Therapeutic Gardening for Addiction Recovery

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Therapeutic Gardening for Addiction Recovery

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NURS653: Internship

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Section I

Abstract

Problem: Therapeutic gardening is gaining popularity as a complementary intervention for addiction recovery, but traditional substance abuse facilities rarely use it. The aim of this study is to evaluate the effectiveness of therapeutic gardening as an alternative therapy to support adult men with substance abuse disorder who have a history in the judicial system.

Context: The study was conducted at a 30-bed drug and alcohol residential facility program in Santa Clara County, serving adult men who have had previous involvement in the judicial system. The program uses a cognitive-behavioral therapy (CBT) approach and indoor group meetings to foster positive health outcomes.

Interventions: A 15-week therapeutic gardening program was implemented to improve lasting sobriety and empower participants with effective coping strategies using outdoor green care.

Measures: A comprehensive mixed-methodology study was conducted to gather both quantitative and qualitative data through interim and exit surveys, participant interviews, and observations.

Results: The findings indicated that most participants (59%) agreed or strongly agreed that their mood improved after gardening, and 39% strongly agreed that they could use gardening as a tool in their recovery process. Additionally, 37% agreed that being outside in the garden made it easier to cope with cravings, and 56% agreed that it would have a positive impact on their sobriety.

Conclusion: The study showed that therapeutic gardening had a positive impact on the participants, who expressed interest in using it to aid in their sobriety.
Section II

Introduction

Substance abuse is a public health crisis that affects not just the medical community, but impacts families, schools, and the economy. Substance abuse is defined as a chronic, yet treatable, disease characterized by a problematic pattern of the use of substances which can lead to impairments in every aspect of one’s life (National Institute on Drug Abuse, 2018). In 2020, over 40 million people were in need of substance abuse treatment. Unfortunately, despite efforts, statistics indicate that 40% to 60% of individuals with addiction will experience a relapse (Kitzinger et al., 2023; National Institute on Drug Abuse, 2020). In fact, statistics regarding drug relapse show that 85% of individuals with a substance abuse disorder will return to drug or alcohol abuse within the first year of recovery (National Institute on Drug Abuse, 2018). Furthermore, the opioid epidemic is on the rise, which adds to the urgency of finding safe and effective treatment for substance abuse. There is a public health need to address this crisis as the risk for overdose steadily increases.

The National Institute on Drug Abuse (2020) suggests that with treatment, these individuals can counteract the addiction's disruptive effects on their brains and behaviors. This will allow them to begin the process of regaining control of their lives. For some individuals, relapse is a part of the recovery process, but newer treatments aim to reduce and even prevent recurrence by changing deep rooted behaviors (National Institute on Drug Abuse, 2020).

Problem Description

One of the ways to change behaviors is to acknowledge that recovery frees up a lot of a patient’s time. Time that was once spent procuring drugs, partaking them, and hiding or managing their addictions now leaves them with up to 18 hours each day that they need to fill
At first, these unoccupied hours may be dedicated towards the recovery process, but eventually they become obstacles because the free time creates opportunities to feel the cravings again which can lead to repeated relapses. Because of this common hurdle, it is imperative to fill these gaps of time with “new meaningful activities” (Lehmann et al., 2018 p 50). Addressing how to spend these empty hours is essential to the recovery process. Patients can speak with their therapists or counselors to help them understand ways they can integrate positive habits and behaviors during these times (Lehmann et al., 2018).

In the last couple of decades, researchers have suggested that activities which reduce stress can be especially beneficial. One such activity is known as therapeutic horticulture (TH) or therapeutic gardening (TG). This study will not differentiate the two and will use the terms interchangeably depending on the study addressed. Lehmann et al. (2018) report that there is growing evidence to support “the reduction of stress through active or passive experience with nature, as in horticulture therapy, by modulation of the central nervous, endocrine and immune systems” (Lehmann et al., 2018 p 50). In addition, finding therapies that offer non-pharmacological approaches will support psychiatric treatment and advancement toward “improvement of physical and mental health” (Mourão et al., 2021, p.112; Tu, 2022). However, researchers acknowledge that more information is needed to evaluate the efficacy of treatments such as TH or TG in comparison to other more established conventional therapies (Mourão et al., 2021). Several TG programs have been established in a variety of countries in order to serve different populations such as prisoners, disabled, elderly, and those struggling with addictions. Thus, the body of evidence is growing and is beginning to demonstrate the “need and interest among services users” to select TG as an activity which will effectively fill those empty hours and help people move toward a lasting recovery (Sinnott & Rowlis, 2021, p. 96; Tu, 2022).
**Available Knowledge (PICO Question)**

The PICOT question guided the literature review. In adult males impacted by the justice system and with a history of substance abuse (P), does the implementation of gardening and outdoor activity as tools for substance abuse recovery (I), compared to no previous or current control within this microsystem by any previous student group (C), lead to individuals reporting a broader selection of tools to choose from to aid in their recovery process (O) after one semester (T)?

**Literature Review**

Utilizing The Johns Hopkins Nursing Evidence-Based Practice appraisal tool (JHNEBP), this research evaluated eight studies (Appendix A). It synthesized their information to establish relevance, need, and applicable information for the PICOT question and research problem. The research found that multiple studies in the last decade have shown positive results and provided valuable insight into the possibilities of TG as a treatment with a variety of populations such as inmates, veterans, those suffering from mental health disorders, those struggling with obesity, and those who are trying to recover from substance addiction. While researchers agree that further research is needed, none of the studies reviewed reported adverse effects on participants, and all showed at least some positive correlation to TG (Brown et al., 2021; Jauk-Ajamie & Blackwood, 2022; Johnson-Jenning et al., 2020; Missen et al., 2021; Lehmann et al., 2018; Mourão et al., 2021; Tu, 2022;). One exception was reported by Sinnott & Rowlis 2021, whose study reported that "Sinnott & Rowlis 2021 reported an exception where a participant in their TG program attended only one out of eight groups and had a goal achievement that was "worse than expected" (p. 96).
Jauk-Ajamie and Blackwood (2022) did a focused study on women in prison. They reported that "gardening provides correctional programming for women that contributes to better health outcomes and fosters female empowerment" (Jauk-Ajamie & Blackwood, 2022, p. 2). Similar findings were found for incarcerated men.

Brown et al. (2021) conducted a study with male inmates struggling with substance misuse in prison. Their rationale reported that TG could assist in the therapeutic process related to losing or dying a loved one, trauma, grief, and addiction. Thus, they chose TG because it is "an attractive form of therapeutic activity" and because it has been shown to "be a useful rehabilitative tool with patients and with other groups" (Brown et al., 2021, pp. 139–140). Jauk-Ajamie and Blackwood's (2022) review of the research described similar findings, explaining that within prison culture, TG has helped to improve mental and physical health, specifically helping the prisoners feel a sense of purpose, have more self-efficacy and act less aggressively. They noted that earlier research evaluated empirical data elaborating on the positive correlation between TG and patients. The evidence demonstrates that there is a strong correlation between nature therapy and "effectively improved psychosocial functioning, reduced risk-taking, and lowered criminalized substance use and depression" and that "gardening improves mood and mental health while significantly reducing stress" in the prisoners where these studies have been done (Jauk-Ajamie & Blackwood, 2022, p. 5).

The benefits of nature on numerous populations have been long documented and studied since ancient times. Current researchers concur that the interaction with nature, such as gardens, natural habitats, and "other forms of nature," has positive and observable health benefits including but not limited to more physical activity and increased overall health and well-being
(Hansen-Ketchum et al., 2009; Tu, 2022) which is why TG has become a more widely used rehabilitative strategy in a variety of settings (Tu, 2022, p. 604).

For example, Brown et al. (2021) sought to build a supportive environment in which men in prison would have "opportunities…to gain new skills or develop and put to use existing skills" as well as offer opportunities for mentorship that "encourages a process of self-reflection" (Brown et al., 2021, p. 161). Brown et al. (2021) believed that sharing values and responsibilities in a therapeutic way would support their recovery process. This sentiment is reflected by other researchers as well. As previously mentioned, a study by Sinnott and Rowlis (2021) reported quantitative findings which showed that six out of seven participants in an adult mental health facility displayed positive results for people who were working toward mental health recovery goals with those" either achieving or exceeding their goals" (Sinnott & Rowlis, 2021, p.96).

Furthermore, Tu's meta-analysis of 18 studies (2022) states that the overall influence, including positive mental health outcomes, on the experimental groups compared to control groups was significant and supported the hypothesis that HT is a valuable tool for the improvement of patients mental health in a variety of settings. Being around nature helps people negate negative emotions and deal with anxiety or depressive episodes. Adding these valuable types of activities into one's life allows a person to break away from daily life stressors that can cause lapses in positive mental health and well-being. Additionally, living in urban areas makes people need to seek out a natural environment that can give them a place to escape from their demanding lives (Tu, 2022). Thus, incorporating TG into substance abuse recovery facilities should prove to be an effective way to improve patient outcomes, fill potentially dangerous gaps in free time, reduce recidivism, and increase overall well-being.
Lehmann et al. (2018) reported on another study from 2014 that tested the effects of horticulture therapy (HT) versus traditional occupational therapy (OT) on veterans in a 28-day substance abuse and recovery program. In this randomized study, researchers sought to measure whether there was a difference "in cortisol levels, depression, posttraumatic stress disorder symptoms, alcohol cravings, and quality of life" between HT and OT (Lehmann et al., 2018, p. 51). The results consistently and repeatedly presented decreased cortisol measures for those involved in the HT program, with a 12% reduction in cortisol levels over three weeks. Not only did the active participants of the study (those who actively gardened) present positive changes in cortisol, but many of the passive participants expressed that they felt a feeling of appreciation for the garden environment. They felt significantly less stressed when they went to or even viewed the garden (Lehmann et al., 2018). Several studies have reflected these results that working in the garden was a productive activity to use when working toward recovery. It was a place where participants reported feelings of safety, creativity, increased well-being, and lower stress levels. In addition, these studies observed noticeable improvements in participants' socialization and connectedness to others (Brown et al., 2021; Lehmann et al., 2018; Mourão et al., 2021; Tu, 2022). Other participants reported that the garden "provided a safe 'haven'" or area where they could escape from the stressors of the program, allowing them to unwind, work quietly, or enjoy the natural environment (Lehmann et al., 2018, p 52). Both Mourão et al. (2021) and Lehmann et al.'s (2018) study participants said they enjoyed the process of gardening, the opportunities it provided for them to socialize, interact in new ways with others by teaching them horticulture skills, be creative, concentrate, or reflect quietly in a peaceful space. Creating an opportunity for those in recovery to experience these types of positive interactions will likely play an integral
role in their recovery process when they are back out on their own, having to build new habits and new lives.

Most closely related to this present study is data collected from a study completed in Australia for an intensive non-residential substance abuse program in which they incorporated TG (Missen et al., 2021). The Therapeutic day rehabilitation center instilled a garden where individuals would have weekly interactions consisting of various gardening tasks such as "planning, watering, seed planting, weeding and crop rotation" (Missen et al., 2021, p. 497) as a way to incorporate structured socialization and help the participants connect in a non-pressured environment. They were then able to participate in using the produce from the garden by cooking a weekly lunch (with the help of staff) that they shared together to increase the bonds of the patients further, giving them an even stronger connection and opportunity to share their feelings, struggles, and experiences in a non-threatening, non-judgemental environment. Researchers believed this would positively impact their overall recovery process. The study's results concurred with their hypothesis and demonstrated observable qualitative results in "physical health, psychological, social relationships" compared to their baseline intake. The researchers did a follow up after 4 weeks and found that these changes were upheld (Missen et al., 2021, 496), offering promising data for the use of TG for individuals who struggle with substance misuse. Introducing gardening as a therapeutic tool to patients provides them with additional resources to experience the benefits of this alternative therapy, ultimately facilitating their path to recovery from substance abuse. While relapse may be a "normal" part of recovery, perhaps those who continue to engage in GT after they leave the treatment centers will have fewer cases of relapse or recidivism, allowing them to engage in more fulfilling and meaningful lives.
One unintended but not surprising practical and beneficial side-effect of horticulture and gardening therapy has been increased awareness of health and nutrition. Jauk-Ajamie & Blackwood (2022) noted, "Food in and around incarcerated settings can be a powerful tool for restoring health, cultivating self-esteem, and nurturing people's potential, particularly when utilizing gardens" (p. 2). In a pilot gardening program designed as a health intervention for Indigenous children, researchers tested whether urban gardening could help improve health outcomes by offering education about healthy foods and lifestyles. With the large homeless population among Indigenous people, they hoped to promote "food self-efficacy and physical health" (Johnson-Jenning et al., 2020, p. 878). The study was based on literature that reported the positive impacts of community gardens. Johnson-Jenning and colleagues (2020) hypothesized that engaging this population in GT would help build more robust social networks while giving them a refuge to embrace traditions surrounding food. The study concluded that members who participated felt a greater sense of well-being during and after the program and increased awareness of "the cultural importance of traditional foods but also towards healthy foods in general" (Johnson-Jenning et al., 2020, p. 874). These results mirror those of Jauk-Ajamie & Blackwood (2022) and Sinnott and Rowlis (2021), whose participants found that gardening had become a practical coping skill they would like to take home and utilize after incarceration in order to develop stronger emotional well-being along with the benefit of nutritional foods.

The literature clearly demonstrates the positive effects that TG can have on a variety of populations and that its use can benefit well beyond the initial program by offering participants a way to change behaviors, fill gaps in the time left during the recovery process, and decrease isolation through positive social interactions (Brown et al., 2021). Thus, evidence points to
improved outcomes complementary to the substance abuse and recovery process (Lehmann et al., 2018).

**Conceptual Framework**

Change is essential to personal development and a driving force toward growth and improvement. It involves letting go of old habits that no longer serve someone and embracing new and unfamiliar behaviors to foster progress. A collaborative approach that combines theories and ideas among all disciplines is crucial for successful change and recovery in the healthcare system. Selecting the appropriate conceptual theory that works with a project is vital for success. Among the many theories of change, Lewin's change theory is the most applicable to this current study. This theory involves unlearning old behaviors without losing one's ego identity and a relearning process that attempts to restructure thoughts, perceptions, feelings, and attitudes (Harris et al., 2018, p. 32). Lewin suggests that change occurs in three stages: unfreezing, changing, and refreezing. Unfreezing, the most critical stage, involves individuals' readiness and willingness to move from their comfort zone into a transformed situation (Wojciechowski et al., 2016). The current study aims to improve the population's readiness to learn new therapeutic life skills and move away from old habits and harbors. In this study, the process involves the participants' need to adopt this change and, in doing so, demonstrate the benefits of this change and decrease any opposing forces that can negatively impact this new change (Harris et al., 2018, p. 32) To reinforce this new change, the researchers and facility clinicians brainstormed and collaborated with the men in this study on how to develop a garden, provided them with training, and modeled new ways of change. By involving them in the planning process, they were able to plan for this change and make it a smooth transition to implementing the change. This process will allow individuals to learn new perspectives and concepts which could allow them to make
lasting changes (Harris et al., 2018, p. 32). The final step in Lewin's change theory is refreezing, which occurs when new behavior, habits, or attitude is incorporated into one's usual way of doing things (Harris et al., 2018, p. 32). The goal is to integrate and stabilize a new equilibrium so that this new change becomes a cemented habit. Thus, the individual will find new ways to maintain this change and celebrate their successes.

In summary, change is crucial for personal development and growth. Selecting the appropriate conceptual theory that works with a project is vital for success. Lewin's change theory is the most applicable for this study, and by involving individuals in the planning process, participants can make a smooth transition to implementing long lasting change.

**Rationale for Research Project**

The rationale for implementing this project is multifaceted. As per the National Institute on Drug Abuse (2020), relapse is a typical and anticipated aspect of the recovery process. Because of this, the population at the 30 bed drug and alcohol residential program in the metropolitan often sees the same individuals re-enrolling in the program on multiple occasions. Based on the needs assessment, the research team identified several factors that aid in many of these individuals' relapsing. During weekly meetings, many of these individuals expressed that they were unaware of their disease because they started misusing alcohol and drugs very young and did not recognize addiction as a disease. Findings by Kitzinger and colleagues (2023) assert that patients in recovery end up with a lot of extra time to fill. The individuals at the facility concluded by explaining that when they started the recovery program in a structured residential program, every hour and minute was dedicated toward recovery goals. However, once these individuals graduate from the program, not as much free time is spent on managing their addiction, leaving them with empty hours to fill.
Furthermore, many of these individuals have other coexisting socioeconomic factors, such as previous incarceration, little to no education, life skills, coping tools, or health strategies to aid them in the recovery process. Research has indicated that many people in recovery find activities such as TG helpful due to giving them "a feeling of achievement, to stay sober, during the day, something to get up out of bed for, something to get me back on [their] feet" (Missen et al., 2021, p. 499). Various studies have consistently confirmed a strong connection between man and nature and man's well-being, "and it is well acknowledged that human beings depend on nature for their psychological, emotional and spiritual needs, which are difficult to satisfy by other means" (Mourão et al., 2021, p. 111). Therefore, it seems natural to implement programming such as TG that highlights and compliments these instinctual human needs.

The importance of therapeutic gardening in nursing is increasing as it involves a range of roles that nurses undertake when providing care for patients. As educators, nurses can integrate evidence-based therapeutic gardening practices into the current curriculum and educate participants on the advantages of it. Moreover, TG is a healthy coping mechanism that reduces anxiety and stress and enhances overall well-being (Mourão et al., 2021). All of these aspects serve the purpose of educating future patients and ultimately helping to prevent substance abuse relapse and recidivism.

As champions for their clients, nurses are critical in advocating for and encouraging participants to fully embrace TG as a complementary approach to their sobriety, even if past attempts have been unsuccessful. The nurses can utilize TG to create a safe and inclusive environment that supports learning and healing, helping participants feel at ease and empowered to participate fully in their program.
As a crucial outcome manager, the nursing team must meticulously monitor and evaluate the effectiveness of the evidence-based practice of therapeutic gardening in achieving the desired health outcomes related to sobriety. The team should diligently incorporate evidence-based interventions while closely observing and analyzing changes in participants' behavior and mental health and analyzing the results to determine the program's intervention's efficacy.

As the systems analyst, the nursing team conducts a comprehensive gap analysis and recognizes the lack of outdoor activities in current curriculums which foster health and well-being. Additionally, nurses can act as risk assessors and utilize a SWOT analysis to pinpoint the advantages, limitations, prospects, and challenges of incorporating therapeutic gardening. The nursing team will then be able to establish clear expectations to ensure the participants' safety and offer a safe environment for them and the program facilitators.

**Specific Project AIM**

We aim to empower patients participating in the study with effective coping strategies that enhance their recovery through therapeutic gardening. To achieve this, we will conduct a comprehensive needs assessment to identify their coping skills and implement a customized therapeutic gardening program. Our ultimate aim is to ensure that patients leave the program with a set of evidence-based coping strategies that they can rely on for a lifetime of successful recovery. The basis of our approach is the growing body of literature highlighting the significant benefits of green care in promoting recovery. Additionally, our patient population has expressed a desire for more outdoor green care further reinforcing the importance of our approach. By addressing this need promptly and utilizing evidence-based practice, we are confident that our therapeutic gardening program will provide patients with the tools they need to achieve lasting recovery.
Section III

Methods

The USF nursing team maintained and fostered close collaboration within the microsystem with the program director, administrators, project supervisor, staff, and stakeholders. The tools and assessments used to carry out the mission will be addressed in this section.

Context / Project Overview

Historically, there has never been a psychology related quality improvement internship at University of San Francisco (USF). Many of these quality improvement projects have been on obstetrics, pediatrics, and sepsis allowing students to continue with previous students’ research. Thus, there is abundant literature to support the quality improvement in obstetrics, pediatrics, and sepsis. However, other areas of nursing are important to address, specifically mental health. Thus, including this important realm of quality improvement (QI) became apparent during several students’ mental health clinical rotations during the fall semester of 2022 at the drug and alcohol residential program. Thus, the idea for the quality improvement project on therapeutic gardening as an intervention on addiction recovery began.

The project is unique in itself as this is the first time the University of San Francisco Master’s of Science in Nursing approved such a project. Several interested students in cohort 32 were interested in a nursing career in mental health and completed their mental health internships at this facility. One student in particular had their clinical rotation at a drug and alcohol residential facility in the fall of 2022. This student discussed her idea with the clinical instructor for the possibility of completing a quality improvement project in the spring of 2023 at the
facility. She explained why she believed therapeutic gardening as an intervention for addiction recovery would be a beneficial QI project, and the clinical instructor agreed.

The next step of the project implementation was to get it approved with the school, so it was proposed to the dean, and the quality intervention for the drug and alcohol residential program was approved. The clinical advisor expressed that though the program has a curriculum which incorporates both cognitive behavioral therapy (CBT) and group exercises for the recovery process, that they wanted to include more outdoor therapies which taught coping skills. She noted that previous attempts at incorporating these types of interventions had failed previously due to lack of resources.

For the QI project, the QI team stepped in to fill the gap of outdoor therapy by using evidence based practices (EBP) that indicates the baseline for the integration of gardening as a therapeutic tool (GT) to be used as a coping mechanism for multiple populations, and in this case, those struggling with substance abuse and misuse.

**Microsystem Assessment**

A microsystem assessment was accomplished at the 30 bed drug and alcohol residential program to provide a structure for analyzing growth opportunities. Employing the 5 Ps model, the implementation of therapeutic gardening meets the needs of our population within the microsystem.

**Purpose:**

The 30 bed drug and alcohol residential program works directly as a recovery and rehabilitation center for formerly incarcerated men who are currently struggling with substance abuse. The program's mission is to offer effective behavioral health services to patients with complex needs, while helping patients through the recovery process.
Patients:

Current residents at the drug and alcohol residential program were automatically enrolled in the therapeutic gardening protocol. The bed count at the facility is 30, thus, at most times, there were 30 residents, but this dropped to 28 at one point during the project. This residential program is only available to men who were previously incarcerated and are over the age of 18.

Professionals:

USF nursing students (6), Nurse Practitioner (1), recovery professionals (2), Psychologist (1), Program Administrators (2), and kitchen chefs (2).

Processes:

Due to the varied needs of patients, and the different circumstances for each patient’s placement in the program, the roster rotates regularly. The rotating patient roster causes patients all enter and exit the program at different times depending on their personal or mandated goals. Patients must stay a minimum of 30 days, but some may extend depending on their needs.

Patterns:

Various patterns are found within the microsystem such as age, socio-economic background, the circumstance of entry into the program, and the factors of substance abuse. The patterns cause the residential make-up to fluctuate, so patterns may differ at any given time. The usual programming for recovery treatment takes place indoors in more traditional therapeutic recovery type settings, such as weekly group meetings or individual therapy, so by introducing the TG, standard programming will be altered.

SWOT Analysis

The researchers employed a SWOT analysis to recognize the positive aspects, drawbacks, opportunities, and obstacles associated with incorporating therapeutic gardening. This analysis
enables the researchers to plan strategically taking into account internal and external factors that could potentially impact the project.

**Strengths:**

This project has several internal solid factors. Firstly, many of the participants at the drug and alcohol residential program and amongst the USF nursing staff have extensive gardening experience and skills, including landscaping, construction, and gardening knowledge. This wealth of knowledge and expertise has been invaluable in ensuring the project's success. Additionally, the project has received full support from the program directors, which has allowed it to move forward smoothly and efficiently.

Furthermore, this project has several unique capabilities and resources. The local and surrounding Bay Area communities have shown a willingness to donate resources and labor to support these men during their sobriety, which has been crucial in ensuring the project's success. Additionally, the unit has some resources, such as land space and gardening supplies, which have helped to keep costs low and reduce barriers in the design process. These strengths and resources have allowed the project to achieve its goals and make a meaningful impact in the community.

**Weakness:**

The weakness of the project is the need for more funding resources. While the nursing staff is committed to securing the necessary funds to launch the project, the high start-up costs make it challenging to obtain the required resources within 16 weeks. This lack of funding also presents a hurdle to creating a cohesive schedule for planning, fundraising, and building the garden. Furthermore, the language barrier complicates the project, making communication and collaboration with Spanish-speaking participants more delicate. Addressing these weaknesses
will require careful planning, effective communication, and creative solutions to ensure the project's success.

**Opportunities:**

There are several opportunities available for this project. The first is the large and fertile yard in the back of the facility, which provides an ideal therapeutic garden development space. Additionally, the participants at the unit facility have shown a keen interest in gardening and have expressed their desire for more outdoor green care opportunities. This interest makes them eager to participate in working on the project, creating a sense of ownership and investment in its success. Furthermore, an external opportunity for this project is that it has the potential to raise awareness of the therapeutic benefits of gardening in combating addiction and promoting recovery, which could be shared with other substance abuse programs.

**Threats:**

Wildlife, including turkeys, chickens, and gophers, significantly threatens the garden's development and sustainability. The participants are apprehensive about this threat, as previous attempts to implement a garden were quickly destroyed due to wildlife and the lack of necessary resources. Additionally, the client turnover rate poses a threat, as nursing students will need to reorient new participants to the garden and inspire them to embrace the mission. Finally, the absence of a sustainability plan to maintain the garden in the future presents a threat to the project.

The lack of solid financial support from external sources poses a threat to the project as it may lead to insufficient funding for obtaining the necessary resources, which could jeopardize the garden's success. The garden's internal weaknesses directly impact external threats,
particularly the lack of funding, which renders it vulnerable to wildlife, harsh weather conditions, and budgetary constraints.

**Timeline**

A Gantt chart was constructed to oversee every aspect of the quality improvement project. The Gantt chart afforded a visual timeline of building blocks of the project starting from January 23, 2023, to May 12, 2023. The overall timeline of the project was 16 weeks (Appendix C).

**Implementation and Budget**

*Week 1-5:*

During the initial five weeks, the nursing team demonstrated an unwavering commitment to delivering evidence-based care by conducting comprehensive research on therapeutic gardening as an intervention for substance abuse recovery and recidivism. This research laid a solid foundation for the therapeutic gardening program, guaranteeing its efficacy and tailor-made approach to the specific needs of the participants. This reflects the nursing team's dedication to providing the best possible care for their patients and emphasizes the importance of evidence-based interventions in healthcare.

The therapeutic gardening program comprised various activities during the 16-week quality improvement project. Within the first two weeks, the nursing team took proactive steps to initiate a fundraising campaign (Appendix D) to generate the funds necessary for the project. The fundraising consisted of contacting friends, non-profits, local gardens, community organizations, Home Depot, and Lowes for donations. In addition, the nursing staff conducted onsite planning, conceptualizing the project, and identifying project needs, geographies, and objectives. The nursing team compiled a materials list with estimated costs to ensure the project remained within
the budget (Appendix E). The nursing team exhibited meticulous planning, resourcefulness, and dedication toward creating a successful therapeutic gardening program.

The nursing team's commitment to promoting the participants' sobriety throughout the 16-week quality improvement process was evident. With the funds raised and materials outlined, the nursing staff led weekly educational group meetings, providing therapeutic tools, motivation, and encouragement to ensure the participants stayed on track with their recovery. The nursing staff also educated the participants on gardening techniques and exercises to enhance their therapeutic gardening experience. As the program progressed, the nursing staff designed (Appendix F) and mapped out enclosure spaces for the garden, turned the soil into designated areas, and planted seedlings. Over the next few weeks, the participants engaged in various gardening activities, such as planting, watering, and weeding, which proved to be beneficial for their recovery and well-being.

The success of the therapeutic gardening program was made possible by the collaboration of various individuals, including the program director, who allowed the participants to participate in the program. The nursing staff, led by the project coordinator, planned and executed the garden activities and provided therapeutic support to the participants. Local vendors provided the necessary materials and supplies for the garden. Finally, the participants in the program actively participated in all activities and were encouraged to spend time in the garden as part of their recovery program.

**Week 6-11:**

Between weeks six and eleven, the nursing team embarked on an exciting project to create a lush garden space for the participants to enjoy. The team proactively purchased high-quality construction materials for the Greenhouse enclosure, including soil, wood chips,
compost, chicken wire, screws, bird netting, cement, and even Polycarbonate panels. A comprehensive list of all the supplies and their cost is included in the appendix. In addition to their impressive purchasing efforts, the nursing team was vital in educating the participants about various gardening practices. They provided informative sessions on various topics, including the importance of compost in agricultural systems. Participants learned about the three primary nutrients in compost - nitrogen, phosphorus, and potassium - essential for healthy plant growth.

The nursing team also highlighted the advantages of using wood chips as an organic mulch. Wood chips can reduce weeding, maintain cooler soil temperatures, conserve water, and improve plant growth - all essential for a thriving garden.

In addition, the nursing team went above and beyond to ensure the project's success. They emphasized the importance of turning the soil to protect against weeds and harmful insects that could destroy the plants. Additionally, they provided comprehensive education on which crops were best suited for growth based on the season and climate. The nursing team went the extra mile to explain why chicken wire was necessary to safeguard the garden from wildlife and other potential threats. To further bolster the project's success, the nursing team developed a well-organized system that assigned specific roles and responsibilities to each participant in the garden. This approach was instrumental in ensuring that everyone fully understood their contributions and responsibilities in the project. Throughout the project, the nursing team continued to highlight the numerous physical, mental, and emotional benefits of gardening. They stressed the positive impact of spending time in nature and engaging in outdoor activities, such as gardening, on mental health and stress reduction. Additionally, they provided ongoing education on new coping skills and social interaction, which are vital to the recovery process.
Moreover, the nursing team maintained a strong focus on the importance of harvesting and consuming the crops grown in the garden. They went to great lengths to educate the participants on the nutritional benefits of consuming fresh fruits and vegetables. The nursing team encouraged participants to incorporate freshly harvested produce into their diets and provided extensive education on meal planning and recipe ideas.

Furthermore, the nursing team's unwavering commitment to providing evidence-based practices on therapeutic gardening was evident in their thorough and ongoing participant education on gardening and diets. The nursing team invested significant time and effort in researching the best practices for therapeutic gardening, including creating an optimal environment for plant growth, managing pests and diseases, and harvesting and preserving crops. By staying up-to-date with current research and sharing this valuable knowledge with the participants, the nursing team created a transformative therapeutic gardening project that profoundly impacted the participants' physical, mental, and emotional health and well-being. Their dedication to providing evidence-based care and education underscored their mission to deliver the highest standard of care to their patients.

**Week 12-15:**

During the final weeks of the project, I led the team in constructing the greenhouse to ensure the success of the garden project. The greenhouse construction was not only a crucial aspect of the project but also demonstrated the nursing team's dedication to its sustainability beyond the project's completion. Participants were educated on the benefits of a greenhouse, such as creating a microclimate to grow crops out of season, providing them with a valuable tool to continue gardening even after the project is over. The team's hard work and dedication were evident as we finished the construction of the doors with the participants and laid wood chips on
the ground to prevent weed growth. We planted a diverse array of seeds such as beans, strawberries, kale, onion, chives, and exotic plants, making the garden a thriving space for future participants to enjoy. By week 13, the participants had filled the planter beds, making the garden more manageable and accessible to individuals in the program. The planter beds were lined with a durable lining and surrounded by wood chips to reduce weed growth, ensuring the garden's longevity. The team continued to water and maintain the garden ethics in the final weeks of the project, leaving a lasting impact on the program's community.

The nursing team went above and beyond to ensure the sustainability of the therapeutic gardening project at the drug and alcohol residential facility. In the final weeks of the project, they created a comprehensive sustainability plan that lays out clear steps for the future implementation of the program in addiction recovery. In addition, the team developed a detailed checklist to guide the facility’s staff and clients on the garden's maintenance. This checklist and sustainability plan was created for the current project and future cohorts to ensure the program thrives. The team presented the finalized sustainability plan to all relevant personnel, including program directors, staff, and stakeholders, to ensure the project's long-term success. The nursing team also administered an exit survey to participants to gather feedback on their experience with the project.

Moreover, during the final week, the participants had fun creating rock labels for the garden crops while playing the Jeopardy game, adding to the project's overall success.

The nursing team went above and beyond to ensure the success of the garden project. The nursing teams dedicated their time and effort to educating participants on gardening techniques and constructed a state-of-the-art greenhouse to optimize plant growth. The team developed a comprehensive sustainability plan to ensure the project's sustainability beyond its end date. The
nursing team's commitment to the project was evident during the Dedication Ceremony on May 12, 2023, where they presented their work on a poster board. Their efforts contributed significantly to the project's success, and their dedication was commendable.
Section IV

Data Source

The team conducted a comprehensive mixed-methodology study to gather quantitative and qualitative data, ensuring a thorough analysis. Both interim and exit surveys were administered during the study to capture the holistic impact of the therapeutic gardening project. The interim surveys (Appendices J & K) comprised five tailored questions that assessed the participants' mood and coping skills during the program's implementation. The responses were scored using a Likert scale of 1 to 5, ranging from "totally disagree" to "totally agree," to evaluate the garden's effectiveness comprehensively. While no baseline measures were included, the nursing team adopted an ethnographic approach involving observations, interactions, and participant interviews.

The exit survey (Appendix L) included ten reflective questions, of which six focused on the project's impact on the participants' sobriety and scored using a similar Likert scale of 1 to 5, ranging from "totally disagree" to "totally agree. The remaining four questions were open-ended, allowing the participants to give free text responses that enriched our research.

Expected Results

The project aims to achieve a critical objective, which is to demonstrate the long-lasting impact of therapeutic gardening on the sobriety of participants. The underlying purpose of the therapeutic gardening program is to equip students with alternative coping strategies to aid in addiction recovery. As extensively discussed in the literature review, therapeutic gardening has emerged as a highly effective intervention for addiction recovery. It is crucial to utilize the unoccupied hours that were once dedicated to the recovery program effectively, and therapeutic gardening can serve as a meaningful activity to fill this gap (Lehmann et al., 2018, p.50). Upon
the project's completion, the nursing student team expects the participants to self-report having developed new coping and life skills due to the study. Additionally, the team anticipates that the participants will demonstrate the willingness to implement their gardens upon completing the program, providing them with a valuable tool during times of crisis. Ultimately, the success of this therapeutic gardening study is expected to attract the attention of other substance abuse centers, inspiring them to adopt and implement similar projects in their curriculum.

**Actual Results**

Due to the rotating nature of the program, the survey was given to participants at three different times during the program week 9 (3/24), week 11 (4/7), and week 13 (4/21). This allowed researchers to gain deeper insight into the feelings and consistency of the feelings of the varied participants who entered the facility and participated during the time that the program took place. It also allowed researchers to get feedback from as many participants as possible. The study results were obtained by combining all three surveys and scoring them. Twenty-one surveys were completed during week 9, eight surveys during week 13, and twenty surveys during week 13, for a total of 49 surveys completed.

Furthermore, an exit survey was completed on May 5, during the next to the last week 16 program. The exit survey consisted of ten different questions, which asked six Likert scale-rated questions and four open-ended questions which researchers used to find out more specific details of what participants thought about the program, how they could or would use it in the future, and how they felt as a result of their participation in the program. Results for the exit survey were based on sixteen out of thirty surveys completed.

**Question 1. Has your mood changed/improved after gardening?**
The study aimed to assess whether therapeutic gardening positively impacted the participants' mood; thus, the first question on the survey addressed this topic. The findings indicated that most participants (29 total participants or 59%) either agreed or strongly agreed that their mood had improved after gardening. Meanwhile, 32% partially agreed that their mood had changed after gardening, while approximately 8% of participants either totally Disagreed or Disagreed that their mood had changed or improved.

**Question 2. On a scale of 1-5, how much do you agree with this phrase: "I feel inspired to get outside in the garden."**

Question two assesses whether the participants agreed they felt inspired to get outside in the garden. Approximately 35% of the survey participants agreed that they were inspired to work in the garden outside. While there was a combined 44% agreed and partially agreed that they felt inspired to go outside in the garden. However, only 5% of the participants disagreed, and another 5% totally disagreed that they felt inspired to get outside and work in the garden.

**Question 3. Can you see yourself using gardening as a tool to aid in your recovery process?**

This question was an essential aspect of the program regarding future possibilities for long-term recovery. It yielded primarily positive results, with 19 out of 49 (39%) participants strongly agreeing that they could see themselves using this as a tool in their recovery process. Furthermore, eight participants agreed, and 11 partially agreed that they would use this tool, 38% being open or somewhat open to the idea. Of the 49 participants, 11 disagreed or totally disagreed with the statement, leading the researchers to believe they would not want to use this tool in their recovery.

**Question 4. On a scale of 1-5, how much do you agree with this phrase: "Being outside in the garden makes it easier to cope with my cravings."**
Question four was necessary for the research team as approximately 37% of the participants agreed that being outside in the garden made it easier to cope with their cravings. While 16% of the participants agreed and 28% partially agreed that gardening helped to cope with their cravings. Meanwhile, 12% disagreed, and 8% disagreed that gardening helped the participants cope with their cravings.

**Question 5. On a scale of 1-5, how much do you agree with the following statement: "I learned something new today?"**

Question five was essential to the study as the nursing team was introducing gardening as an intervention for addiction. Researchers wanted to understand if the process in which they were teaching the gardening skills resulted in new information for the participants. The majority of the participants agreed that they learned something new each time in the garden. 53% totally agree, 14% agreed, and 14% partially agreed. While 4% of the participants disagreed and 12% totally disagreed.

**Exit survey results:**

On the last day of the study, the researchers conducted a mixed-method questionnaire known as an exit survey, which included both likert scale and open-ended questions. The purpose of the mixed-method survey was to determine if the implementation had a positive and lasting effect on the participants and to gather both quantitative and qualitative data. Similar to the interim surveys, the likert scale questions in the exit survey included answer choices ranging from "totally disagree" to "totally disagree," "no opinion" and "totally agree" as additional options.

The post-intervention mixed-methodology survey included four open-ended questions. Among these, Question 6 asked if the participants had any ideas for similar outdoor projects they
would like to see happen in the future. Many respondents expressed their interest in planting more flowers, building more outdoor seats, and expanding the garden. The feedback received from the participants provided valuable insights for the next nursing team to implement their desires.

Question 7 inquired whether the participants felt implementing their own garden once discharged would have a positive impact on their sobriety and why or why not. This question was of significant importance to the USF nursing research team, as they hypothesized that therapeutic gardening could serve as a coping strategy and a tool for the participants to rely on in times of crisis. The majority of the respondents (9 out of 16) expressed their willingness to implement their own garden upon discharge from the program. Among those, 56% agreed that it would have a positive impact on their sobriety. One participant expressed that gardening would help involve their family and kids in outdoor activities, while another stated that it would provide them with a sense of purpose. Another participant shared that implementing a garden would offer them peace and enhance their health.

Question 8 asked the participants to provide their feedback on where they saw room for improvement in the gardening project. Most participants suggested that the horse-shoe pit needed renovation. Interestingly, many participants were satisfied with the overall project and stated that no improvements were necessary.

Question 9 provided an opportunity for the participants to add any additional comments. Similar to Question 8, the majority of the participants did not have any additional comments.
Section V

Discussion and Conclusions

The 15-week study's objective was to evaluate the effectiveness of therapeutic gardening study in addition to the men currently enrolled in the substance abuse program. The results revealed that the program significantly impacted the participants' sobriety, anxiety, coping strategies, and overall well-being. One possible explanation is that therapeutic gardening provides a goal-oriented mindset and structure. As the participants engaged in building the garden, it allowed them to connect with nature and alleviate cravings and stressors. In addition, the garden allowed the participants to work together as a team and improve socialization and communication skills.

One limitation of the study is that it needed a control group. The absence of a control group compared with the intervention group is a limitation of this study. Although the findings yielded positive results, determining whether the observed changes were due to chance or the therapeutic gardening intervention requires further assistance. Another limitation is that the participant's roster was continuously changing due to the high turnover rates and various start and end dates of the men at the facility. One suggestion for this project is for future nursing cohorts to continue with its mission and utilize therapeutic gardening to aid their sobriety. At the final stage of the project, the nursing team has developed a sustainability plan for the facility, and the future USF nursing students will continue the therapeutic gardening program to continue to support these men during their recovery. Therefore, it will be necessary to conduct a longitudinal study to assess the enduring influence of the project on the participants' sobriety.
Section VI

References


Section VII Appendices

Appendix A

The Johns Hopkins Nursing Evidence-Based Practice Appraisal Tool

Appendix A

Literature Synthesis Evaluation Table, Summary & Critique

The PICOT question guided the literature review. In adult males impacted by the justice system and with a history of substance abuse (P), does the implementation of gardening and outdoor activity as tools for substance abuse recovery (I), compared to no previous or current control within this microsystem by any previous student group (C), lead to individuals reporting a broader selection of tools to choose from to aid in their recovery process (O) after one semester (T)?

<table>
<thead>
<tr>
<th>Literature Synthesis Table</th>
<th>Study Author(s)</th>
<th>Level of Evidence</th>
<th>Study Design</th>
<th>Sample</th>
<th>Outcome</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Simnot &amp; Rowis 2021)</td>
<td>Level V</td>
<td>Quantitative, Mixed method, case study</td>
<td>Seven participants</td>
<td>The results of the quantitative analysis suggest favorable outcomes for individuals in terms of their progress towards recovery goals, as six out of seven participants either met or exceeded their goals.</td>
<td></td>
</tr>
<tr>
<td>(Tu, 2022)</td>
<td>Level II</td>
<td>Meta-analysis of randomized controlled trials (RCTs)</td>
<td>19 articles, including RCTs and mental health assessments, met the inclusion eligibility criteria. The final meta-analysis included data from 18 of these eligible studies, with a total sample size that is not explicitly stated in the article</td>
<td>HT demonstrated a significant and positive influence on mental health compared to control groups, with a standardized mean difference of 0.55 observed in relation to the meta-analysis. The findings suggest that HT could be a practical approach to improving mental health. The reviewed studies did not report any adverse effects, and the most prevalent intervention involved at least eight sessions. In light of these results, the study recommends the consideration of HT as a potential method for enhancing mental health.</td>
<td></td>
</tr>
<tr>
<td>(Johnsen-Jenning et al., 2020)</td>
<td>Level IV</td>
<td>Community-based participatory research (CBPR) and cultural safety guidelines, which are grounded in traditional Indigenous knowledge (TEK).</td>
<td>20 adult Indigenous residents and 7 children</td>
<td>The study found that a community-based participatory research approach was effective in developing an Indigenous obesity prevention afterschool program that utilized gardening as a cultural and health intervention. The program had positive outcomes, with children reporting improved</td>
<td></td>
</tr>
<tr>
<td>(Jauk-Ajamie &amp; Blackwood, 2022)</td>
<td>Level V</td>
<td>The study design was a pilot gardening program in a residential community corrections-based facility (CBCF) for women, using qualitative methods.</td>
<td>The sample size was not specifically stated, but the program had an average of 15 women participating in the garden lessons every week, totaling 116 women in 2019, and 63 women participated in at least three gardening lessons. A total of 12 women participated in four gardening lessons in August 2020 when the garden operated for only one month due to the impact of COVID-19 and the related lockdown of the facility for most of 2020.</td>
<td>The results showed that women reported mental and physical benefits, such as therapeutic and de-stressing effects for better mental health, increased exercise, and improved understanding of the role of nutritious food in overall health. The study concluded that gardening provides low-cost programming that contributes to better health outcomes and empowerment and holds the potential to create a space of agency.</td>
<td></td>
</tr>
<tr>
<td>(Brown et al., 2021)</td>
<td>Level I</td>
<td>The study design is a mixed-methods approach that allows for both qualitative and quantitative data collection and analysis.</td>
<td>A sample size of 25 men</td>
<td>The study found that the Master Gardener program provided a supportive environment that promotes mental and physical well-being, community building, and opportunities for learning for substance misusing men in prison. The program also emphasized the importance of interpersonal relationships and context in achieving positive outcomes, highlighting the need for a person-centered approach to substance misuse treatment.</td>
<td></td>
</tr>
<tr>
<td>(Missen et al., 2021)</td>
<td>Level II &amp; III</td>
<td>A parallel mixed-method design utilized both qualitative and quantitative data to explore participants' perceptions of the TDR program that included therapeutic gardening.</td>
<td>The sample size for the study included 14 participants who were interviewed using qualitative individual, semi-structured interviews and 17 participants who completed longitudinal quantitative quality of life (QOL) data at three different intervals.</td>
<td>The study's results showed that the TDR program that included therapeutic gardening could improve participants' physical health, psychological health, and social relationships. Specifically, the analysis of the quantitative data revealed a statistically significant increase in participants' QOL scores in three of four domains (physical health, psychological, and social relationships) when comparing baseline and post-completion of the TDR program.</td>
<td></td>
</tr>
<tr>
<td>(Lehmann et al., 2018)</td>
<td>Level VI</td>
<td>Retrospective study</td>
<td>The sample size is 56 veterans</td>
<td>The study results suggest that the veterans who participated in the horticultural therapy program had positive experiences and reported feeling calm, serene, and refreshed. 40% of clients in the TH group perceived relaxation. Clients in the TH group who preferred specific horticultural tasks and attended activities more days/week reported decreased loneliness and increased happiness.</td>
<td></td>
</tr>
<tr>
<td>(Mourão et al., 2021)</td>
<td>Level III</td>
<td>The study design was descriptive, observational and cross-sectional.</td>
<td>The study included 40 clients who were institutionalized, with 25 clients attending therapeutic horticulture (TH) among other occupational therapies (OTs), and 15 clients attending OT other than TH.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## Appendix B

### SWOT Analysis

<table>
<thead>
<tr>
<th><strong>Strengths</strong></th>
<th><strong>Weaknesses</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>o Gardening experience amongst clients and students</td>
<td>o High startup cost</td>
</tr>
<tr>
<td>o Support from program directors</td>
<td>o Lack of budget</td>
</tr>
<tr>
<td>o Low maintenance costs</td>
<td>o Tight schedule amongst clients</td>
</tr>
<tr>
<td>o Minimal barriers in the design process</td>
<td>o Language barriers</td>
</tr>
<tr>
<td></td>
<td>o Difficult to procure certain materials</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Opportunities</strong></th>
<th><strong>Threats</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>o Large yard space with fertile environment</td>
<td>o Wildlife</td>
</tr>
<tr>
<td>o Previous interest in gardening from clients</td>
<td>o Lack of engagement/ sustainability plan to ensure project continues</td>
</tr>
<tr>
<td>o Increase in patient centered care</td>
<td>o High turnover rate in clients</td>
</tr>
<tr>
<td>o Raising awareness in gardening therapy</td>
<td>o Fundraising and budgetary limits</td>
</tr>
</tbody>
</table>
# Appendix C

## GANTT Chart

<table>
<thead>
<tr>
<th>Tasks</th>
<th>January</th>
<th>February</th>
<th>March</th>
<th>April</th>
<th>May</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conveyancing project</td>
<td>week 1</td>
<td>week 2</td>
<td>week 3</td>
<td>week 4</td>
<td>week 5</td>
</tr>
<tr>
<td>Participation in morning Group</td>
<td>week 6</td>
<td>week 7</td>
<td>week 8</td>
<td>week 9</td>
<td>week 10</td>
</tr>
<tr>
<td>Planning of garden specifics</td>
<td>week 11</td>
<td>week 12</td>
<td>week 13</td>
<td>week 14</td>
<td>week 15</td>
</tr>
<tr>
<td>Research re: use of gardening in therapy</td>
<td>week 1</td>
<td>week 2</td>
<td>week 3</td>
<td>week 4</td>
<td>week 5</td>
</tr>
<tr>
<td>Fundraising via GoFundMe</td>
<td>week 6</td>
<td>week 7</td>
<td>week 8</td>
<td>week 9</td>
<td>week 10</td>
</tr>
<tr>
<td>Contacting relevant local/community orgs</td>
<td>week 11</td>
<td>week 12</td>
<td>week 13</td>
<td>week 14</td>
<td>week 15</td>
</tr>
<tr>
<td>Client education re: diet, exercise, therapeutic gardening</td>
<td>week 1</td>
<td>week 2</td>
<td>week 3</td>
<td>week 4</td>
<td>week 5</td>
</tr>
<tr>
<td>Purchase construction materials</td>
<td>week 6</td>
<td>week 7</td>
<td>week 8</td>
<td>week 9</td>
<td>week 10</td>
</tr>
<tr>
<td>Dedication ceremony</td>
<td>week 11</td>
<td>week 12</td>
<td>week 13</td>
<td>week 14</td>
<td>week 15</td>
</tr>
<tr>
<td>Garden Construction Process</td>
<td>week 1</td>
<td>week 2</td>
<td>week 3</td>
<td>week 4</td>
<td>week 5</td>
</tr>
<tr>
<td>Turn soil</td>
<td>week 6</td>
<td>week 7</td>
<td>week 8</td>
<td>week 9</td>
<td>week 10</td>
</tr>
<tr>
<td>Lay out minimum space</td>
<td>week 11</td>
<td>week 12</td>
<td>week 13</td>
<td>week 14</td>
<td>week 15</td>
</tr>
<tr>
<td>Dig post holes</td>
<td>week 1</td>
<td>week 2</td>
<td>week 3</td>
<td>week 4</td>
<td>week 5</td>
</tr>
<tr>
<td>Construct planter beds</td>
<td>week 6</td>
<td>week 7</td>
<td>week 8</td>
<td>week 9</td>
<td>week 10</td>
</tr>
<tr>
<td>Erect &amp; cement pots</td>
<td>week 11</td>
<td>week 12</td>
<td>week 13</td>
<td>week 14</td>
<td>week 15</td>
</tr>
<tr>
<td>Procure hard land cover</td>
<td>week 1</td>
<td>week 2</td>
<td>week 3</td>
<td>week 4</td>
<td>week 5</td>
</tr>
<tr>
<td>Construct greenhouse section</td>
<td>week 6</td>
<td>week 7</td>
<td>week 8</td>
<td>week 9</td>
<td>week 10</td>
</tr>
<tr>
<td>Make doors</td>
<td>week 11</td>
<td>week 12</td>
<td>week 13</td>
<td>week 14</td>
<td>week 15</td>
</tr>
<tr>
<td>Fill wood beds</td>
<td>week 1</td>
<td>week 2</td>
<td>week 3</td>
<td>week 4</td>
<td>week 5</td>
</tr>
<tr>
<td>Spread wood chips</td>
<td>week 6</td>
<td>week 7</td>
<td>week 8</td>
<td>week 9</td>
<td>week 10</td>
</tr>
<tr>
<td>Plant seedlings</td>
<td>week 11</td>
<td>week 12</td>
<td>week 13</td>
<td>week 14</td>
<td>week 15</td>
</tr>
</tbody>
</table>
Welcome, and thank you for checking out our GoFundMe page!
We are a group of Master’s Nursing students at the University of San Francisco working on our final Quality Improvement project. As graduate students interested in mental health, we are working on a holistic intervention plan with patients recovering from substance abuse and congruent mental health disorders. Within this capacity, we will be focusing on holding educational groups and helping residents to build a community garden at a residential treatment facility in San Jose. The intended goal for the project is to create something impactful and lasting and, ultimately, to cultivate healing. Individuals who suffer from substance use disorder (SUD) go through debilitating experiences and feel a profound loss of control, independence, and purpose. We believe that by educating and empowering this population through therapeutic gardening, harvesting, and preparing healthy meals, we can help create an environment that fosters independence, encourages healthy coping tools, promotes community, and strengthens resiliency. The experience will create a space to allow these individuals to reconnect with nature, revitalize their minds to eradicate negative thoughts or stressors, and improve their concentration. This project will enable the kitchen staff to cook with organic local produce for the residents benefitting both their physical and emotional health. Please join our mission to build a community garden and help us positively impact their lives (and the lives of future residents) by donating today. Your generous donations will fund the supplies essential for the project. This includes but is not limited to lumber (for planter boxes), soil, compost materials, labor costs, seedlings, planting tools, and protective netting.
## Appendix E

### Materials and Budget List

<table>
<thead>
<tr>
<th>Item</th>
<th>Quantity</th>
<th>Estimated Cost (per unit)</th>
<th>Total Cost (B x C)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Boxes (4x8ft) 3 of them</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2&quot;x12&quot;x12 boards</td>
<td>10</td>
<td>$23.75</td>
<td>$237.50</td>
</tr>
<tr>
<td><strong>Enclosure (20&quot;x24&quot;x8&quot;)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4&quot;x4&quot;x10'</td>
<td>18</td>
<td>$14.97</td>
<td>$269.46</td>
</tr>
<tr>
<td>2&quot;x4&quot;x10'</td>
<td>4</td>
<td>$4.22</td>
<td>$16.88</td>
</tr>
<tr>
<td>2&quot;x4&quot;x8'</td>
<td>6</td>
<td>$2.98</td>
<td>$17.88</td>
</tr>
<tr>
<td>Furring Strips</td>
<td>24</td>
<td>$2.39</td>
<td>$57.36</td>
</tr>
<tr>
<td>Cement</td>
<td>16</td>
<td>$4.23</td>
<td>$67.68</td>
</tr>
<tr>
<td>Hinges</td>
<td>4</td>
<td>$4.84</td>
<td>$19.36</td>
</tr>
<tr>
<td>Door handle</td>
<td>2</td>
<td>$14.73</td>
<td>$29.46</td>
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<tr>
<td>Latch</td>
<td>2</td>
<td>$3.98</td>
<td>$3.98</td>
</tr>
<tr>
<td>Brackets</td>
<td>28</td>
<td>$1.18</td>
<td>$33.04</td>
</tr>
<tr>
<td>weed barrier</td>
<td>2</td>
<td>$36.98</td>
<td>$73.96</td>
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<tr>
<td>screws</td>
<td>1</td>
<td>$35.99</td>
<td>$35.99</td>
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<tr>
<td>Polycarbonate panels for Greenhouse</td>
<td>16</td>
<td>$18.98</td>
<td>$303.68</td>
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<tr>
<td>Chicken Wire (4&quot;x100&quot;)</td>
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<td>$124.99</td>
<td>$124.99</td>
</tr>
<tr>
<td>Bird Netting</td>
<td>1</td>
<td>$25.99</td>
<td>$25.99</td>
</tr>
</tbody>
</table>

**Total**                                                                 |          |                           | $1,351.21            |

**with tax (conservative 10%)**                                        |          |                           | $1,486.35            |

<table>
<thead>
<tr>
<th>Where/Items</th>
<th>Cost</th>
<th>Total Remaining</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Available</td>
<td>2,051</td>
<td></td>
</tr>
<tr>
<td>Gloves</td>
<td>$15.19</td>
<td>2,036</td>
</tr>
<tr>
<td>Lowe's (Lumber)</td>
<td>310.73</td>
<td>$1,725.58</td>
</tr>
<tr>
<td>Home Depot (Lumber +</td>
<td>852.62</td>
<td>$872.96</td>
</tr>
<tr>
<td>Polycarbonate)</td>
<td>852.62</td>
<td>$872.96</td>
</tr>
<tr>
<td>Fairfax Lumber</td>
<td>$172.62</td>
<td>$700.34</td>
</tr>
<tr>
<td>Lowe's (wire, door mats,</td>
<td>$231.16</td>
<td>$469.18</td>
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<tr>
<td>brackets)</td>
<td>896.04</td>
<td>$373.14</td>
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<tr>
<td>Home Depot</td>
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<td>Plants from HD</td>
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<tr>
<td>Amazon (Bird Netting)</td>
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<tr>
<td>Gas Reimbursement for</td>
<td>$15.00</td>
<td>$15.00</td>
</tr>
<tr>
<td>Pickup Truck</td>
<td>75.00</td>
<td>$15.00</td>
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<tr>
<td>Screws for polycarbonate</td>
<td>$14.22</td>
<td>$0.84</td>
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</table>
Appendix F

Proposed Map of the Garden
Appendix G

Before Picture of The Garden Space Part 1
Appendix H:

Pictures of the Garden Process Part 2
Appendix I

Pictures Taken After The Project Was Completed Part 3
Appendix J

Interim Surveys

5 Quick Questions

1. Has your mood changed/improved after gardening?

1  2  3  4  5
Totally Disagree  Partially Agree  Totally Agree

2. On a scale of 1 to 5, how much do you agree with this phrase: "I feel inspired to get outside in the garden."

1  2  3  4  5
Totally Disagree  Partially Agree  Totally Agree

3. Can you see yourself using gardening as a tool to aid in your recovery process?

1  2  3  4  5
Totally Disagree  Partially Agree  Totally Agree

4. On a scale of 1 to 5, how much do you agree with this phrase: “Being outside in the garden makes it easier to cope with my cravings.”

1  2  3  4  5
Totally Disagree  Partially Agree  Totally Agree

5. On a scale of 1 to 5, how much do you agree with the following statement: "I learned something new today."

1  2  3  4  5
Totally Disagree  Partially Agree  Totally Agree
# Appendix K

## Interim Surveys & Results

Combined Surveys Results: 03/24/2023, 04/07/2023, & 04/25/2023

### Question 1. Has your mood changed/improved after gardening?

<table>
<thead>
<tr>
<th></th>
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</thead>
<tbody>
<tr>
<td>4.00%</td>
<td>4.00%</td>
<td>32.65%</td>
<td>14.28%</td>
<td>44.90%</td>
</tr>
</tbody>
</table>

55.18%

### Question 2. On a scale of 1-5, how much do you agree with this phrase: "I feel inspired to get outside in the garden."

<table>
<thead>
<tr>
<th></th>
<th></th>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>10.20%</td>
<td>10.20%</td>
<td>22.45%</td>
<td>22.45%</td>
<td>34.09%</td>
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</tbody>
</table>

57.14%

### Question 3. Can you see yourself using gardening as a tool to aid in your recovery process?

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<thead>
<tr>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>10.20%</td>
<td>12.24%</td>
<td>22.45%</td>
<td>16.33%</td>
<td>38.76%</td>
</tr>
</tbody>
</table>

55.18%

### Question 4. On a scale of 1-5, how much do you agree with this phrase: "Being outside in the garden makes it easier to cope with my cravings."

<table>
<thead>
<tr>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>8.16%</td>
<td>12.24%</td>
<td>28.57%</td>
<td>16.33%</td>
<td>36.73%</td>
</tr>
</tbody>
</table>

56.73%

### Question 5. On the scale of 1-5, how much do you agree with the following statement: "I learned something new today."

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>12.24%</td>
<td>4.00%</td>
<td>14.39%</td>
<td>14.39%</td>
<td>53.00%</td>
</tr>
</tbody>
</table>

67.35%
Appendix L

Exit Survey & Results

**EXIT SURVEY (AM/2023)**

How much do you agree with the following statements?

1. Do I feel less stressed after spending time in the garden or just being outside?
   - 1. Totally disagree
   - 2. Somewhat disagree
   - 3. No opinion
   - 4. Somewhat agree
   - 5. Totally agree
   - 0
   - 2
   - 3
   - 4
   - 5

2. I have begun to think more about what I eat and cook as a result of the gardening project.
   - 1. Totally disagree
   - 2. Somewhat disagree
   - 3. No opinion
   - 4. Somewhat agree
   - 5. Totally agree
   - 1
   - 2
   - 3
   - 4
   - 5

3. I would be interested in learning more about diet and nutrition?
   - 1. Totally disagree
   - 2. Somewhat disagree
   - 3. No opinion
   - 4. Somewhat agree
   - 5. Totally agree
   - 2
   - 0
   - 3
   - 4
   - 5

4. I have an improved sense of wellbeing after being at MW during the gardening project implementation (examples can include decreased stress, increased happiness, decreased cravings, increased mindfulness).
   - 1. Totally disagree
   - 2. Somewhat disagree
   - 3. No opinion
   - 4. Somewhat agree
   - 5. Totally agree
   - 0
   - 2
   - 3
   - 4
   - 5

5. I have an improved sense of wellbeing after being at MW during the gardening project implementation (examples can include decreased stress, increased happiness, decreased cravings, increased mindfulness).
   - 1. Totally disagree
   - 2. Somewhat disagree
   - 3. No opinion
   - 4. Somewhat agree
   - 5. Totally agree
   - 0
   - 2
   - 3
   - 4
   - 5

**OPEN-ENDED QUESTIONS**

After working on the garden project, some residents were inspired to build outdoor furniture. Are there any other similar nature/projects you would like to see happen in the future?

Do you think if implementing your own garden more displaced would have a positive impact on your lifestyle? Why or Why not?

Where do you see the most improvements in the gardening project? (Examples could include projects that involve the house like the more outdoor seating, more planter boxes, etc.)

Do you have any additional comments?