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Therapeutic Gardening For Addiction Recovery

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Therapeutic Gardening For Addiction Recovery

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NURS 653: Quality Improvement Internship

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Abstract:

Problem: The use of evidence-based alternative forms of therapy like horticulture therapy and therapeutic gardening is underutilized in substance use recovery programs in the United States. As the country continues to struggle with addiction, it is important that recovery programs look to and incorporate these alternative therapies into official curricula. Currently, 46.3 million individuals living in the United States are living with a substance use disorder (U.S Department of Health and Human Services' Substance Abuse and Mental Health Services Administration, 2022).

Context: The intervention was implemented at an all-male substance use treatment facility in San Jose, CA that houses up to thirty-two participants at any given time. Participants typically have some sort of history with the criminal justice system and are often ordered into treatment at this facility, although participation is completely voluntary.

Interventions: After conducting a review of research, it was found that gardening has had beneficial and therapeutic effects on at-risk populations including veterans, the incarcerated, those living with mental health illnesses, and those living with substance use disorders (SUD). The intervention consisted of a therapeutic gardening project at a substance use recovery center in San Jose, California.

Measures: Measures for this project are qualitative in nature and were captured via interviews and surveys developed and provided by the University of San Francisco nursing students implementing the project.

Results: Many of the participants that were engaged in the gardening integration at this in-patient substance use treatment center reported that they enjoyed the experience and felt that it

positively benefited them; this was obtained through surveys, interviews, and ethnographic observations from the University of San Francisco (USF) students.

Conclusions: Results from this project fall in line with current research regarding the use of therapeutic gardening and support the use of this intervention in substance use disorder programming.

Section II: Introduction

This topic and project began with discussions led by students in the University of San Francisco Master's Entry of Science in Nursing program, cohort 32, and is the first of its kind. A student reached out to her cohort to inquire about interest for a final quality improvement project that focused on the mental health and psychiatric aspects of nursing care. Once it was determined that there was enough interest and support in this type of project, it was taken to the program administration and eventually approved once a site and instructor were identified. Reasons for interest in this project range from a desire to become a psychiatric nurse to wanting to engage in a project that takes place in a non-traditional clinical setting like hospitals, where most of the quality improvement projects offered have historically taken place.

The substance abuse treatment program at site X is a voluntary residential program located in San Jose, California that incorporates an Integrated Dual Disorder Treatment (IDDT) curriculum in addition to Medication Assisted Treatment and relapse prevention, which includes counseling, group meetings, and psychoeducation. This program seeks to help treat men 18 and older that have recently been impacted by the justice system, reside in Santa Clara County, and are actively suffering from a SUD. The facility contains 30 beds, two detox beds, and houses the participants in dormitory style rooms. The length of stay varies but it is typically 45 days or more depending on the severity of the individual's SUD, the participant's input, staff input, and what the legal system orders appropriate (see appendix A for detailed program information).

Problem Description:

According to a 2020 National Survey on Drug Use and Health (NSDUH) that was conducted by the U.S Department of Health and Human Services' Substance Abuse and Mental

Health Services Administration (SAMHSA), 40.3 million Americans over the age of 12 suffered from a substance use disorder (SUD). In 2021, this same survey captured an increase to 46.3 million individuals older than 12, or 16.5 percent of the US population, that suffered from a SUD. Of those individuals who suffer from a SUD and go through a treatment program, 40 to 60 percent of participants will relapse after completion of the program (U.S. Department of Health and Human Services, 2023). It has also been found that among those who will relapse, 85% of the relapse events will occur within the first year of treatment completion (Brandon et al., 2007). It's imperative that substance use treatment programs, which seek to treat substance use disorders, help identify and equip their patients with as many healthy coping skills as possible before discharging them. These skills will play crucial roles in reducing relapse in the first year and building resilience for the lifelong journey encompassing sobriety.

A meta-analysis conducted by Rajita Sinha (2011) reveals that there are correlations between specific biological factors that heavily influence and serve as predictors for a relapse event among those suffering a substance use disorder. Among these biological factors, the meta-analysis finds that SUD patients in treatment with high adrenocorticotrophic (ACTH) hormone and cortisol ratios are twice as likely to relapse in comparison to those with lower levels of these hormones. ACTH is a hormone that controls the release of cortisol, a hormone produced in the adrenal glands that plays a significant role in the body's stress response among other key functions. Consistent higher levels of ACTH and cortisol indicate that the body is in a chronic state of stress and higher levels of stress then lead to patients relapsing. These studies indicate that in order to successfully treat patients with SUD, it is important that recovery programs utilize methods to foster healthy coping skills that reduce stress and anxiety, which lowers ACTH and cortisol levels, and will ultimately reduce risk of relapse.

While traditional evidence-based methods like cognitive behavioral therapy and medication assisted treatments have been shown to work in many cases, it's important that SUD recovery programs continue to incorporate alternative evidence-based interventions that help develop healthy coping skills and build resilience. The goal of this quality improvement project is to introduce a new therapeutic method, gardening, that assists participants at the facility to develop and/or identify new coping skills through participation of a gardening program facilitated by USF nursing students. Coping skills are defined as “any behavioral patterns or characteristics that enhance your ability to adapt” (Gateway Foundation, 2023). These skills help to balance and manage behaviors, thoughts, and emotions while encountering stressful situations or triggers. Because substance use recovery is a lifelong journey, it is essential that SUD treatment programs focus not only on treating the current issues that participants are facing with substance use and mental health crisis but should also focus on assisting participants in developing long-term coping mechanisms and strengthen participant’s abilities to adapt healthily to challenging circumstances.

As the country continues to grapple with solutions to address the increasing rates of addiction amongst the population, nurses, specifically Clinical Nurse Leaders (CNLs), can take on roles as change agents and advocates by implementing alternative solutions that are based in evidence but currently not being utilized in mainstream substance use disorder treatment programs and curriculums, in this case, therapeutic gardening. The substance use treatment program is in a unique position to incorporate non-traditional forms of therapeutic interventions like gardening into their program curriculum that can positively benefit participants on their journey to recovery. The program site is located atop the foothills of South San Jose and has a large backyard that was not being used prior to the group of nursing students implementing the

gardening project. The yard is flat and spacious but has been otherwise unkempt and underutilized by the facility and its participants. While participants are offered the opportunity to hike in the surrounding area on weekends, there are no other outdoor activities built into the official program.

Available Knowledge, PICO, and Literature Review:

The PICO question developed to assist with the search for evidence on the therapeutic effects of gardening interventions asks the following: In adult males with a history of substance use disorder (P), what are the therapeutic effects (O) of gardening (I) on the recovery process compared to no intervention (C)? While no direct studies on the therapeutic effects of gardening on SUD patients in treatment in the United States exist, several studies conducted in other countries and clinical settings involving at-risk populations have shown promising results. The databases primarily utilized to search for research and evidence supporting gardening as therapeutic treatment were CINAHL, PubMed, and Scopus. These databases are all provided by the University of San Francisco's Gleeson Library. The terms used to locate research articles included: garden*, therapy*, addiction, recovery, substance use, cope, and coping. The asterisk is used in boolean search criteria to pick up any variation of the word and help broaden the initial search. The number of articles found through these searches is six, and the Johns Hopkins Evidence-Based Practice for Nurses and Healthcare Professionals was used to evaluate evidence level.

The first research article found that is being utilized in support of this intervention is an appraised level III study, which includes both qualitative and quantitative measures. The objective of this study was to examine the viewpoints of individuals who are in a substance use

recovery program and are participating in a therapeutic gardening intervention. The study included twenty-five participants who completed the six-week intervention at an outpatient rural therapeutic outpatient day program in Australia; seventeen of the twenty-five identified individuals chose to follow through, took part of the study, and had their results examined and formally included. Participants involved in the therapeutic day rehab program in combination with therapeutic gardening were found to have statistically increased their general wellbeing in three of the four WHOQOL domains (Missen et al., 2021). Qualitative results showed that participants had a greater understanding of the recovery process, gave them greater purpose, and decreased social isolation (Missen et al., 2021).

A second article in support of this intervention looked at the effects of allotment gardening on mood and self-esteem and compared the mental well-being of non-gardeners and allotment gardeners in the United Kingdom. This level II quasi-experimental design compared two groups and utilizes several scales to measure quantitative data related to the effects of gardening on mood, self-esteem, and mental health. Two hundred and sixty-nine participants aged forty-two to sixty-nine were selected and consisted of one hundred and fifty-two males and one hundred and seventeen females. Of the individuals selected, one hundred and thirty-six were experienced allotment gardeners and one hundred and thirty-three were non-gardeners. Allotment garden sites were in the Greater Manchester area (South and West). Results displayed significant increases in self-esteem ratings when comparing pre- and post-allotment sessions, indicating improvement after gardening (Wood et al., 2015). Results also showed major reductions in depression, anxiety, and confusion in addition to enhancing overall mood (Wood et al., 2015). Additionally, results revealed that participating in one gardening session of 30 minutes

yields similar benefits when compared to those who garden regularly, indicating lasting beneficial effects (Wood et al., 2015).

A study in Ireland investigated the effects of gardening at an adult mental health community recovery center also showed promising results. The objective of this study was to evaluate the impact of an eight-week woodwork and gardening group program on participant's recovery goals in an adult mental health community environment. The design of this study used a quasi-experimental mixed methods approach, utilizing quantitative and qualitative data but had no control group, and is rated a level II in evidence. This study included seven participants that were in a recovery program in Ireland at the Community Mental Health Center on their outdoor area grounds during July and August 2020. Quantitative results show that being involved in a gardening project has a positive impact on goals attained: twelve out of the fifteen goals set by the participants have been achieved through participating in the gardening program (Sinnott & Rowlls, 2021). Qualitative data also indicated that all individuals felt that gardening positively influenced their outcomes/achievements (Sinnott & Rowlls, 2021). Upon finishing the gardening program, all participants indicated an interest in taking part in a similar gardening interventions in the future.

A meta-analysis conducted by Hung-Ming Tu exploring effects of horticultural therapy on mental health also confirms the value of gardening as a mode of therapy and recovery in mental health settings. This meta-analysis used a strict criterion and only included randomized control trials involving horticultural therapy and gardening in mental health environments. During the meta-analysis, a total of one thousand and fifty-six documents were reviewed and eighteen studies were employed for the analysis. All studies that have been included in the

investigation were scrutinized to ensure that they had no heterogeneity or bias. The meta-analysis concluded that horticulture therapy has a significant positive therapeutic effect on mental health and should be considered as a legitimate intervention for individuals suffering from mental health illnesses (Tu, 2022).

The fifth article included in this literature review sought to explore the effects of a therapeutic garden program on incarcerated women's mental and physical well-being in addition to the effects that gardening has on food access in this carceral environment. This study used an exploratory evaluative approach of the garden program using qualitative methods and included focus groups, ethnographic observations, participant's anonymously written reflections, and interviews. The study includes a total of one hundred and sixteen women, sixty-three of whom participate in at least three gardening lessons, and included community members and staff working directly with the participants in the garden. Qualitative results from this study yielded promising results, indicating that the presence of a therapeutic gardening program provides benefits to incarcerated women including stress relief, relaxation, healthy coping skills, increased self-esteem, socialization opportunities, food/nutrition awareness, and physical activity (Jauk-Ajamie & Blackwood, 2022).

Lastly, a study looking at how community gardening can change the subjective well-being and feelings of social connectedness in people living with mental health issues has been included in this literature review in support of the USF therapeutic gardening intervention quality improvement project. This study utilized qualitative measures including observations of participants by Master of Occupational Therapy (MOT) student researchers, recording of gardening activities/interactions, participant interviews, focus groups, and the use of

WHOQOLBREF, a quality-of-life scale developed by the World Health Organization. This study spans a three-year qualitative period that involved 23 adult participants living with serious mental illness or addiction in a supportive housing environment for a minimum of one growing season including ten of those individuals involved in gardening for all three years. The location of the gardens included two vacant lots at a supportive housing site and a resource center that served the population in the study. Qualitative results indicated that community gardening programs foster feelings of well-being, provide opportunities for socialization, foster collaboration, create a sense of belonging, and cultivate positive feelings through the act of gardening (Suto et al., 2021).

Although most studies cited above do not directly address therapeutic gardening in substance use recovery programs in the United States, they do address other key aspects directly related to the population at this substance use treatment program. Many of the individuals in the current group of participants at this substance use treatment program consist of individuals that come from minority groups, have co-occurring mental health issues, undergone trauma, and have been affected by the judicial system. Additionally, a majority of the studies included in this literature review also report a growing awareness in food and nutrition, which has also been presented as a coping skill during on-site activities, and included as a them in a group session led by the USF students. Eating healthy has been found to boost physical and mental wellbeing, which in turn positively contributes to resilience and an individual's ability to cope with stress in healthy ways.

Rationale:

The change theory chosen to guide the process and implementation of this quality improvement project is Kurt Lewin's theory of change. This theory of change involves three phases: unfreezing, moving, and refreezing (Mitchell, 2013). The first phase, unfreezing, involves recognizing an issue or a need for improvement in the microsystem. Once the problem or need for improvement is identified, it becomes the driving force to enact an intervention or make change and improve outcomes (Nursing Theory, 2020). Once enough of this force builds up, the unfreezing phase begins by readying stakeholders to let go of old ways and patterns in order to make room for the new change or intervention. The middle phase, moving, involves introducing and acting on the new thought, process, or intervention proposed which seeks to improve upon current processes or outcomes, the status quo (Mitchell, 2013). Once the change has been implemented, the refreezing phase occurs. During this phase, the intervention becomes the new normal and acts as the standard moving forward. The refreezing phase is essential in ensuring that the change becomes permanent and most importantly for this project, sustainable.

The unfreezing phase of this quality improvement project began with interviewing participants and consulting staff. It was determined through interviewing participants that they wanted more opportunities to get active, be outdoors, socialize and stay busy; boredom outside of recovery programming was a major topic that was brought up. The use of the backyard was identified by staff as an ideal space to implement the gardening project.

The moving phase began with the planning of the project and included fundraising and solicitation of private citizens and other non-profits in the area for guidance and resources. A GoFundMe was created to help raise the funds necessary for the garden enclosure and other

materials were obtained through donations (Please see Appendix B for GoFundMe page screenshots). It was discovered that the garden would need to be turkey and gopher proofed through a needs assessment. The plants that were included in the garden were also chosen based off the need of the site, which was to incorporate the food being grown in the garden into the food being cooked for the participants in the facility's kitchen. Finally, the moving phase ended with the physical completion of the gardening structure. The garden was built by the participants themselves, with help and guidance from the USF nursing students.

The refreezing phase is currently in process and will rely heavily on the facility staff and participants to ensure the garden's sustainability moving forward. The USF students worked closely to develop a sustainability plan that was presented to the facility administration on Friday May fifth, 2023. The sustainability plan included the stages of development mentioned above and covered several areas concerning the future. Including immediate needs such as watering, pruning, and feeding the garden, and expanded to the long-term needs of the garden including crop rotations, assessment of the garden for maintenance, and most importantly, the integration of gardening into official program curriculum. The sustainability plan was developed to ensure that future USF cohorts involved in this project know where to focus their efforts to help continue developing and improving this intervention. Additionally, a poster was developed titled "Daily Garden Checklist" that is to be placed throughout the facility to ensure that the garden is maintained by participants. Please see Appendix C for a detailed breakdown of the sustainability plan and Appendix D for the poster.

Project Aim Statement:

The aim of this project is to empower patients with coping strategies to help aid in the recovery process through therapeutic gardening. The process begins with a needs-assessment of the participant's current coping skills. The process ends by reporting from participants that they have identified healthy coping skills associated with their gardening experiences and will implement these coping strategies upon graduating from the program. By implementing this process, USF students hope to instill healthy coping skills, increase health knowledge, strengthen resilience, and ultimately reduce the risk of a participant relapsing.

Section III: Methods

Due to the unique nature of this project, a traditional microsystems assessment was not applied for this intervention. The purpose of this microsystem has always been to aid in the recovery process of those suffering from a substance use disorder. This goal was already being met through traditional modes of treatment. Our intervention sought to augment and provide additional methods to further empower participants on their journey to sobriety and stability. Measuring the success of a substance use treatment program presents many specific challenges, as the action of lapsing after treatment does not necessarily mean a total relapse or indicate that the program has failed the individual. What matters in this scenario is that if or when these lapse events occur, the individual has healthy coping skills readily available to help them get back on track to sobriety and avoid a total relapse.

Substance use disorder and addiction are complex behavioral diseases that cannot be addressed by a one-size-fits-all approach like other chronic conventional diseases like hypertension, diabetes, or hyperlipidemia. Instead, the USF students placed their focus on developing a budget for the garden that addressed all aspects in the construction of the garden and creating a Gantt chart to ensure that the project was built in a timely manner before the end of the semester (Please see appendix E and F for the budget plan and Gantt chart). There was no organizational financial risk by implementing this project, as USF students were responsible for raising funds and acquiring resources for the construction of the garden. Upon completion of the physical completion of the structure, the group then focused on creating an informational poster for the site to post around the facility to ensure proper daily care is maintained, and also

developed and presented a sustainability plan to facility administration to ensure actions are taken in the future that will sustain the garden project moving forward.

A Strengths Weaknesses Opportunities and Threats (SWOT) analysis was conducted during the planning stage of this project to help guide, organize, and anticipate challenges prior to the implementation of the gardening project. Strengths identified in the analysis included gaining gardening experience for both participants and USF students, administrative support from the facility, low maintenance costs once construction was completed, providing an alternative evidence-based therapeutic intervention, creative freedom during the designing and planning process, and open-minded program staff and participants. Weaknesses associated with this project included high start-up costs, lack of financial support capabilities from the facility, no prior maintenance of the garden space, time constraints, lack of cohesive attendance among all clients, and cumbersome process for obtaining costly yet essential materials for the garden including soil, rocks, and wood chips.

Opportunities identified in the SWOT analysis included a large space with a fertile environment, large amounts of rain, opportunities to educate participants, eagerness from participants to engage in gardening, previous identified interest in gardening among participants, bringing awareness to therapeutic benefits of gardening to participants and staff, the expansion of patient centered care, and an opportunity to improve on quality of care at the facility and increase patient satisfaction. Threats to this project are ongoing and include wildlife, high turnover of participants in the program, reduced satisfaction by both staff and participants, reduced quality of care, lack of engagement, and overall noncompliance once the USF students finish the semester

and are no longer present on site. These threats are all elements that should be continually addressed and assessed to ensure the project's sustainability moving forward.

Ethical Considerations

The four main principles of ethics in nursing include: autonomy, beneficence, justice, and non-maleficence (Haddad & Geiger, 2022). All four of these principles helped inform and guide the planning and implementation of this project. Autonomy refers to each patient having their agency respected. They should be able to make their own decisions, have their beliefs honored, and have their right to refuse be respected (Haddad & Geiger, 2022). All participants were highly encouraged to participate in gardening but were not penalized if they chose to do something else during that time. The USF students also included opportunities for participants to provide suggestions around garden structures and input on what the future of the garden should be during interviews. Beneficence refers to the concept of avoiding maltreatment of participants and promoting good (Haddad & Geiger, 2022). The very nature of this project was to promote good by introducing an alternative evidence-based therapeutic intervention that assists participants in identifying healthy coping skills, building resilience, and ultimately helping reduce the risk of lapsing and relapsing.

Intervention

The concept of justice refers to approaching the nursing role in a way that treats all participants with fairness and equality (Haddad & Geiger, 2022). USF students came to this facility knowing that each participant came with their own complex history. The goal of this project was to meet participants where they were and approach them with a non-judgmental attitude. It was acknowledged from the start that not everyone at the facility has had the privilege

or space to be able to garden, so students made sure to include pertinent information that all participants could understand and use when participating in the garden project. Lastly, the concept of non-maleficence is defined as doing no harm (Haddad & Geiger, 2022). This concept was addressed via promotion of safety awareness by making sure that participants knew where to store tools when not being used, were always conscious of their surroundings, and knew proper mechanics when handling the garden tools.

This project began with the development of a budget to help estimate how much money would be needed to build the garden enclosure. The budget that was created for this project included the cost of gardening gloves for all participants, lumber, gas reimbursement for materials picked up by students, wiring for the fence, door mats to reduce tracking mud indoors, brackets for the fences, plants, bird netting, screws, and polycarbonate panels for the greenhouse built to house seedlings (Please see Appendix C for a detailed budget breakdown). Additionally, students living in San Mateo County made several trips to the Recology center to pick up free compost, which is offered to residents free of charge, and transported it to the garden to reduce material costs. The process of getting woodchips for the garden was lengthy and required multiple attempts by multiple students in the group to coordinate a drop-off of the free wood chips. The group researched the cost of purchasing wood chips, but the amount was not feasible for this project. Students had to reach out to several arborist companies, inquire about what types of wood chips were available, and make sure that staff were present during the drop-off, as the drop-off schedule was sporadic and depended on the work orders for that specific week and day.

Once the budget was created, the group started a GoFundMe page and shared it across all of their social media platforms. The group ended up raising two-thousand one-hundred and

twenty-five dollars through GoFundMe from a total of forty donors. Orders for the materials were created and coordinated so that USF students were present upon delivery, which sometimes required them to get there well before programming began. The actual building of the garden began with two sessions of weeding and tilling the soil, as the backyard was taken over by weeds and tall grasses. Once the weeding and tilling was completed, sessions three through five consisted of digging post holes that were to support the fencing of the enclosure.

Sessions six to eight consisted of constructing planter beds in addition to erecting and cementing posts. The group was fortunate enough to host a contractor who volunteered his day to assist in the construction of the planter boxes and placement of the posts. It's important to acknowledge that the construction of the garden was interrupted by atypical rain patterns that affected the California region throughout the month of March; the project was completed on time despite these delays. Sessions nine through eleven comprised of hanging chicken wire around the posts to keep the wild turkeys in the area out of the garden along with partial construction of the greenhouse housed within the enclosure. The greenhouse construction was completed during sessions twelve through fourteen in addition to building and installing doors for the garden and greenhouse entryways, gopher proofing the entire enclosure with mesh including the raised beds, covering the entire garden enclosure floor with wood chips, filling raised beds with soil and compost, and planting seedlings or transporting established plants into the raised beds (Please see Appendix F for a detailed Gantt Chart).

Study of Intervention

While initially the group wanted to focus solely on capturing quantitative data to measure the success of the project, it became clear that a qualitative data approach with some quantitative data would be the ideal method to gather data. Data for this project was gathered via interviews with participants, surveys using the Likert scale, and ethnographic observations from USF students.

Section IV: Results

Ethnographic and qualitative results gathered from interviews were consistent with the current literature around the use of gardening as a form of therapy. When interviewed, one participant stated that he really valued this project because “sometimes talking doesn’t work for [him], taking action and doing something positive is also something [he] [values]. [He] also really [likes] the teamwork aspect and being able to work with others towards something bigger”. When asked if he would recommend gardening to others involved in the recovery process, he responded that he would:

One hundred percent recommend gardening because it gives [him] the space [he] [needs] for [his] mind to relax and gives [him] the opportunity to socialize and communicate with the rest of the people who are in treatment that [he] may not have talked to [otherwise]. It allows [them] to work as a team, which isn’t really something [they] do here. [They] have a chance to communicate better with each other and connect on an emotional and personal level. [He] [loves] being able to see the progress of the garden week to week.

It was also observed during several sessions that one participant, who typically rated his mood as low to medium during morning group check-ins, greatly benefited from gardening. His mood consistently changed by the end of the gardening sessions when compared to the start of the day. This participant was stoic, serious, and typically kept to himself while listening to music on his headphones. During and after gardening sessions, he was socializing with his peers and USF students, sharing his music with others, and actively partaking in gardening activities, without being prompted or given reminders. Another participant, who had experience as a

carpenter, went out of his way to build a bench for the garden on his own outside of the time allotted for the garden without the presence or guidance of USF students.

Section V: Discussion

After conducting a literature review and implementing this intervention, it is clear that gardening as a form of therapy has the potential to transform the way rehabilitation and recovery programs are structured and administered here in the United States. Gardening provides several benefits to those suffering with substance use disorders like opportunities for physical activity, helping facilitate socialization and increase communication skills, reducing social isolation, promoting collaboration and teamwork, and most importantly building resilience and healthy coping skills that will help participants on their journey to sobriety beyond their stay at this facility. The ability to healthily cope with stressful and risky situations is one of the most crucial predictors of lapses and relapses.

Conclusion and Moving Forward

Now that the garden structure has been completed, future USF cohorts should hone in and focus on developing rapport with participants, diving deep into exploring how gardening can be implemented into the recovery curricula at this facility by researching evidence-based lesson plans related to therapeutic gardening, exploring how to capture important data, and consulting with organizations like the American Horticultural Therapy association. During the beginning stages of this project, USF students attempted to reach out to gardening organizations around the bay area but got little response. Because of the time constraints and heavy focus on the actual building of the structure, it was difficult to follow up.

Future USF students should continue to focus on developing partnerships with gardening organizations now that the garden has been built. This group has “planted” the seeds, it’s up to the facility, program participants, and future USF cohorts to continue nurturing this project and

fulfilling its therapeutic potential. This group of USF students is very proud of what they've accomplished and happily leaves all the materials researched and developed throughout the semester to help support cohorts who take this project on in the future. During the last week of the project, USF students designed and taught a lesson plan around garden maintenance that included watering, harvesting, and information about care for each of the plants in the garden. A poster titled "Daily Garden Checklist" was also created which is to be hung throughout the facility to help remind participants to care for the garden daily. Additionally, students developed a sustainability plan that was presented to administrative staff at the site, including the director of the program. This plan includes several elements that addresses both immediate and long-term needs to keep the garden going, and to help guide both the facility staff and future USF cohorts who will be involved in this project (Please see Appendix B for the sustainability document).

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Appendix A

Quality Improvement site’s external information page for non-participants.




Mental Health-Informed Residential Substance Use Treatment Services ()

ESSENTIALS AT A GLANCE


Product Type:	Residential
To Make Referrals:	Referrals come primarily from the [redacted] Center and satellite assessment sites; Santa Clara County Quality Improvement (QI) Division; and other contract providers in the Santa Clara County Behavioral Health Services Department, including the Substance Use Treatment Services Adult System of Care.
# of Beds:	30 residential beds, 2 detox beds
Who Is Served:	Adult male residents of Santa Clara County, aged 18 and older, who are leaving the criminal justice system, are in need of substance use disorder or co-occurring disorder services, and meet medical necessity criteria.
Average Length of Stay:	For those being released from jail or on probation, the length of stay can be longer—45 days or more—to ensure a successful recovery plan discharge. These decisions are based on the recommendations from the member, staff, and important community stakeholders.
Address:	[redacted], San Jose, CA [redacted]
Contact:	[redacted] Main [redacted] Fax
Hours of Operation	Open 24 hours a day, 7 days a week
About the Program:	The [redacted] Recovery Center [redacted] helps people with active substance use issues to transition out of jail more effectively and begin the recovery process in a supportive environment. All services are mental health-informed, using approaches such as Motivational Interviewing and Stages of Change to help engage people in treatment. [redacted] services are heavily group-based to build community and support, and are based on the Integrated Dual Disorder Treatment (IDDT) curriculum, a SAMSHA Evidence-Based Practice. Additional services include Medication Assisted Treatment (MAT), relapse prevention, physical health screenings, etc. [redacted] program is an ASAM Level 3.1 service and is operated under contract with Santa Clara County Behavioral Health Services Department.


Appendix B

GoFundMe page created by USF students to fundraise for quality improvement project.

Q Search How it works Start a GoFundMe  Sign in [Share](#) [Donate](#)


Therapeutic Gardening for Addiction Recovery





 Sophia Agne is organizing this fundraiser.


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 benefiting 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.


[Donate](#) [Share](#)


\$2,125 raised of \$2,000 goal
40 donations
[Share](#)
[Donate now](#)
 This fundraiser is located near you


 Holly Hernandez
\$20 • 2 mos


 Rishi Suresh Raja
\$50 • 2 mos


 Anonymous
\$200 • 2 mos


\$2,125 raised of \$2,000 goal
40 donations
[Share](#)
[Donate now](#)
 This fundraiser is located near you

 Holly Hernandez
\$20 • 2 mos

 Rishi Suresh Raja
\$50 • 2 mos

 Anonymous
\$200 • 2 mos

 Brian Milleson
\$100 • 2 mos

 Muscat's Neighbor
\$100 • 2 mos

[See all](#) [See top donations](#)

Appendix C

Sustainability plan developed and presented by the USF students.

Sustainability of the garden

Stage 1: The physical building of the garden and planting of seeds (complete!)

Stage 2: Since 5/12 is our last day at this facility, Stage 2 of the garden will be dependent on the facility staff and clients until the next group of USF students can continue the vision.

- **Checklist:**
- Implement a daily watering schedule built into clients' daily chores. This way, the garden is not getting over or under watered, and clients are engaging in the garden, creating a sense of purpose and ownership.
 - The best time to water plants and crops is usually in the morning before the sun's peak. Rationale: This allows the plants to absorb the water they need before the day's heat causes it to evaporate. Watering in the evening is generally not recommended, as it can lead to prolonged moisture on the leaves and create conditions for fungal growth. Additionally, when the sun is strongest, watering during the day can cause the water droplets to act as tiny magnifying glasses and burn the leaves.
- Implement a weekly pruning schedule so weeds and other pests cannot take over the garden.
- Contact maintenance regarding monthly mowing of the grass and trimming of the trees.
- By integrating a gardening curriculum tailored to beginners and conducting weekly group sessions, it is possible to introduce clients to gardening and foster their excitement and passion for it.

Why should the facility's staff and clients invest in the implementation of maintaining the garden in stage 2?

- It encourages clients to become more aware of the foods they put in their bodies.
- It gives clients a sense of accomplishment and purpose as they see how their actions outside the garden directly affect the garden's future.
- Allows clients to gain life skills regarding gardening
- It boosts the client's mood and self-esteem when they can convene with nature in a space where they positively contribute to something meaningful.
- Maintaining the garden aligns with the facility's mission statement of offering excellent and effective services that engage individuals with complex needs in recovering their health, hope, and dreams.

Stage 3: Stage 3 marks the beginning of an ongoing cycle of progress as future cohorts from USF take up the torch, building upon our work and driving further implementations, enhancements, and research in this field.

Stage 3 checklist for future cohorts:

- Maintain up-to-date knowledge on the most suitable crops and plants to cultivate by staying informed about which ones are currently in season, ensuring the highest quality and yield of produce.
- Foster a collaborative implementation process by involving the kitchen staff.
Schedule meetings with the chef to actively seek out and evaluate herbs and vegetables that can be rapidly grown and seamlessly incorporated into the menu, ensuring that the culinary offerings remain fresh, diverse, and delicious.
- Continue adding love to the garden in the forms of more seating areas, sprucing up the horse shoe pit, and the planting of more flowers.
- Build upon the research of therapeutic gardening and its impact on sobriety and mental health.
- Focus on more client engagement regarding qualitative data (interviews, surveys, Etc.)

Appendix D

Poster developed by USF students as part of the sustainability plan; to be utilized around facility to ensure proper maintenance.

Daily Garden Checklist

Watering

Water as close to the plant base as possible- avoid getting water on the leaves/flowers- it can damage them.
Water until you can feel moisture in the soil to a depth of one inch.

- GREENHOUSE plantings:
 - water when dry, avoid too much water/pooling
- OUTSIDE plantings:
 - Spring/Summer: water in evening to prevent sun evaporation during the day; water every other day. Water every day if temperatures are above 90 degree.
 - Fall/Winter: water early morning before full sunrise so water evaporates throughout the day and reduces rot risk; water every 2-3 days.
 - If it is raining over an inch per day, no watering needed.

Pruning

- Check garden every day for dead/dying branches, flowers, & leaves. Remove carefully and add to compost pile
- Remove any small branches or leaves using the hand shears
- Removal of large parts of plants should be held off until winter if possible
- Harvest fruits/vegetables frequently, this gives the plant an incentive to produce more

Weeding

- Check garden every day for weeds
- Remove weeds you see with garden gloves to avoid injuries
- Make sure to remove the entire weed by starting at base to remove roots

Feeding

- Your garden needs to be fed, just like you!
- The compost pile is located in the backyard on the left corner; please only add uneaten food and organic matter- no plastic or metals or bones please!
- Spread compost around the garden plants in the fall/winter time so that it feeds the garden during spring and summer, when most of the plants will bloom & produce food

Most importantly, have fun!
This garden was created for you in hopes that it helps you build your confidence and reminds you that we are always growing and changing-it can be an uncomfortable but beautiful process. We have good days and we have bad days, what matters is that we make the effort to take care of and feed our own personal "gardens".

Appendix E

Budget plan developed by USF students.

Therapeutic Garden Budget				
Item	Quantity	Estimated Cost (per unit)	Total Cost (B x C)	
Boxes (4x8ft) 5 of them				
2"x12"x12 boards	10	\$23.75	\$237.50	
Enclosure (20'x24'x8')				
4"x4"x10'	18	\$14.97	\$269.46	Main structure
2"x4"x10'	4	\$4.22	\$16.88	Crossmembers to square/strengthen 4x4s
2"x4"x8'	6	\$2.98	\$17.88	Crossmembers to square/strengthen 4x4s
Furring Strips	24	\$2.50	\$57.36	For door and securing chicken wire
Cement	16	\$4.23	\$67.68	Setting 4x4s
Hinges	4	\$4.84	\$19.36	Door
Door handle	2	\$14.73	\$29.46	Door
Latch	2	\$3.98	\$3.98	Door
Brackets	28	\$1.18	\$33.04	Joist supports
weed barrier	2	\$36.98	\$73.96	weed/mole mitigation
screws	1	\$35.99	\$35.99	
Polycarbonate panels for Greenhouse	16	\$18.98	\$303.68	
Chicken Wire (4'x100')	1	\$124.99	\$124.99	Perimeter of enclosure
Bird Netting	1	\$25.99	\$25.99	Top of enclosure
Total			\$1,351.21	
with tax (conservative 10%)			\$1,486.33	
Where/Items				
Total Available			2,051	
Gloves	\$15.19		2,036	
Lowe's (Lumber)	\$10.73		\$1,725.58	
Home Depot (Lumber + Polycarbonate)	\$52.62		\$872.96	
Fairfax Lumber	\$172.62		\$700.34	
Lowe's (wire, door mats, brackets)	\$231.16		\$489.18	
Lowe's	\$96.04		\$373.14	
Home Depot	\$98.79		\$274.35	
Plants from HD	\$143.31		\$131.04	
Amazon (Bird Netting)	\$40.98		\$90.08	
Gas Reimbursement for Pickup Truck	\$75.00		\$15.06	
Screws for polycarbonate	\$14.22		\$0.84	

