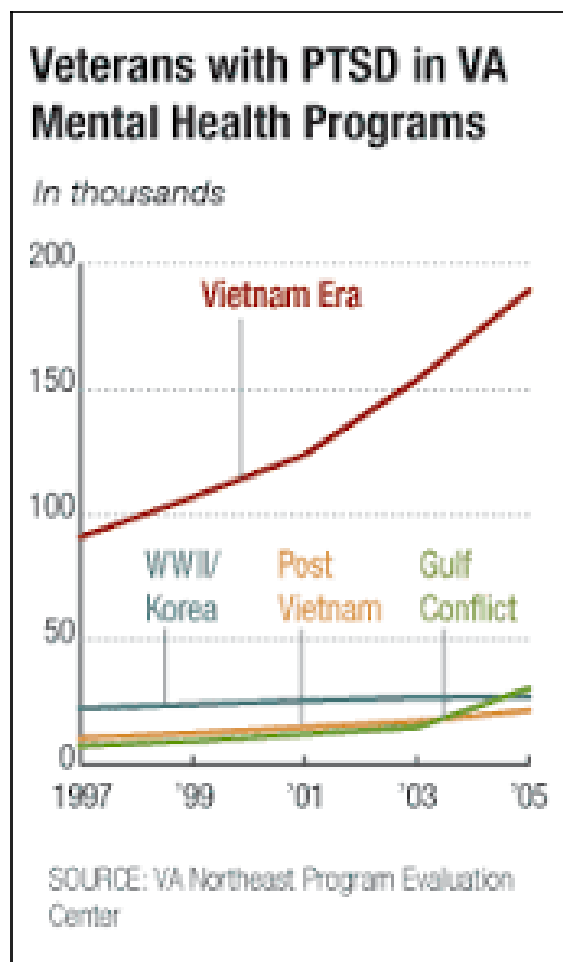


Image credits: [TPR.org](http://TPR.org)

Chart that shows veterans with PTSD in VA mental health programs

The DSM III R, which was published 7 years later in 1987, revised the definition of PTSD. More detail, refined language, meaning to the symptoms, and more concern to the trauma response were included in the manual. It also expanded the list of symptoms that would apply to those who did not experience combat.

The DSM IV came out in 1994, with even more regard to the diagnosis of PTSD. the APA broadened the criteria for PTSD specifying that “the person experienced, witnessed, or was confronted with events that involved actual or threatened death or serious injury, or a threat to the physical integrity of self or others,” and that the person’s “response involved intense fear,

helplessness, or horror” (APA, 1994, p. 427-428)” (Eichholz,2020, pg. 11) Eichholaz goes to explain the criteria of the updated manual over PTSD

“According to DSM-IV (APA, 1994), PTSD is a syndrome comprising three clusters of signs and symptoms: (1) repeatedly reexperiencing the trauma (Criterion B: e.g., intrusive recollections of the event, nightmares); (2) avoidance of activities and stimuli associated with the trauma and emotional numbing (Criterion C: e.g., difficulty experiencing positive emotions); and (3) heightened arousal (Criterion D: e.g., irritability, exaggerated startle reflex). The disorder can only be diagnosed if a person has been exposed to an event that qualifies as a “traumatic” stressor (Criterion A). The symptoms must persist for at least one month (Criterion E) and must cause distress or impairment (Criterion F)” (Eichholz, 2020, pg. 11)

Eichholaz also adds that “In short, the DSM-IV shifted such that the understanding of trauma became more subjective and explained as any incident an individual found to be extremely distressing (APA, 1994).” (Eichholz, 2020, pg. 11)

When the DSM 5 was published (2013), there was a lot of discussion and research regarding PTSD, as for what constitutes trauma, symptoms, and how much should be included in the DSM 5. PTSD is referred to under the “Trauma and Related Stress Disorders” chapter of the DSM 5. Eichholaz adds that PTSD now

“requires exposure to a traumatic or stressful event as a necessary prerequisite for the condition, along with symptoms lasting at least 1 month and causing impairment in

regular functioning (APA, 2013). Symptoms are segmented into 4 diagnostic criteria: intrusion, avoidance, negative alterations in cognitions and mood, and alterations in arousal and reactivity (APA, 2013). Four additional symptoms were added to the DSM-5 (negative beliefs/expectations, distorted blame, persistent negative emotions, reckless or self-destructive behavior), and the APA proposed a dissociative subtype and included anhedonia and dysphoria presentations (APA, 2013) (Eichholz, 2020, pg. 13)

## Diagnostic Criteria for PTSD in DSM-5



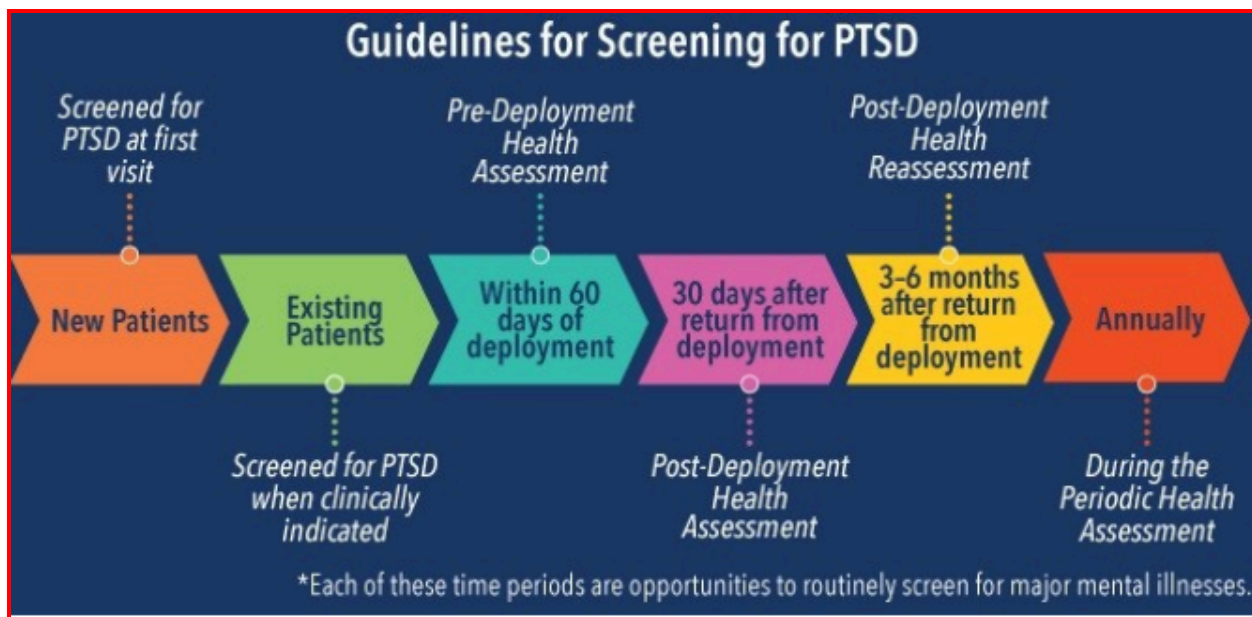


Image credits: [health.mil](http://health.mil)

Eichholz then moves on to talk about the prevalence of PTSD in veterans. Eichholz has found that “Annually, among US veterans of various combat eras (i.e. World War II, Korea, Vietnam, Gulf War, etc.), between 11 and 20% will struggle with PTSD in some manner (Department of Veterans Affairs, 2018b), with VA facilities treating approximately 571,000 PTSD afflicted veterans annually (Harpaz-Rotem & Hoff, 2014).” (Eichholz, 2020, pg. 17)

The current treatments for PTSD today are based on the needs that a patient and therapists discuss. According to Eichholz, in 2006, the U.S Department of Veteran Affairs introduced Cognitive Processing Therapy (CPT) as a treatment option for veterans diagnosed with PTSD. This treatment option was introduced at the expectation of an increase of PTSD diagnosis due to the Afghanistan and Iraq U.S campaigns. In 2007, Prolonged Exposure Therapy was also introduced as a treatment option for PTSD.

“Both considered evidence-based modalities, CPT and PE/PET are 22 trauma-focused cognitive-behavioral therapies (CBT) that seek to pinpoint, analyze, and address the symptoms of PTSD. Clinicians employing CPT and PE/PET work to help clients recognize automatic responses to stimuli, which may or may not be appropriate or rational, observe the dysfunction therein, and adjust their thinking to become more focused and centered in their current reality (Beck, 2011)” (Eichholz, 2020, pg. 21-22)

Eichholz mentions that studies were done to see how effective the treatments were for VA patients receiving them. Goodson et al. (2011) took an analysis of 24 studies and came to the conclusion that “Effect sizes of the magnitude Goodson et al. found, suggests that “well over half of the combat veterans receiving treatment at VA settings would show improvement following their treatment,” (2011, p. 591) and “the average VA-treated patient fared better than 66% of patients in control conditions” (2011, p. 573). (Eichholz, 2020, pg.22). Eichholz mentions that amidst most studies done on these treatments, there are still questions about what’s considered a successful treatment for veterans with PTSD.

Complementary and alternative treatments is described as, according to Eichholz “The National Institutes of Health, National Center for Complementary and Alternative Medicine defines complementary and alternative medicine as a body of distinct medical and health care systems, practices, and products that are not usually regarded as part of established medicine (National Center for Complementary and Alternative Medicine, 2008). This includes activities such as yoga, acupuncture, meditation, and can even include hobbies such as writing. Eichholz has mentioned that there’s little research to the actual positive effect of these treatments regarding

veterans, there is research that physical activity has been shown to be a positive effect on veterans in general,

“What has been shown is that physical activity in particular is effective in addressing PTSD’s symptoms in both civilians and veterans (Caddick & Smith, 2014; Rosenbaum et al., 2015); symptoms other than those specifically related to PTSD are sometimes also improved (i.e. depressive symptoms, motivation to live, general and physical well-being, etc.) (Caddick & Smith, 2014; Libby, et al., 2012; Rosenbaum et al., 2015); physical activity has a positive impact on overall well-being (Caddick & Smith, 2014; Libby et al., 2012; Metcalf et al., 2016; Rosenbaum et al., 2015; Wahbeh et al., 2014); and a focus on the physical aspects of healing as opposed to a more myopic focus on the trauma itself, suggests that the exercise itself is less likely to induce distress (Caddick & Smith, 2014; Libby et al., 2012; Metcalf et al., 2016; Rosenbaum et al., 2015; Wahbeh et al., 2014).”  
(Eichholz, 2020, pg. 25-26)

Eichholz mentions nature-based therapy, which has a growing rate of research on its effects on people. “There is also a body of research that suggests that interacting with nature is beneficial for veterans specifically (Atkinson, 2009; Caddick & Smith, 2014; Dustin, Bricker, Arave, Wall & West, 2011; Duvall & Kaplan, 2014; Mowatt & Bennett, 2011; Poulsen, Stigsdotter & Refshage, 2015; Wise, 2015).” (Eichholz, 2020, pg.27)

“Writing in the early 20th Century, conservationist John Muir remarked, “Thousands of tired, nerve-shaken, over-civilized people are beginning to find out that going to the mountains is

going home; that wilderness is a necessity; and that mountain parks and reservations are useful not only as fountains of timber and irrigating rivers, but as fountains of life” (as quoted in Fox, 1985, p. 116).” (Eichholz, 2020, pg. 27-28) Eichholz goes on to speak about nature, and their impact on lives. They quote Kaplan et al. on their research regarding nature, and how it has not only a psychological positive impact on the human mind, but a positive physical, mental, and emotional impact. (Bowler, Buyung-Ali, Knight & Pullin, 2010; Frumkin, 2001; Frumkin et. al, 2017; Hartig, Mang & Evans, 1991; Kaplan & Kaplan, 1989; Louv, 2011)(Eichholz, 2020, pg. 28) “This restoration is prompted as individuals feel they are able to let go, to “be away” from their repetitive activities while they are in nature, and as they have the freedom to enjoy the “soft fascination” (i.e. with clouds, bugs, the breeze, etc.) that comes with even short moments outside (Kaplan, 1995)” (Eichholz, 2020, pg. 28) Eichholz also brings up Roger Ulrich, who has a psycho-evolutionary theory where nature encourages stress recovery “Ulrich states elsewhere that “there is considerable evidence that restorative effects of nature scenes are manifested within only three to five minutes as a combination of psychological/emotional and physiological changes,” eliciting calm feelings, reducing negative emotions, diminishing stressful thoughts, and stimulating positive physiological changes (2002, p. 3).” (Eichholz, 2020, pg. 29) There are a lot of theories as to nature and its impact on the human mind and body, and Eichholaz closed this section with this quote “in short, because of our genetic composition and evolutionary history, we human beings have an intrinsic love for nature which is commonly felt by all humanity (Kellert & Wilson, 1995).” (Eichholz, 2020, p.29)

Therapeutic horticulture is a broad type of therapy which could consist of anything from nature walks, building terrariums, planting gardens, and more based on a client's needs, because there is no specific guideline for what constitutes “nature-based therapy”. Eichholaz chose to specify that

they are researching therapeutic horticulture, rather than horticulture therapy for the purpose of this paper. Eichholaz starts with the history of therapeutic horticulture, in which They have not been relatively new in time but have been more studied and considered in recent times as a form of healing therapy. Eichholaz mentions Dr. Benjamin Rush who is considered the “Father of American Psychiatry” was the first to notice the positive effects that nature had on people after observing men with mental ailments and their work on farms. Eichholaz also quotes a definition of therapeutic horticulture and compares the difference of it with horticulture therapy.

‘Therapeutic horticulture is the process by which individuals may develop well-being using plants and horticulture. This is achieved by active or passive involvement’ (GrowthPoint 1999, p. 4). Different from “horticultural therapy” which is defined as the active participation of a client in horticultural activities to achieve particular goals within an established treatment, rehabilitation, or vocational plan under the supervision of a credentialed horticultural therapist (American Horticultural Therapy Association, 2015, 2017), “therapeutic horticulture” denotes a broader understanding of the manner in which horticulture can assist in healing.’ (Eichholz, 2020, p.30)

Therapeutic horticulture in general, is mainly to provide a pathway through and with nature for improvement with symptoms or assist in recovery. Eichholaz discusses how the effects of therapeutic horticulture regarding veterans is not widely researched, and studying its “success” is tricky due to therapeutic horticulture having very wide options to pursue when using it. The VA also does not consider therapeutic horticulture/ horticulture therapy as beneficial to their facilities

and work; albeit there are a few VA's that employ gardening programs for veterans a part of said VA's could take part of.

Eichholaz quotes a study done by Sempik, Aldridge, and Becker in 2003 that aimed to examine therapeutic horticulture, and how it can promote social inclusion, health, and general well-being for vulnerable adults.

“Chief among these is the finding that even if not rigorously evaluated, people who have participated in therapeutic horticulture report improvement in their symptoms (“symptoms” in this instance is used very broadly to include a range of both physical and mental health conditions) (Cipriani et al., 2017; Clatworthy et al., 2013; Detweiler et al., 2015; Sempik et al., 2003; Sempik, Rickhuss & Beeston, 2014). Cipriani et al. and Clatworthy et al.’s analyses detailed these improvements, noting meaningful findings including: decreases in depression and anxiety; positive advances with respect to self-esteem, social behavior, and personal relationships; improvements with respect to affect/agitation; progress with respect to mental well-being with specific improvements regarding paranoia, suspicion, depression, and anxiety; advancements in behavior/engagement, and cognitive functioning; decreases in stress and increases in ability to cope with life challenges; and enhancements in sleep (Cipriani et al., 2017; Clatworthy et al., 2013). Additionally, like Sempik, Aldridge and Becker’s study, several pieces of research specifically note clients’ improvement with respect to social functioning, interaction, and ultimately feeling a sense of inclusion (Diamant & Waterhouse, 2010; Harris, 2017)” (Eichholaz, 2020, pg. 32-33)

They have stated that therapeutic horticulture does need more research to determine its efficiency in order to be practiced among VA's and other facilities as an alternate or complementary therapy. Eichholaz states "To date there simply does not exist a sufficient amount of scientific research – including randomized control trials - that systematically evaluates therapeutic horticulture (Clatworthy et al., 2013; Kamioka et al., 2014; Sempik et al., 2003; Stowell, Owens & Burnett, 2018). Clearly this reality represents an impediment to broader utilization of the technique, and while some have called for a more demanding approach in evaluating therapeutic horticulture (Frumkin et al., 2017; Frumkin, 2002; Sempik, 2007), that type of study remains to be undertaken." (Eichholz, 2020, pg. 33)

The second paper of this dissertation is titled "*Paper Two: Breaking Ground: A Study of Existing Therapeutic Horticulture Programs at US Department of Veterans Affairs Facilities.*" For this paper, Eichholaz is attempting to assess and better understand the use of therapeutic horticulture for veterans. Eichholaz states "Generally speaking, and to date, the academic literature that considers therapeutic horticulture programs is relatively scarce, and that which concerns program implementation at VA facilities and/or therapeutic horticulture's value to persons and/or veterans with PTSD is essentially non-existent"(Eichholaz, 2020, pg. 39) Eichholaz surveyed all VA facilities that have or had therapeutic horticulture programs in recent years, as well as interviewed three representatives at current therapeutic horticulture programs. Eichholaz's goal for the end of the second paper is to present the findings and lessons for VA staff to further the future of therapeutic horticulture in VA facilities



Image Credits: <https://www.va.gov/cincinnati-health-care/>  
VA Cincinnati Healthcare

Eichholz sets up in the beginning section of this second paper a “theoretical framework”, which includes discussing trauma, object relations theory, and Winnicott’s holding environment. This is to set a stage for what Eichholz will be looking into when researching the impact of therapeutic horticulture in VA’s.

Eichholz talks about the development of PTSD and trauma since the first DSM, and up to the last. Trauma is discussed as not only something to be gained during wartime, but is something that can happen to anyone, from any unpleasant encounters that could be violent, unsafe, such as sexual assault, a car accident, violent weather events such as hurricanes and tornadoes. There are trauma theories that aim to address the ways individuals who have trauma can cope and respond with trauma.

“To be sure, “a traumatic experience impacts the entire person - the way we the way we learn, the way we remember things, the way we feel about ourselves, the way we feel about other people, and the way we make sense of the world are all profoundly altered by traumatic experience” (Bloom, 1999, p. 2).” (Eichholz, 2020, pg. 42)

When a traumatic event is experienced by an individual, they lose a sense of security and their bodies go on permanent alert to protect themselves from any danger that may seemingly come at any moment.

“Trauma survivors often experience depression, anxiety, and flashbacks, and may struggle with common everyday duties and rituals. Ultimately, however, trauma is treatable and as the signature wounds of trauma are disempowerment and disconnection, “recovery, therefore, is based upon the empowerment of the survivor and the creation of new connections” (Herman, 1992, p. 133).” (Eichholz, 2020, pg. 43)

“object relations theory fundamentally addresses the absolute, primary need for attachment and the harm that can come if that need is not met” (Flanagan, 2016, p. 129).” (Eichholz, 2020, pg. 43) The object relations theory is referencing understanding the self, and recognizing the self, as well as others related to the self. The “object” in the theory is a relationship with others, and a relationship with yourself, and how those all could fit together and create the person you are now. It can include a person, place, thing, fantasy, idea, or memory. The understanding of self comes from the subject, such as a child and their relationship with a

caregiver- the child would then grow up understanding and knowing things about themselves and their environment because of the impact of their relationship. Eichholaz quotes,

“The theory posits that children who are raised by a loving, present, compassionate, etc. a caregiver will be made to feel safe and will consequently feel safe when that caregiver is not around, confident about the caregiver’s return. The theory likewise holds that a child not raised in a safe environment will have a wholly different experience both as a child and adult.” (Eichholz, 2020, pg. 44)

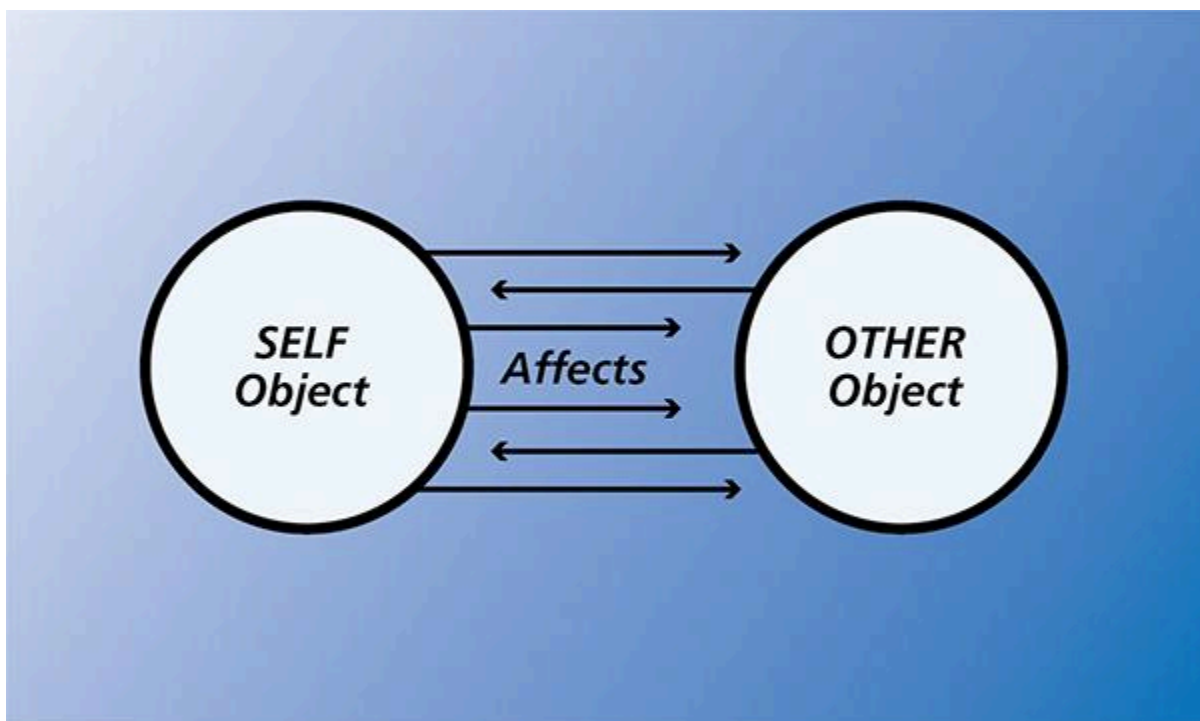


Image credits: [BelindaGore.Com](http://BelindaGore.Com)

Eichholz then discusses Donald Winnicott's theory which considers a “holding environment” is important for a child’s health. A “holding environment” can be considered a “space” in which one lives in and shapes their life. One example that Winnicott used is a metaphor of a mother and

child. The mother is a “holding environment” which shapes how the child will grow and view life as an adult. “Winnicott used the term “holding environment” in two ways: to illustrate the biopsychosocial sphere in which children are cared for by their caregivers, and as a metaphor for the safe environment created with a positive and healing therapeutic relationship (Applegate, 1997; Flanagan, 2016), with the fundamental focus on “human-to-human relating” (Cushman, 1995, p. 253). (Eichholz, 2020, pg. 46.)

Eichholz applies this information by proposing the idea of “...re-introducing the concept of a holding environment in the form of a garden and/or therapeutic horticulture program to those veterans coping with PTSD may be a valuable exercise.” (Eichholz, 2020, pg. 46)

Eichholz theorizes based on Winnicott's theory that gardens and VA therapeutic horticulture programs can act as “holding environments” for veterans in which they can become a space of healing for traumatized veterans. Therapeutic horticulture provides clients with access to nature and also provides the ability to interact with other people in a meaningful activity and safe space. “In this space, clients/veterans feel safe to let their guard down, to relax in the beauty and splendor of nature, to physically interact with plants and nature, and to create meaningful bonds with both clinicians and other clients in a shared effort to heal.” (Eichholaz, 2020, pg. 47)

Veterans could find healing and connections by using a garden, or a program involved with horticulture.

“In the case of traumatized veterans, who in some cases know few if any safe spaces due to the nature of their trauma, introducing this concept of a holding environment in the

form of a garden offers hope where other treatments may be lacking. In other words, whether a garden itself acts as the holding environment or if it is the garden in collaboration with a clinician, the researcher would argue that a garden and the practice of therapeutic horticulture offer traumatized veterans the possibility of re-creating a safe, holding environment, with the space both literally and figuratively to heal from a range of conditions including PTSD.” (Eichholz, 2020, pg. 48)

For their study, Eichholaz identified 47 United States VA facilities that were thought to be employing or had used some form of therapeutic gardening. They used techniques to search and store information about VA’s that had this program, and once had a significant source of information, contacted the appropriate person from each VA and introduced themselves and their research, followed guidelines in regards to their research. There were a variety of responses, and some lack of response even with multiple attempts at contact, for this reason, it is important to note that not every VA with an active therapeutic horticulture or gardening program located was not included in the research. In total, the author had discovered 59 total facilities that may have or had included therapeutic horticulture programs.



Image credits: [ahta.org](http://ahta.org)

Once contact was achieved, the author put out a survey for the facilities to answer in regards to their current or past programs. The survey took 15-20 minutes, and asked for anecdotal reflections regarding their programs if inclined to give more information.

The author did in-depth interviews as well for three facilities that had therapeutic horticulture programs. The interviews were done in order to gather more knowledge about the programs, such as the development of the programs, and how they might be implemented at other VA facilities.

The survey findings are as listed below:

- Twenty three VA responses
- Most programs are operational and located in urban areas, implemented in VA facilities that serve at least 10,000 veterans a year, with some reporting to serve 50,000 veterans annually.
- 3 are not currently active, while 20 are reported to be active
- Most programs were funded by the facility budget, voluntary services department, or outside sources such as employee donations
- A large variety of expertise was involved with establishing and working on the programs, such as psychologists, social workers, recreational and occupational therapists, dieticians, nurses, physicians, vocal rehabilitation staff, psychiatrists, patient centered care personnel, and more.
- Veterans are actively participating in all of these therapeutic horticulture programs, with facilities reporting up to 25 and over veterans who take part of the programs.
- 14 programs are reported to be structured or semi-structured, instead of allowing veterans to participate in an unorganized fashion.

There are several themes that Eichholz found regarding this study. The first theme is regarding the importance of involvement in both creating a facility, and maintaining a garden project, and sustaining a program. As stated before, Eichholz mentions how the programs surveyed have reported a wide range of staff that are included in said therapeutic horticulture programs.

Eichholz confirms this with an interview of staff in one facility, “The interviews further confirmed this, with the researcher speaking to three VA staffers with very different skill sets and expertise (an addictions counselor, a gardener, and a palliative care / hospice nurse practitioner), all of whom detailed some of the unique alliances built to both implement and sustain the programs.” (Eichholz, 2020, pg.59) The surveys also mention the wide population of veterans that the therapeutic horticulture can serve, in not just veterans diagnosed with PTSD or deal with trauma. Some facilities also included community support, with partnerships, volunteers, garden clubs, churches, nurseries, and more.

Another theme is the challenge of regular participation. Eichholz reports that getting regular participation in these programs could be challenging for reasons such as weather, transportation, lack of incentive, and even addiction relapses. With periods of lack or irregular engagement, it is up to the staff to replace what is missing when it comes to involvement. They have reported to be taxing on staff to fill in space that is needed, but they are also reported to be readily accepting to any veterans who’d like to take part of these programs. Through the interviews though, positive remarks were made about how therapeutic horticulture has on participants.

“One interviewee noted that participants who have become more involved are excited about what’s next and take pride and pleasure in sharing what they have learned, and another asserted: “They’re happy in the garden, they’re calm and peaceful and they tell me that.” Another interviewee, in reflecting on whether gardening offered benefits that may not be reaped by other treatments, stated that, “While they are

in the garden working, they're not thinking about their problems.” (Eichholz, 2020, pg. 61)

A theme about bureaucracy was also mentioned. The Department of Veteran Affairs is a massive system, and so there are many regulations which have led to challenges to implementing programs. Challenges such as appropriate coding for billing, leadership, support, funding, and more.

The last theme Eichholz noticed is the diversity of programs. Amongst the programs that Eichholz sent out, and as well interviewed- there was a broad range of programs. Eichholz described programs as having a variety in size, funding, and programming. Some programs are small, with minimal funding, while others have a lot of funding, participation, and more. This leads to Eichholz mentioning that a variety of VA facilities have a different measure of resources, which can affect how a therapeutic horticulture program could work in VA's in different locations.

Eichholz goes on to discuss future directions. One thing they bring up is that having support to create a therapeutic garden as part of a VA is important. This means leadership, funding support, collaborating, and also preparing for any challenges and unforeseen circumstances. There is a wide range of professions involved in the facilities that host therapeutic horticulture groups and this can allow creative thinking, diversity, and more to assist veterans and these programs. Lastly, therapeutic horticulture doesn't just affect physically, or, cognitively, or socially, but rather a person can benefit from each of those at different levels. Eichholz believes it to be wise for any

horticulture therapy or therapeutic horticulture program involved with veterans to have a diversity of professions and leaderships that can meet the needs of veterans involved with therapeutic horticulture.

“In a time when Americans are inundated by messages of “support the troops,” and “honor our veterans,” and simultaneously veterans continue to commit suicide at alarming rates, go homeless and hungry, face battles with addiction, and isolate themselves, it certainly feels as if more effort can be made to think of and offer innovative programs and therapies that may better address veterans’ needs.” (Eichholz, 2020, pg. 70) Is a quote that Eichholz shared in their conclusion.

This literature review is important to the topic because it shows the history of PTSD, and the outlook of therapeutic horticulture for veterans who have symptoms of PTSD in their day to day life. The PTSD diagnosis has a long history, especially when it comes to veterans who have faced combat and gained trauma. Due to the absence of PTSD from the DSM II, this set back diagnosis and treatment options for veterans by years; Today, They have found that multiple treatment options for PTSD should be offered and considered.

When it comes to the topic of therapeutic horticulture, Eichholz believes that the facilities that were surveyed were only a snapshot of what therapeutic horticulture looks like for veterans.

There needs to be more research on the effects of therapeutic horticulture- as well as horticulture therapy in regards as an alternative or complementary treatment for veterans. However this paper shows that so far, therapeutic horticulture is a beneficial treatment option for veterans. Using the information learned from the research of this paper, applying it to the design solution by

considering the social, cognitive, and physical aspects that therapeutic horticulture can positively benefit veterans.

## Case Study 2

Stowell, Derrick R., et al. “A Pilot Horticultural Therapy Program Serving Veterans with Mental Health Issues: Feasibility and Outcomes.” *Complementary Therapies in Clinical Practice*, vol. 32, Aug. 2018, pp. 74–78, <https://doi.org/10.1016/j.ctcp.2018.05.007>. Accessed 5 Sept. 2020.

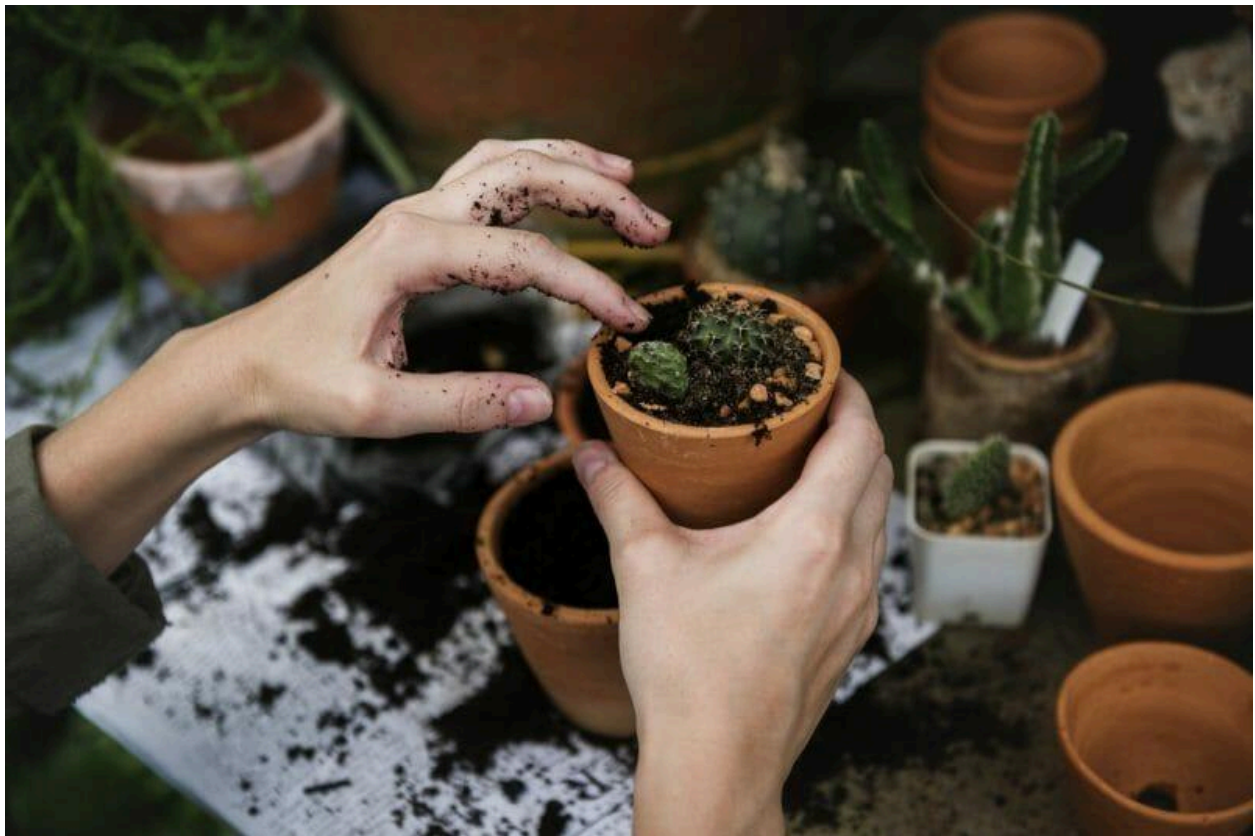


Image Credits: [Summitmalibu.com](https://www.summitmalibu.com)

The second literature review is a study conducted and written by Derrick R Stowell, Gina P. Owens, and Amelia Burnett. This study is a pilot horticultural therapy program serving veterans with mental health issues; and includes the feasibility and outcomes. The pilot program was

called Veterans Experiencing Growth through Garden Interactive Experiences (VEGGIE). The study was published in August 2018 and had a five-week pilot that was conducted in the United States for U.S. veterans who were dealing with mental health ailments such as depression, PTSD, and drug usage. The main goal of the study was to both examine the possible benefits of horticulture therapy, as well as contribute to the growing research that supports Horticulture therapy as a useful method of intervention for veterans.

The study begins with the fact that military service can be highly stressful, stating that “Combat exposure has long been associated with the development of mental health disorders, such as depression, anxiety, posttraumatic stress disorder (PTSD), and substance use.” (Stowell, Owens, Burnett, Introduction: A pilot horticultural therapy program serving veterans with mental health issues: Feasibility and outcomes) It mentions how the challenges veterans face range from unemployment, homelessness, and drug use, as well as the stigma that is placed on veterans in regard to seeking treatment for mental health.

The article goes on to explain the positive effects of Horticulture therapy, especially when used regarding the treatment of mental health disorders “Existing evidence suggests that horticultural therapy provides physical, cognitive, social and psychological benefits for a variety of populations, including individuals who have mental health issues such as trauma, PTSD, depression, anxiety, schizophrenia, and alcohol and drug abuse” (Stowell, Owens, Burnett, Introduction: *A pilot horticultural therapy program serving veterans with mental health issues: Feasibility and outcomes*)

The study first reached out to participants by contacting healthcare communities, and veteran resource centers, and presented their pilot study at a monthly meeting for the Regional Military Affairs Council (MAC), their final sample included 9 veterans. The measures used were Depression, Anxiety, Stress Scale-21, and a Quality of Life: Enjoyment and Satisfaction questionnaire. These scales allowed the authors of this study to have an understanding of the mindset of the veterans who took part in the pilot.

The pilot ran for 5 weeks that consisted of 10 sessions that lasted approximately 1.5 hours. The first 15 minutes of the beginning of the session was an introduction, while the last 15 minutes of the session was used for debriefing, and the hour interval in-between as gardening time. The pilot took place in agricultural gardens at a large Southwestern University

Table 1. Session content by week for pilot program.

<b>Session 1</b>	<b>Garden Tour, Goal Setting, Seed Starting</b>
Session 2	Tilling, Weeding, Preparing the Garden for Planting
Session 3	Garden Planning, Garden Design
Session 4	Compost and Fertilizer, Transplanting Seedlings
Session 5	Watering, Terrariums and Indoor Plants
Session 6	Garden Care, Herbs
Session 7	Propagation
Session 8	Pest and Diseases
Session 9	Transplanting, Tending the Garden
Session 10	Resources, Next Steps

Image Credits: <https://www.sciencedirect.com/science/article/pii/S174438811830166X>

*Table that shows what each session is about*

The results once the pilot study was concluded showed significant differences in the pre and post assessment for veterans completing the program. It was recorded that there were lower levels of depression and stress after completion of the VEGGIE pilot study. Meanwhile, the anxiety and

quality of life levels were not significantly different from pre and post assessments. There was no reported physical or emotional harm; one participant said that his arthritis in his knees made it difficult to kneel while gardening. All participants reported that they enjoyed the program and they believed the program improved their mental health and well-being. They have all stated that they would like to participate in similar programs, and would also like to learn more about farming and gardening. It was also mentioned that they most enjoyed transplanting, breathing fresh air, seeding, building terrariums, and the closing comments of the sessions; They have also noted that weeding was the least favorite activity. They suggest for longer sessions.

Within this second literature review, I can find justification in finding research in regards to the topic of this paper; How can an Horticultural therapy program treat US veterans in Cincinnati with symptoms of PTSD? The pilot study has researched and found that on a short-term basis Horticulture-based activities improve the mental well-being of its participants and has encouraged them to want to pursue more Horticulture activities outside of the study. The paper addresses the struggles veterans can face in today's society, and Horticulture therapy can help as a complementary treatment, support, and encourage them in managing their day to day lives.

## Case Study 3

### Operation Eco Vets:



Image: [Courtesy Photo](#)

Operation Eco Vets is a nonprofit organization, originally known as *Green Paths Veterans Farms*, the founder is U.S Navy Veteran Camille Van Sant.

“This farm is a place where veterans who have undergone trauma can come and learn to nurture plants and create life—the antithesis of death, destruction and what they witness on the front lines,” Is quoted by Camille in this article by [Sarasota Magazine](#)

The farm is a place for veterans to volunteer in, and contributes much to the community. Located in Southwest Florida, in Sarasota county. It operates with only 4 employees, and 15 volunteers a month. The farm does everything from growing produce for a local school for disabled children, offering boot camp gardening sessions for both civilians and veterans and as well hosts days for veterans to join together and form relations with others who understand what they have gone through. The farm has also grown into a landscaping business that builds gardens for the community.

Multiple members of the farm have talked about the benefits the farm has brought them. A coordinator of the farm states “When coming back from overseas and into society, we have to relearn how to live again and form connections,” says Smith, an Army veteran. “Operation Eco Vets gives us the opportunity to do that.” ([Sarasota Magazine](#) Feb 4 2021) The article also talks about volunteers and interns of the farm who have gone on and started their own businesses, such as a veteran woman who started a fishing charter business, and another veteran starting her own landscaping business.

## Case Study 4

Chicago Botanic Center:



*Image Credit: [https://www.chicagobotanic.org/blog/plants\\_and\\_gardening/veterans\\_grow\\_chicago\\_botanic\\_garden](https://www.chicagobotanic.org/blog/plants_and_gardening/veterans_grow_chicago_botanic_garden)*

The Threshold Veterans Project is a project that started gardening in the Buehler Enabling Garden as a way to promote healing and wellness for veterans with both physical and mental ailments. This was a garden that many veterans go to. They have an open program, where veterans that are in psychology programs participate in, veterans facing homelessness, veterans with depression, and more. The veterans that take part of this project help take care of the gardens from the start of the season, throughout, and till the end. They do everything from weeding, raking, planting, watering, and more. The program has been described as a place of happiness, and creates a sense of comadry and belonging between each other.

In this article, They have said that veterans have accessed the VA services for war-related injuries, and consider that many injuries sustained during service are “invisible” wounds. They consider PTSD (Post-Traumatic Stress Disorder) difficult to diagnose but have a huge impact on a veteran's life. They have brought up that many veterans who deal with symptoms of PTSD have trouble reintegrating into civilian life, work life, and family life.

## Case Study 5

### Talmer VA farms:



**Image Credits:** <https://talmar.org/>

Talmer farms is an organization based in Baltimore Maryland whose mission statement is “Our mission is to offer an innovative therapeutic environment in which to provide work skills, development, and vocational, educational, and recreational programming in horticulture and agriculture.” Talmer is a therapeutic horticulture group that is designed to have small groups with adults that have a range from autism, trauma survivors, and adults with chronic mental ailments.

Talmer has VA Farms which offers veteran affairs farming and recovery mental services programs to veterans enrolled in VA Maryland Healthcare systems. This program offers a hands on work-therapy program where participants learn on a vegetable and cut flower farm.

## Case Study 6

### Organic Whole Health Group



**Image Credits:** [VA.gov](https://www.va.gov)

The VA Organic Garden is a Horticulture therapy group located at the Cincinnati VA Medical Center in Cincinnati Ohio. The idea was crafted by Dr. Adam Peterson and Dr Sahri Altum in 2018,

“We had been making field trips to a local garden... with our Veterans and they absolutely loved it,” Peterson said. “It was kind of a challenge to get there, and it created its own problems, and we thought how wonderful it would be to have a garden on hospital grounds; a place where we can take part in Whole Health, mindfulness, participate in nurturing, growing something, where

we could have our own produce for our Healthy Teaching Kitchen. Now, with the help of many of you, we can make that possible.” Dr. Peterson was quote in an article about the start of the Organic Garden ([VA Organic Garden](#) June 9 2022 )

The garden can include any VA enrolled veteran and their caregiver. It is year round, and runs on 3 month commitments, and can meet on Monday, Wednesday, or Fridays at 1-2 pm. Every quarter has a different focus in regards to Horticulture, and holds indoor gardening sessions during winter seasons. Veterans are also encouraged to start a wellness journey with the sessions, and can have a private session beforehand in order to plan. Veterans a part of this program are also given the chance to make healthy meals with the produce that is grown during the quarterly sessions.

A quote from Peter Steciow, a decorated Vietnam veteran who helped with the process of making the Organic Garden;

“Scientific studies have shown that green spaces are essential to our mental and physical health,” he explained. “Today, we spend about 90 percent of our time indoors. Getting outside is good for us, with fresh air and vitamin D from the sun, which positively impacts our mood, making us feel happier. Just looking at green can make your brain work better.

“Connecting with plants and back into nature’s arms helps us with headaches, stress, depression, loss, anxiety, and loneliness,” Steciow continued. “Let your garden be your safe place. A garden helps strike a balance with nature, whether recovering from war or modern living.” ([VA.gov](#) June 9,2022)

The goals of the Organic garden is to promote health, empowerment, transferable skills, suicide prevent, and military/non-military engagement and social skills, as well as much more.

### **Case Study Summary**

The case studies and literature reviews used in this paper are relevant due to their topics regarding horticulture therapy, veterans, therapeutic horticulture, and PTSD. The main theme found in this research was the positive impact that Horticulture activities such as gardening, being outdoors, planting and harvesting, and more have on veterans.

Horticulture therapy as a whole is found to have a positive impact on individuals in their everyday lives. Research shows that both professional and non-professional Horticulture activities have led to an improvement in mental and physical wellbeing for those who interact. They have commonly brought up that planting, and interacting with others has been most enjoyed by those involved with horticulture activities.

One thing noticed is there is a lack of long-term research on the effects Horticulture therapy can have on veterans, especially veterans who deal with the symptoms of PTSD in their day-to-day life. While some research, such as the literature review over VEGGIE, the pilot Horticulture therapy study has ended with veterans stating they have felt an improvement in their day-to-day lives upon taking the class sessions. The Threshold Veterans project has implied veterans having positive changes in their lives upon taking part in the project. There is still not much research that focuses on veterans with PTSD symptoms in particular.

Taking information from this research, using the positive and negative qualities that have been addressed regarding Horticulture therapy, information regarding PTSD, and information on veterans and their day-to-day lives. This could be used to create a design that could be a part of a VA medical center and further the future of Horticulture therapy as a complementary tool for veterans seeking treatment for symptoms they may face that are similar to PTSD



*Image Credits: [VA.Gov](http://VA.Gov)*

*Therapeutic gardening group started at the Phoenix VA*



Image credits: [Stockslagers.com](https://www.stockslagers.com)

## Historical Context

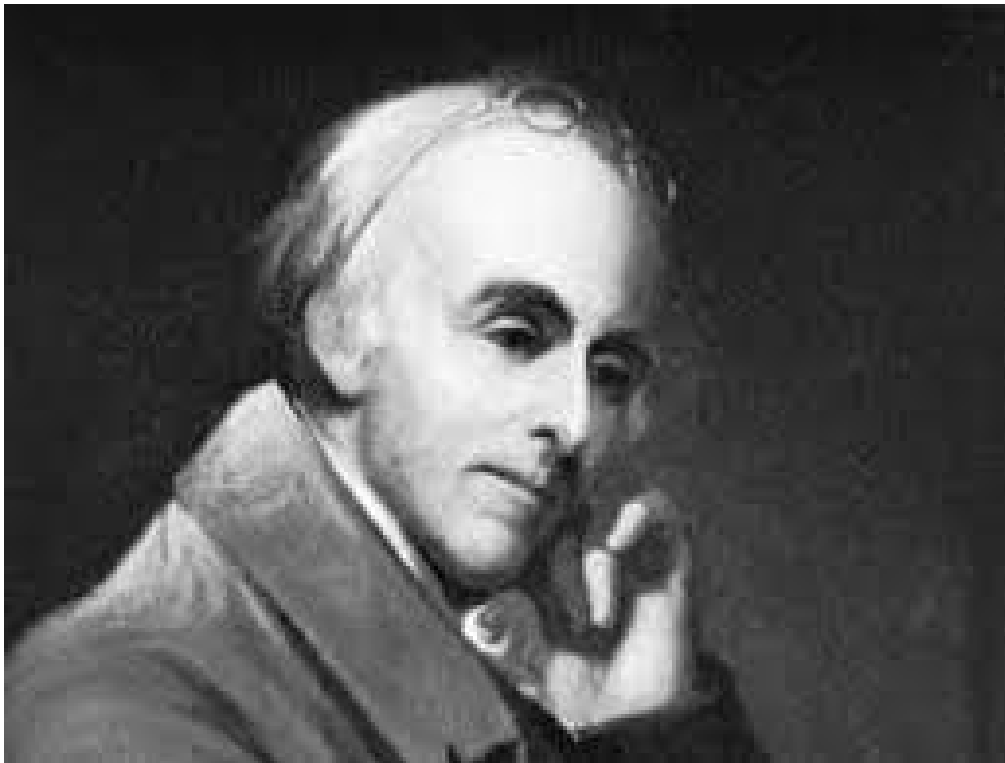


Image credits: [Britannica.com](https://www.britannica.com)

The history of Horticulture therapy dates back to the 19th century. The father of American psychiatry Doctor Benjamin Rush was the first person to document the positive effect of working in a garden. Benjamin Rush was a professor at the University of Pennsylvania, who practiced at the Institute of Medicine and Clinical Practice. In 1812, he wrote findings in which he observed that patients who worked in gardens had better recovery from mania, compared to patients who did not work in gardens, or share at least similar experiences.

In 1879, the Friends Hospital in Philadelphia, PA was the first American hospital to build a greenhouse to be used for patient rehabilitation.

During World War 1, with returning wounded veterans, horticulture use in clinical settings began to be used, but wasn't accepted or referred to as a method of treatment yet.

At Walter Reed General Hospital in Washington, DC, gardening was used as a part of occupational therapy for veterans for rehabilitation.



Image credits: [flickr.com](https://www.flickr.com/photos/14811170@N00/10248111111/)

During World War II, VA hospitals and physicians used on-site gardens that were donated by garden clubs for rehabilitative therapies for injured veterans . It wasn't until between 1940's and 1950's according to the *American Horticultural Therapy Association*, that rehab care of hospitalized veterans accepted horticultural therapy as not just a possible treatment for mental ailments, but also for a broad variety of diagnoses. It was then that horticulture therapy was slowly gaining traction in its use in the medical and psychology fields. Harold Bridger, a psycho-analyst and organizational consultant. (1985) suggested that the concept of non-pharmaceutical interventions arose in the autumn of 1942 at Northfield Military Hospital in Birmingham, where a move to improve the return of “ neurotic casualties” to military duty was tried out as a new form of treatment.

In 1959, The Rusk Institute of Rehabilitative Medicine, which is a part of the New York University Medical Center was another US medical center to build a greenhouse in order to add it to their rehabilitation unit. The greenhouse was built for interdisciplinary diagnostic and rehabilitative therapy. The greenhouse was called Enid A. Haupt Glass Garden, and was open not only for patients and staff but the general public as well. It was in the mid 1970s when one of The United States first horticulture therapy programs began in the Glass Garden

This led to more greenhouses and greenspaces being added to hospital systems. The Walter Reed Medical Center located in Bethesda Maryland, is a well-known veterans hospital has formed a green space for veterans to visit to help support their mental and physical well-being.

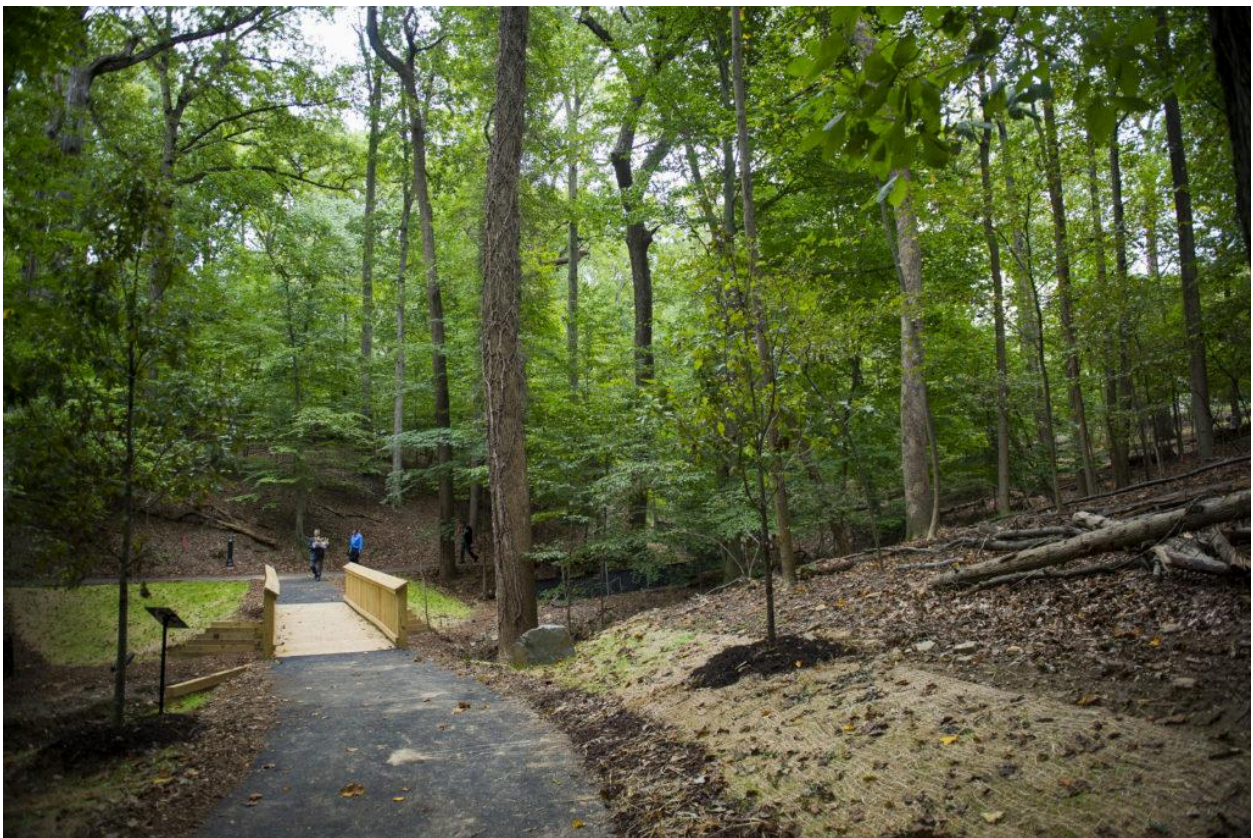


Image Credit (both): [Lisa Helfert](#)

In 1972, the Menninger Foundation worked with the Horticulture department at Kansas State University to provide training for undergraduate students in the mental health field which led to the first horticultural therapy curriculum in the U.S.

Today horticulture therapy is used for a large range that includes rehabilitative care, vocational, and community settings according to the American Horticulture Therapy Association. They have been used to help memory, cognitive abilities, and socialization. It can also be used as a physical form of therapy that can help strengthen muscles and improve coordination, balance, and endurance. As regards Horticulture therapy for veterans, there are hundreds of non-profit programs and groups that use Horticulture as a therapeutic resource and socialization. There are many VAs in the U.S have adopted Horticulture therapy as a complementary technique for veterans. Research in the field for Horticulture therapy and veterans is still growing.



Image credits: [ahta.org](http://ahta.org)

## Project Goals

The goal for this design is to create a space that provides positive benefits for veterans who have symptoms of PTSD. Due to the context of the literature reviews and case studies of this paper, they have shown that green spaces and Horticultural therapy can provide positive benefits to veterans, such as reducing depression, cultivating positive mindsets, and more.

Cultivating a green space inside a VA that veterans can visit and take part in planting and growing the space. The green space would be a multi-purpose room fit with a green wall,

ADA-accessible planters, and smaller planter projects that would be used within the room.

Windows cover at least one wall to create a bright environment to create an open space and give the ability to sit near windows and observe outside. The room would be fit with sinks, space for storage, tables and chairs, and ADA tools such as railings, accessible planters for wheelchairs.

The space would allow veterans to learn new skills. Planting seeds, transplanting, propagating, hydroponic growing, green wall care, and more. It will hold classes that would have sessions with different themes and topics that could broaden their skills and interests in the world of Horticulture.

The goal of the space is to create an environment that veterans can visit and feel welcome in. The space will be designed to avoid the details similar to the hospital, from the floor, to lighting, to furniture. To walk in the space would feel as if walking into a home that is filled with nature. It is a space to learn, relax, and socialize in. Soft music such as classical or jazz could be played on speakers in the space, or sounds of nature such as waterfalls, birds chirping, or rain can also be played to cultivate the experience of sitting somewhere in nature. Some images below are inspiration for the space design that fit the feeling that the design will have.



Image Credits: [austin.org](http://austin.org)



Image credits: [greenroofs.com](http://greenroofs.com)



Image credits: [vecteezy.com](https://www.vecteezy.com)

These images can provide some insight of what a VA green room could look like, as well as share the wide variety of plants that could be grown and stored in a VA green space. The space looks like a warm, accepting space that brings peace.

## **Programmatic Requirements**

The space is crafted to be an area for horticulture classes, horticulture therapy sessions, both group and individual, and recreational activities. The classes could be held seasonally with bi-weekly themed sessions and plantings. Therapy sessions could be held on a scheduled basis. Recreational activities where veterans could come to the room and do their own plantings, waterings, etc have set times and days; I.e Tuesdays and Thursdays from 10 am - 4 pm with staffing that could assist veterans in their needs to be available.

The size of the space could be on a large scale such as

- 40'L x 25'W *or* 1400 sq feet



*Image Credit: [Houseplans.net](http://Houseplans.net)*

*1400 sq foot house with 3 bedrooms and 2 bathrooms*

- 20'L x 15'W or 300 sq ft



*Image Credits: [ViewPointCenter.Com](http://ViewPointCenter.Com)*

*Size of average conference room that can fit 10 people*

These spaces are examples of what the sizes of the green space could be. A larger green space could hold multiple sections of a full green design, such as a green wall, recreation space, and a classroom space. A smaller green space could be used as a horticulture classroom, or a horticulture recreational space that could be used for therapy sessions as well.

Hours of operations could be Monday-Saturday. 10 am - 6 pm based on needs. Certain days could be dedicated to Horticultural therapy sessions, both group and individual that are made on scheduling basis. Examples being Tuesday and Thursdays being dedicated to therapy sessions, scheduled on one or two hour blocks. Recreational time in the room could be on Mondays and Saturdays, open 10 am - 4 pm with staff to assist veterans in any needs they may need.

Horticulture classes could be held on Wednesday and Fridays.

The room needs proper lighting, windows, plumbing, railings for accessibility, storage space, furniture, tools.

Materials would include trowels, small shovels, pots such as plastic, metal, or clay, soil, compost, gloves, watering cans, cleaning materials, fertilizers.

The room should be well-lit, by using more natural light settings, accompanied by plant lights to support plant growth. Using more natural lighting would prevent overstimulation.

The colors of the room would be filled with lots of green from plants, and colors of flowers such as pinks, reds, purples, blues, and more. The walls remain a neutral color such as tan or cream. Leaving the color of the room such as neutral walls, neutral floors, and furniture more neutral will allow the vibrancy of plants and flowers to pop out and create that sense of nature, rather than a room located in a hospital.

Railings along walls to provide stability and support to those who need it. Tables and planter beds are to be ADA accessible. Chairs and furniture are also to provide comfort and ease for veterans.

This space would be important to a VA Medical Center as it provides rehabilitated care and recreational activities for veterans both in-patient and out-patient. It could provide psychological, physical, and social benefits for veterans who have symptoms of PTSD, as well as create new

opportunities by giving space to learn new skills, and hobbies, and meet others with similar interests or backgrounds.

## **Project Documentation**

When considering the topic for this project, researching into multiple topics is important in order to find the topic that needs a voice to be researched and written about. Horticulture therapy is a topic that has been growing in more modern times, and needs more research which is why it was chosen for this research.

Once the topic has been selected, the site of the topic was researched. In this case, VA's, horticulture therapy, and PTSD were researched.

After picking a topic, research dedicated to that topic was searched through browsers such as google, and resources such as UC library database, public library. Articles about horticulture groups were found through simple google of horticulture groups in the US. This led to discovery of research articles that were used in the case study section of the paper.

Notes were taken regarding the case studies, and reflecting on notes led to the solution of the paper being that horticulture therapy can be effective amongst veterans. The research of this paper helped create the design by applying details found. Such as horticulture groups reporting positive

Creating the VA green space design was based on references and creative input. Considering all details of a design was important, especially when coming to a therapeutic standpoint.

Accessibility, lighting, planter types, water, storage, size of the room, and more.

When designing and considering accessibility for the green space design, looking for advice and input from the faculty advisor for this paper, I came to the conclusion of building a wheelchair accessible planter.

Designing the planter came from looking at resources and examples are wheelchair accessible planters. Resources for the planter came from Home Depot. The author also had her own resources such as power tools, screws, and extra lumber. These tools can also be found in Home Depot. After resources were required, a weekend day was dedicated to putting the planter together with the author's father who had experience with carpentry and construction. Most of the planter was completed in a day, but due to rain towards the end of the day the construction was paused and finished another day.

Posters were the next step for the project. Creating posters were based on the topic of the paper. The appendix (posters) for this paper were made with greenery and images of horticulture and veterans. The context of the posters were filled with essential information, regarding PTSD, horticulture therapy, select case studies, and the solution, alongside a references page for images and information.

## **Project Solution**

Horticulture therapy can treat veterans with symptoms of PTSD by employing the use of gardening techniques and green spaces that can help ease the symptoms of PTSD such as depression, and anxiety.

The “holding environment” theory, first thought of by Winnicott, and then proposed by Cherie Eichholz in her paper “*Therapeutic Horticulture as a Healing Tool for Veterans*” (2020) as to how horticulture therapy can be helpful for those with trauma. The “holding environment” theory is the theory that an “environment” which can be a person, place, object, or concept can help one to understand themselves. Eichholz proposes that this theory could be applied for veterans with PTSD, or trauma, by making horticulture therapy a “holding environment”. This would foster an environment of safety for a veteran to overcome challenges that come with PTSD. This could be applied to an actual space that Horticulture therapy can be used in.

A VA green space could provide that safe space that veterans with PTSD could visit to relax, garden, and learn. There are therapy sessions, both group and individual therapy. Recreational time for veterans, in-patient or out-patient, as well as visitors to the VA center is offered to allow recreational gardening, plant care-taking, or a quiet nature space to relax in. Lastly, horticulture classes could be offered for veterans with PTSD to learn how to garden as a complementary therapy or hobby to help them manage symptoms of PTSD. The goal of a horticulture classroom for veterans with PTSD can be to combat symptoms of depression, isolation, and more while also creating a safe environment where veterans can learn skills, pick up new hobbies, and socialize. This does not have to be limited to veterans with PTSD, but the topic is to introduce more discussion and research into horticulture therapy for veterans with PTSD.

The activities in a VA green room could vary based on the needs of an individual VA center. VA's have different funding, space, staff, and more. A VA green space is a general term, as in space that allows for horticulture, alongside horticulture therapy activities, with plants, gardening, therapy.

*Concepts*



*Image Credit: Temporary, Savannah Caddo*

***Master Plan***



**Image Credits:** Savannah Caddo

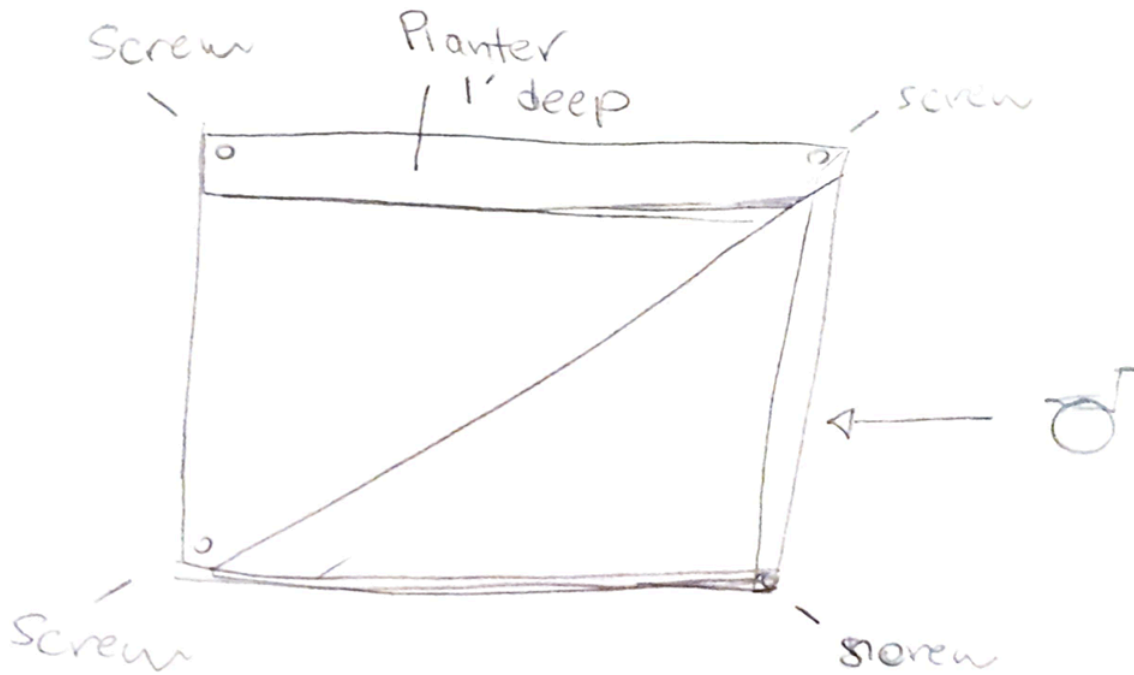
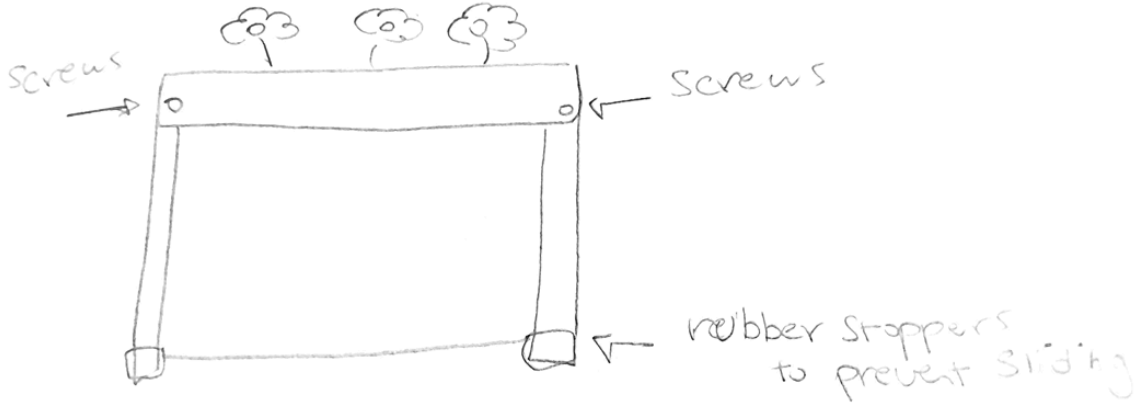
VA green space on a large scale. There is furniture, tables, shelves, plants on walls and potted plants through the room, railings on the wall along a hallway type of space in the room. This space stretches out into an even larger space that is used for recreation, classroom, and group therapy.



**Image credits:** Savannah Caddo

EVA green room on a small scale room, the size of a large office. This room has wheelchair accessible planters, a table, chairs, plants attached to the wall, and various other plants placed around the room. In a small scale design like this, the room is more efficient as recreation, or therapeutic space.

**Construction Drafts(Accessible Planter)**



*Image Credits: Savannah Caddo  
Initial drafting for planter*

**Final Planter**





**Image 1,2,3 Credits:** Savannah Caddo

The accessible planter is a piece that would be included in the design of the VA green space. They have a functional piece for gardening indoors and outdoors with wheels to allow easy maneuverability. This planter can be used for those with wheelchairs, to allow accessible gardening. It's double-sided, to allow two people to garden in the planter at once. Accessibility is an important part of this green space design, as veterans can face mental and physical trauma during their service and require physical aids if sustained physical trauma hinders ability to hear, see, walk, and more. Gardening is a peaceful, healing activity for most and everyone should have a chance to do so comfortably.

## **Design Details**

### **Green Space Design**

The design cultivates a space full of nature for visitors to enjoy and relax in. Some features include;

#### ***Planters***

These planters are attached to various spaces on the walls, any pillars, and tables and shelves within the VA green room. The planters or space could be chosen by a veteran and have their own plant to take care of placed within the planter(s).

The point of this design is to foster a sense of community and contribution as the collection of plants along the wall will continue to add to the feeling of nature to the design. Veterans can step back and see their plant amongst others plants and feel a sense of engagement, as well feel that they contributed to the green space.

#### ***Classroom***

The classroom portion of design is a section of the room, or the room itself, is a space to hold horticulture classes for veterans. These classes are held based on seasons of the year, with themed lessons based around the season and holidays within said season. I.e, winter, with Christmas theme classes such as making wreaths, growing poinsettias, creating winter-theme pots and more.

### ***Green Recreation Space***

The recreation space of the green room is another section of the room, or the whole room itself is where veterans can relax and do their own plantings. The space will include lift recliners, couches, shelves with books on horticulture and gardening, tables and chairs, and supplies for planting, gardening, and any other tools needed. Veterans can use this space to relax, to do independent planting activities, or chat with other veterans/visitors

### ***Green Wall***

The green wall portion of the space is a section of the wall within the room. It's a living wall that can have different plantings every year, with plants chosen and grown by veterans/and staff of the VA to be used as part of the green wall.. One version of the green wall in this space could be a cascading wall of pothos, with different color varieties.

### ***Wheelchair Accessible Planter***

The wheelchair accessible planter is a planter that can be used for those who use a wheelchair for mobility. The planter is double sided, so two people can use the planter comfortably at the same time. The planter appears as a standard raised garden bed. Underneath the planter the space is slanted to allow a person in a wheelchair, or in a chair as well to sit comfortably close to the planter that will allow them to garden. They are also built with wheels that have locking mechanisms, so it is easy to maneuver through rooms, halls, and can be taken outside. It is also built with drainage to prevent overwatering, hooks on the side to hold watering cans, and other various tools, for convenience.

## *Project Specifications*

The green space of VA would have a weekly schedule to fit horticulture classes, therapy sessions, and free recreation time.

Below is an example of what the schedule could look like, and can vary based on VA preferences.



*Note: It is not required to attend every group therapy session!*

MONTH	MONDAY	TUESDAY
April	10-11 am: Group Therapy	10am-12pm: Recreation
WEEK NO.	11am-12pm: Recreation	12-3pm: Individual Therapies
4	12-2pm: Class-Daffodil plantings!	
	2-4pm: Recreation	
WEDNESDAY	THURSDAY	FRIDAY
10-11am: Group therapy	10am-12pm: Recreation	10-11am: Group Therapy
11am-12pm: Recreation	12-3pm: Individual Therapies	11am-12pm: Recreation
12-2pm: Class-Terrariums!		12-2pm: Class-Outside planting! (Weather permitting)
		2-4pm: Recreation
SATURDAY	SUNDAY	NOTES
12-3pm: Recreation!	12-3pm: Recreation!	Weekend hours may vary

Image Credits: Graphic by Savannah Caddo

### ***Plant List***

Some plants that are grown in this green space including

**Daffodil** *Narcissus* Spring (early to mid)

**Hydrangea** *Hydrangea* Summer (mid to late)

**Rose** *Rosa* Summer (mid to late)

**Aster** *Aster* Fall (late)

**Kale** *Brassica oleracea* Fall/Winter (late to early)

**Lettuce** *Lactuca sativa* Spring/Summer (early to mid)

**Spinach** *Spinacia oleracea* Spring/Summer (early to mid)

**Peas** *Pisum sativum* Spring/Summer (early to mid)

**Bamboo** *Phyllostachys aurea*

**Orchid** *Cattleya*

**Split-Leaf Philodendron** *Monstera Deliciosa*

**Snake Plant** *Sansevieria trifasciata*

**Calathea Orbifolia** *Calathea Orbifolia*

**Easter Lily** *Lilium longiflorum*

**Heartleaf Philodendron** *Philodendron scandens*

This list is not an extensive list of what plants, flowers, vegetables can be grown in the VA green space, and can vary based on needs in the room, by staff, and veterans who participate.

Houseplants could be grown annually at any time of year indoors, as well as most plants.

Flowers, trees, shrubs, vegetables would be grown based on season and be a part of classroom and therapy activities.

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## Appendix 1

### How Can A Horticultural Therapy Program Within VA's Treat US Veterans in Cincinnati With Symptoms of PTSD?

Savannah Caddo  
Faculty Advisor: Stevie Famulari  
SPRING 2025  
Horticulture Capstone



Horticulture therapy refers to the practice of using gardening and plants for therapeutic benefits.

The use of gardening as means for both mental and physical wellbeing has been a prominent practice for centuries, but the actual practice used in a medical context is still a relatively new field.

U.S veterans today deal with challenges regarding their mental health.

This study researches how U.S Veterans can use Horticulture therapy as a form of complementary therapy to find ways to live with mental health ailments such as Post-Traumatic Stress Disorder.



### Horticulture Therapy

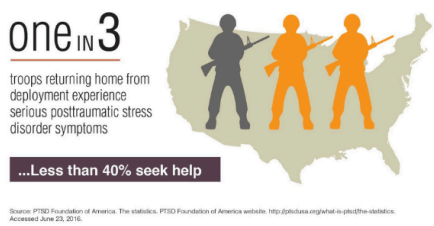
Horticulture therapy is a form of treatment that uses plants and gardening activities to improve a person's health and wellbeing, this includes a licensed horticulture therapists, and a plan with a set of goals for the therapist and



### PTSD

Post Traumatic Stress Disorder

#### Top Health Issues Among Military Veterans



Post Traumatic Stress Disorder is a mental health condition that can be developed after a person experiences a life-threatening or traumatic event.

Trauma such as natural disasters, accidents, military service, sexual assault, and more can cause the development of PTSD in a person

PTSD can have symptoms such as depression, anxiety, irritability, flashbacks, nightmares, avoidance, insomnia, and more

#### Why don't more veterans seek treatment?

<b>Access</b> Distance between a Veteran and the nearest clinic can be an obstacle to mental health treatment.	<b>Knowledge</b> Many Veterans suspect something is wrong but aren't sure what. Knowing the signs of PTSD can increase the chances that a Veteran will seek.	<b>Belief</b> Veterans who believe they can get better, and believe treatment will work, are more likely to seek help.	<b>Social Support</b> Despite recent efforts, there is still often a stigma around PTSD. Support from family, friends, and other Veterans can help bridge that gap.
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PTSD is a diagnosis that 7% of veterans receive at some point in their lives

Operation Iraqi Freedom had 29 out of 100 veterans who were diagnosed with PTSD at some point of their life

Desert Storm had 21 out of 100 Veterans diagnosed with PTSD

and Vietnam had 10 out of 100 veterans with PTSD



**VEGGIE**

**Pilot Horticulture Therapy Group**

**Derrick R Stowell, Gina P. Owens, and Amelia Burnett.**

VEGGIE, Veterans Experiencing Growth through Garden Interactive Experiences, is a pilot horticultural therapy group that ran with the goals of understanding and learning how horticulture therapy can help veterans (review)



VEGGIE was 8 weeks long, and had 8 total participants, the classes were held two times a week, and had a different horticulture topic each week

The classes held different horticulture themes! They opened the class, had instruction, and about 40 minutes was used for horticulture activities.

Transplanting, fresh air, and seeding were noted as favorite activities! Weeding, was the least favorite

Table 1. Session content by week for pilot program.

Session 1	Garden Tour, Goal Setting, Seed Starting
Session 2	Tilling, Weeding, Preparing the Garden for Planting
Session 3	Garden Planning, Garden Design
Session 4	Compost and Fertilizer, Transplanting Seedlings
Session 5	Watering, Terrariums and Indoor Plants
Session 6	Garden Care, Herbs
Session 7	Propagation
Session 8	Pest and Diseases
Session 9	Transplanting, Tending the Garden
Session 10	Resources, Next Steps



VEGGIE participants reported enjoying the classes, wishing for longer sessions, and wanted to attend future horticulture therapy classes/groups!



Horticulture groups that support veterans!



Organic Whole Health Group

“Connecting with plants and back into nature’s arms helps us with headaches, stress, depression, loss, anxiety, and loneliness,” Steciow continued. “Let your garden be your safe place. A garden helps strike a balance with nature, whether recovering from war or modern living.” –Pete Steciow, *New VA Organic Garden offers healing, learning through gardening*



Operation Eco Vets

“This farm is a place where veterans who have undergone trauma can come and learn to nurture plants and create life—the antithesis of death, destruction and what they witness on the front lines,” –Camile Van Sant, *Sarasota Farm Helps Veterans Heal From Trauma and Find Work*



Chicago Botanic Center

“I saw this summer how powerful gardens can be in helping people to heal and maintain wellness. Our program was effective because it created a sense of belonging and comradery, and fostered a feeling of continuing to serve, which is an important value to many vets. – Alicia Green, *Veterans Grow At Chicago Botanic Gardens*

### Green Space Design For VA Hospitals

Horticulture therapy can help veterans with symptoms of PTSD such as depression, anxiety, irritability, sleepiness, and more by creating a safe space where nature can be a complementary treatment option for veterans. This takes the holding environment theory and connects horticulture therapy and veterans together.

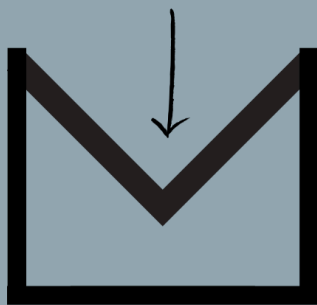


A large and small scale sketch of what a VA green space could look like! A green space in a VA could be used for recreation, therapy, and horticulture classrooms. They could vary in scale, environments, plants, style, and more- but safety, healing, and acceptance are a huge part! It can contain green walls, planters, supplies for gardening,



## Wheelchair Accessible Planter - Design and Build

This planter is a raised bed to allow those who use wheelchairs to garden comfortably!

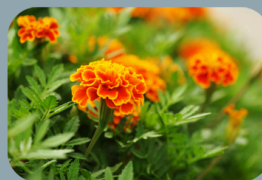


The planter has a 1 foot depth, so you could plant anything that only needs less than that planting space

Same plants you can grow in this planter!



Strawberries  
*Fragaria × ananassa*



Marigolds  
*Tagetes*



Lettuce  
*Lactuca sativa*



African Violets  
*Saintpaulia ionantha*



Peppers  
*Capsicum*



Lavender  
*Lavandula*

### Image Credits:

<https://news.va.gov/131908/veterans-dig-into-whole-health-with-gardening/>

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Plant images from Canva.com

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