

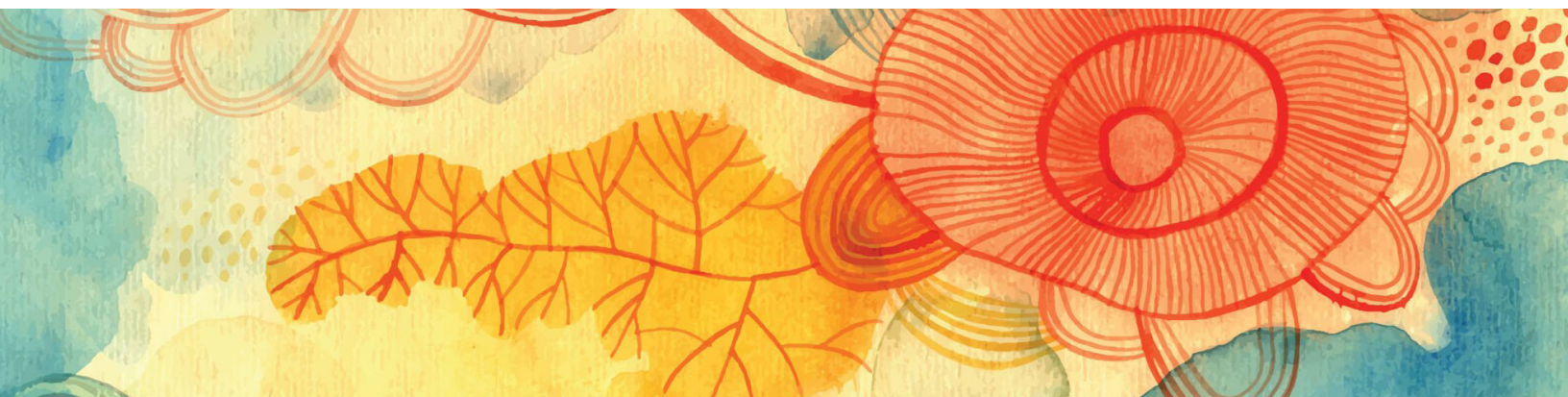
Horticultural Therapy Health Interventions with Female Survivors of Human Trafficking: Program Models

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Abstract

Human trafficking is a growing issue in society, with numbers continuing to expand exponentially. Part of a larger health issue of trauma, in a field dealing with wide-ranging causes of trauma, this paper focuses on female survivors of human trafficking (FSHT) and a specific health intervention of horticultural therapy, now being introduced into therapeutic services for this population. Horticultural therapy, a recognized modality within therapeutic and medical communities, uses plant and gardening activities delivered by trained therapists, in both formalized treatment processes and less formal interventions to address the multi-faceted complexities

of this health and human crisis which includes sexual abuse, violence, physical harm and psychological trauma. To date applications of horticultural therapy for FSHT have been limited. This paper will provide background information and applications of horticultural therapy for female survivors of human trafficking. Informing health care professionals and those working in the field of human trafficking about this health modality will expand its applications, so that more services are available to women surviving human trafficking to aid in their recovery and healing.

Human Trafficking

Human trafficking is defined by the United Nations Convention Against Transnational Organized Crime, referred to as the Palermo Protocol as, “the recruitment, transportation, transfer, harbouring or receipt of people through force, fraud or deception, with the aim of exploiting them for profit. Men, women, and children of all ages and from all backgrounds can become victims of this crime, which occurs in every region of the world” (UNGA, 2000; UNODC, n.d.). Human trafficking exploitation generally falls into two categories - labor trafficking and sex trafficking. It has other dimensions like early child marriages, debt bondage, child soldiers, organ removal, forced begging, and domestic servitude (UNGA, 2000; U.S. Dept. of Health & Human Services, 2020; ATEST, 2021). Organizations like the U.S. Department of Health and Human Services - Office on Trafficking in Persons (2020), U.S. Department of Justice (2023), Destiny Rescue, Polaris, and the National Human Trafficking Hotline (2023) among others, use indices to identify signs of human trafficking, these used across sectors (health, child and family services, law enforcement).

The scope of human trafficking is challenging to quantify. Statistics provide some insight into the scope of the issue, with these numbers constantly

changing due to the dynamic nature of human trafficking and the jurisdictions such reporting covers (national, regional, or global perspectives). The (U.S.) National Human Trafficking Hotline identifies 16,710 victims or survivors of human trafficking in 2021 (2023). The U.S. Department of Defense’s 2023 statistics states that 4.5 million people throughout the world are victims of forced sexual exploitation (2023). One in six endangered runaways reported in the U.S. are likely to become victims of sex trafficking; 20% of human trafficking victims are children (2023; UNODC, 2022). According to the International Labour Organization 49.6 million people globally were living in modern slavery in 2021, of which 27.6 million were in forced labour and 22 million in forced marriage (2022). Of the 27.6 million people in forced labour, 6.3 million in forced commercial sexual exploitation, women and girls account for 4.9 million of those in forced commercial sexual exploitation, and for 6 million of those in forced labour in other economic sectors and 12% of all those in forced labour are children. More than half of these children are in commercial sexual exploitation (International Labour Organization, 2022; UNODC, 2022).

The focus of this paper is on female survivors of human trafficking (FSHT), one group within human trafficking. The negative impacts on health faced by female survivors of human trafficking (FSHT)

are significant, occurring in all health domains including physical, mental, emotional, social, and spiritual spheres (DHHS, n.d.; Gordon et al., 2018; Reid et al., 2020). Research has confirmed the correlation to substance abuse and sexual abuse by those being trafficked and by survivors of trafficking (Altun et al., 2017; De Shalit et al., 2020; Ottisova et al., 2016; UNGA, 2000). Co-occurring health challenges underscore the complexity faced by those who have been trafficked, evident in biopsychosocial domains (Chen et al., 2023; Okech et al., 2018; Vellani & Kristof, 2021; Chivers-Wilson, 2006). Re-triggering of trauma, seen not just in FSHT but in all types of trauma, reveals the depth of health harm, and the long process involving multiple stages in recovery and healing (Coverdale et al., 2020; Hemmings et al., 2016; Ramaj, 2021; Stockl et al., 2021). Poláčková's 2023 article *Horticultural Therapy with Female Survivors of Human Trafficking* describes the current context, providing an overview of the health challenges, related background correlations, recent research, and some emerging health interventions specific to FSHT.

The Broader Context: Trauma and Trauma-informed Care

Human trafficking is part of the larger field of trauma and its related trauma-informed care. The foundations of trauma-informed care (TIC) are significant for services for all types of trauma, generally grouped as personal trauma (acute, chronic, complex trauma) or collective trauma (multi-generational trauma, abuse and sexual trauma, disaster and terrorism, war and military trauma) (Missouri Dept. of Mental Health, n.d.; U.S. Dept. of Veterans Affairs, n.d.). Trauma experienced by female survivors of human trafficking falls into both categories.

Trauma, defined by physician Gábor Maté is “a psychic injury, lodged in [the] nervous system, mind, and body, lasting long past the originating incident(s), triggerable at any moment.... trauma

is what happens inside the individual not what happens to the individual” (Mate & Mate, 2022). This is aligned with findings from the Substance Abuse and Mental Health Services Administration (SAMHSA), which identifies three key aspects of trauma—the event, the experience, and the effects (SAMHSA, 2014; Perry & Winfrey, 2021). Trauma impacts how an individual perceives the world, limiting response flexibility among other psychological deficits, distorting the understanding of the world and their place in it often fostering a shame-based view of themselves (SAMHSA, 2014; Crane, 2017; Mate & Mate, 2022). Medical professionals identify 7 symptoms of trauma: eating disturbance, sleep disturbance, somatic complaints, feeling of helplessness, and irritability to name a few (Center for Health Care Strategies, 2021; University of Buffalo, 2023). These can be experienced by patients, families and staff.

Trauma care seeks to address the pervasive nature and impact of trauma, along with paths to recovery, empowering patients to participate in their health care in safe, caring inclusive environments providing services (Center for Health Care Strategies, 2021). There is consensus on six core “Guiding Principles” of TIC which are both clinical and organizational: a focus on safety, trustworthiness and transparency, peer support, collaboration and mutuality, empowerment/voice/choice, and cultural issues (American Hospital Association, 2019; Duquesne University, 2020).

Trauma-informed care practiced as part of human anti-trafficking work is considered nascent, with the development of guidelines and protocols continuing to be developed addressing the co-occurring health challenges of trafficking survivors, recognizing various phases of behavioral health throughout the healing process (Lanehurst et al., 2022; Costa et al., 2019; Chambers et al., 2022). Research by Ades et al. (2019) notes that most existing services for survivors of sexual violence which would include FSHT focus on acute care immediately following the violence though health

needs exist long after the traumatic event. Re-triggering of trauma, for example, is not unusual.

Horticultural Therapy as a Health Intervention for Female Survivors of Human Trafficking

The horticultural therapy modality is used worldwide, both as formalized treatment (HT), and its less clinical adaptation of therapeutic horticulture (TH). These health interventions are delivered across populations including veterans, seniors, children, mental health and refugee groups and individuals (American Horticultural Therapy Association (AHTA), 2023a). The variety of health challenges that are addressed by HT and TH are broad including physical, mental, emotional, vocational, and cognitive deficits. The versatility, adaptability, and positivity that HT offers as a health intervention has made it an effective strategy for improving lives of individuals with concurrent or single health challenges. Applications are being expanded as health care professionals in other fields develop expertise in HT, integrating this modality into their respective disciplines. In particular, HT services for people with mental health and trauma challenges have grown in the last five years (Whitaker Smith & Lindsay, 2022; Fleming & Kelejian, 2023; Freedle & Slagle, 2018; Kenmochi et al., 2019; Meore et al., 2021; LaRocque, 2019). Horticultural therapy is now being delivered with FSHT, a newer population within the HT field (Poláčková, 2023; Poláčková & Fleming, 2023).

Understanding health challenges faced by FSHT is essential when selecting health interventions capable of delivering health outcomes sought by individuals and their health providers. Horticultural therapy is now emerging as one such intervention. Specific research on female survivors of human trafficking and HT is however limited. Related research includes Branco's study of TH with domestic violence survivors (2022), and Silva-Rodriguez Bonazzi & Febles' examination of survivors of trauma (2022), which FSHT typically experience. Some health challenges and health

outcomes experienced by other populations may be pertinent to survivors of human trafficking and inform their HT treatment such as reducing stress and psychiatric symptoms, stabilizing mood (Shao et al., 2020; Olszewsla-Guizzo et al., 2022; Cipriani et al., 2022; Hart & Zanskas, 2021); increasing self-esteem; reduction in mental dysfunction (Park, 2021; Wiesinger et al., 2006); strategies for coping with trauma (Wise, 2019; Silva-Rodriguez Bonazzi & Febles, 2022); and sexual assault related PTSD dysregulation in neural, endocrine and immune systems (Chivers-Wilson, 2006).

Health challenges identified for FSHT, as single health issues and as co-occurring issues include:

Physical - substance abuse, sexually transmitted diseases, pregnancy, pelvic pain, rectal trauma, and urinary difficulties, transgender challenges, speechlessness, stuttering, muteness, seizure-like responses (Hemmings et al., 2016; Coverdale et al, 2020; DHHS, n.d.; Barnert et al., 2020; Bath et al., 2020; Trinidad, 2022; Sarson & MacDonald, 2021)

Psychological and emotional challenges including lack of self-worth, depression, stress-related disorders, mood swings, psychological trauma, confusion, disorientation, denial, shame, helplessness, disbelief, or panic attacks, grief, chronic stress, deep physical and mental pain, guilt, anxiety, suicidal ideations, PTSD, PTSR (post-traumatic stress response), and nervous system dysregulation (Vellani & Kristof, 2023; Altun et al., 2017; Self-Brown et al., 2022; Meza et al., 2023)

Trauma - from rape, sexual assault, physical and sexual abuse, psychological trauma, and re-triggering of trauma (Casassa et al., 2021; Ades et al., 2019; Chambers et al., 2022), torture with horrific memories, and verbal torture (Sarson & MacDonald, 2021)

Cognitive challenges due to trauma, intellectual disabilities, neurological and nervous system dysregulation (Vellani & Kristof, 2023; Altun et al., 2017; Chivers-Wilson, 2006; Perry et al., 2022)

Social challenges - uncontrollable mood swings which might be expressed through unhealthy behavioural patterns due to distorted and dysfunctional coping mechanisms (SAMHSA, 2014; Reid et al, 2020; Casassa et al, 2021; Van der Kolk, 2000; Okech et al., 2018), distancing dissociative survival responses (Sarson & MacDonald, 2021), and housing instability (Dierkhising et al., 2022).

Horticultural therapy, like other therapeutic modalities, utilizes a treatment process methodology. Health goals are identified with intervention activities selected that can address the deficits, working towards measurable health outcomes. In the case of FSHT, wide-ranging health goals span all health domains. One of the complexities with this population – they have concurrent health challenges across health domains and re-triggering of trauma often occurs. Goals for FSHT include building resiliency, increasing self-esteem, and strengthening physical functioning. An individual's exploitation may require very specific (less general) treatment goals depending on their type of trauma and trafficking. Listed below is a sampling of health goals, therapeutic horticulture activities and measurable outcomes used in HT practice with FSHT.

Development of Horticultural Therapy Programs for Female Victims of Human Trafficking

The FSHT population, individually and collectively, present with multiple and serious health deficits. Because of the complexity, FSHT are probably best served by involving health professionals from several disciplines, specifically trauma specialists or mental health practitioners in addition to horticultural therapists. Interdisciplinary treatment teams may be effective in providing expertise in various specialties of trauma, substance abuse, and physical health challenges. The use of a TIC framework with a holistic approach to healing and health improvements is becoming more prevalent.

This paper seeks to identify models of HT/TH programs developed and delivered for FSHT. There are few in number at this time. Some facilities prefer to remain unnamed for safety reasons; some have been overwhelmed by requests for services when specifically identified. For purposes of this paper, some have been identified as “Model: Country” to protect their anonymity.

Common themes emerged when the seven models were examined. Several of the HT/TH program models with FSHT participants were initially implemented for vulnerable populations of individuals who had experienced trauma, many with substance abuse, domestic violence, and sexual abuse problems. It is too early to determine if this will become a trend but given the desire for organizations and participants to avoid being labelled, categorized or singled out as those providing services for survivors of trafficking, this may occur. What does appear to be a commonality in the programs, were women who were unreported survivors of sex trafficking. Survivors did not or would not always recognize their situation. The impetus for more specialized focus on female victims of trafficking evolved from some programs developed for vulnerable populations; subsequent HT/TH programs may be able to address health deficits more effectively where FSHT are not grouped within this broader population and programming, unless remaining part of such a group, unlabeled as FSHT offers greater benefits and health outcomes.

Program Descriptions

Model: A Facility: Kenya

A facility in Kenya working with vulnerable populations delivers services enabling girls and women to become self-sufficient for themselves and their families, addressing the cycle of poverty and oppression. For over a decade, girls as young as 8-10 years old have run from their villages to the facility to escape female genital mutilation

Health Goal	Therapeutic Horticulture Activity	Measurable Outcome
Identify & explore tasks that represent renewal in human & plant life (spiritual, emotional, cognitive)	Plant seeds, re-pot vegetative transplants too large for current container, divide plants, or prune unhealthy stems/branches from plants	Identify 3 stages of plant growth and renewal, relating them to personal renewal & growth; group discussion or one on one with therapist & completion of Flourishing Scale* (Diener et al., 2020)
Develop 3 mechanisms for channeling strong emotions & outbursts (cognitive, emotional)	Make seed bombs	Using Pre/Post Retrospective Evaluation* client reflects on stress/anxiety before and after activity & life situations; identifies 3 strategies for channeling strong emotions
Strengthen sense of empowerment & self awareness (emotional, spiritual, cognitive)	Practice making personal choices-choose plants to care for (seeds, transplants, or established garden)	Client self-identifies 5 expressions of sense of empowerment/choice influenced by heightened self-awareness in verbal or written format
Learn to be in the present moment (emotional, psychological)	Walking in garden or greenhouse, client selects a plant that resonates with them during the session, discussing reasons for selection	In group discussion, client indicates 2 reasons why they chose their plant on this day
Create healthy boundaries in social settings, relationships (psychological, physical, social)	Work cooperatively in a group establishing garden bed borders to contain plants as metaphor for human boundaries	Client participates in group discussion about setting boundaries for plants & self
Increase physical activity to improve sleep for physical & psychological improvements (physical, cognitive, emotional)	Plan & undertake a schedule of garden work tasks (to be done during daylight hours to increase melatonin production), increasing physical requirements over a one-month period	Review work schedule & task completion with therapist, confirming increasing physical demands; keep sleep log over this period with comments re impact on mood & physical health

*These are recommended measurement tools; they have not been used with FSHT populations.

(FGM), early forced marriage (EFM), and child marriages. The latter is considered a form of human trafficking (Warria, 2019; UNGA, 2000). Facility and medical staff recognize the physical and emotional health harm these cultural traditions inflict and are familiar with villages where such practices are occurring. The facility and its staff do not identify or use the label FSHT.

A variety of programs and opportunities seek to empower girls by providing them with the skills and resources necessary to become self-sufficient. The therapeutic horticulture program was designed for the girls as part of vocational and skills development training. The TH program created a non-threatening space using plant-related daily activities, with 30 girls 15 years or older participating. It was delivered once, over a one week period with a follow-up session a month later. Each of the TH sessions lasted 2 hours and were followed by 30-40 minute after-session time for processing and reflecting on the plant activities. The program was developed and delivered by horticultural therapy practitioner, Zuzana Poláčková, structured so that once she departed, facility staff could implement the program, relying on the TH model and activities. This, and the staff's familiarity with the participants, were deemed essential for achieving positive outcomes given the short duration of the programming.

The goals of the TH program include identifying anxiety and stress and creating helpful coping mechanisms, recognizing anger and aggression as a healthy reaction to bodily harm, and learning different ways of expressing self-love, self-acceptance, and self-identity. The program maximizes sensory stimulation techniques, particularly effective in helping participants connect with reality, while creating positive memories and experiences. The program seeks to promote a sense of belonging and acceptance, delivering activities involving group tasks in support of working together. The TH activities include planting, harvesting, and cooking plants from the

garden, as well as painting, floral decoration, guided garden walks and story sharing.

Model: Community Gardens: UK

The UK community garden model was initiated as a simple gardening project for vulnerable members of the local community by faith based organization Kairos. Funding was provided by public health agencies, local grants and several fundraisers organized by the charity. The HT project was developed over a four year period by HT practitioner Zuzana Poláčková. It was set up in a specific geographical area known for its human trafficking population, particularly those subjugated to labor trafficking and forced criminal activities. Participants had vulnerabilities related to financial resources, generational poverty, mental health issues, substance, and sexual abuse. Labelling and defining of participants by type of trauma including FSHT was purposely not done by staff, relying instead on non-judgmental interactions and a philosophy of inclusion.

Set up with a green gardening space, the TH and HT programs for this mixed population focused on addressing common themes of isolation, loneliness, low self-esteem, anxiety, PTSD, suicide ideation and distorted views of themselves and the world. The program sought to create a safe and non-threatening environment where behavioral needs and effective interactions between participant, therapist and staff could occur in support of participant's self-discovery of their unhealthy behavior patterns, these developed over their lifetime in abusive, unhealthy situations, and as a path forward towards healthier living.

The HT and TH program integrated goals across health domains using plant and gardening hands-on activity. These included physical goals: improving mobility, endurance, coordination, joint and muscle development, and positive physical activity in support of a healthy lifestyle. Emotional goals focused on improving self-esteem, positive

thinking, mood and appropriate reactions, along with lowering stress and anxiety. Interpersonal/social skills included: sharing experiences and memories, increasing sense of belonging, learning to work in group settings, customer service skills with a focus on future job search, promoting acceptance of different opinions, cultures, races, and practice setting healthy boundaries in social interactions. Cognitive health goals involved: learning new skills, following instructions, problem-solving, staying on task, taking control and responsibility for tasks, and increasing creativity.

Therapeutic techniques including sensory stimulation (neuroscience-based self-regulation activation, kinetic, vestibular, proprioception), metanarrative stories, metaphors, analogies, and real-life examples were utilized in the HT/TH program. These services were delivered in conjunction with nursing and case worker staff, with clinical HT (including charting) occurring for some participants. Therapeutic plant programming was effective, cathartic and healing for participants based on their positive responses. The HT modality was able to address cognitive distortions, providing opportunities to re-direct perspectives and behaviors.

This program served more than 70 participants. The HT program ceased when the HT practitioner was no longer available. On-going garden-based programming continues, with a focus on food insecurity, deemed the primary need of the local community post COVID-19.

Model: Recovery Home: Canada

This model was established for women in a live-in recovery home providing a range of trauma-informed therapeutic and recovery services. Referrals to the facility were based on substance misuse, and participant's willingness to commit to the months-long program. No data on the type of trauma participants had been subjected to, or identification as female survivors of human

trafficking was formally gathered, however, staff felt many of the women were female victims or survivors of domestic violence, sex and gender-based violence, sex abuse, with most of them having lived in an abusive and/or addictive environment (using Palermo Protocol as reference). Several participants self-identified as having been living in human trafficking situations.

The participants were in various stages of personal and social recovery characterized by high risk of self-injury, suicidal thoughts, individual and collective mood swings, PTSD, anxiety, distorted self-worth, self-blame attitude, and narcissistic tendencies. The participants were isolated, unemployed, struggling with substance abuse, self-esteem, self-worth, and depression.

The facility's therapeutic interventions included The Twelve Steps, Building Healthy Relationships, Addressing Historical Family Trauma, and Developing Life and Problem-Solving Skills, along with Horticultural Therapy and Therapeutic Horticulture. The latter service was delivered by horticultural therapy practitioner Zuzana Poláčková. The HT/TH programming, like the other therapeutic services, was formally structured with extensive safety protocols, close supervision, and low staff: participant ratios. The HT programming sought to respect each participant, providing services for exploration and change, while simultaneously giving a sense of manageable freedom. Given the physical and emotional stages of the recovery process, and individual circumstances, the environment—sight and sound, temperature, lights, seating, and humidity were carefully monitored, these impactful on participants' medications and mood.

The HT/TH program was developed with a six month duration. Its overall goal of promoting recovery of individuals for healthier, productive lives where supportive relationships could be maintained, aligned with the other therapeutic services. The TH activities took place in several

working areas and were tailored to individual need. Services were delivered both in group settings and one-on-one. Careful consideration was given to plant toxicity and hallucinogenic properties, working tools and the working farm and greenhouse environments. Plant activities included building compost piles, planting and harvesting vegetables and flowers, floral decorations, making seed bombs, drying flowers for card making, construction of bird boxes and feeders, sawing wood in winter months, and participation in guided nature walks.

Therapeutic goals for the HT/TH program at the live-in recovery home spanned all health domains. Of note were emotional goals: expressing stress and tension in healthy ways, reducing anger and aggression using appropriate release/coping strategies, increasing self-awareness - identification of negative emotions, personal growth, in addition to promoting self-care, self-esteem, self-worth and positive thinking. Spiritual goals utilized metanarrative storytelling for connecting with nature and the natural environment, meditation, and grounding exercises for increasing spiritual (distinct from religion) awareness. Sensory stimulation techniques activated senses, memories, and experiences as mechanisms for connecting cognitive and emotional goals, and for stimulation of cognitive processes. Physical goals - improving standing, balance and endurance strength, fine and gross motor and coordination skills addressed physical deficits common in FSHT (and other participants). And interpersonal/social interactions, distorted by their life experiences, included goals addressing respect for others, cooperative skills for working in groups, building healthy boundaries and relationships, sharing experiences and memories, increasing sense of belonging and acceptance, and understanding motivation as a component of job success. The TH activities were able to support sense of renewal, personal growth, passage of time (healing is a process), and coping with life's unpredictability and unexpected outcomes.

This program is no longer operational due to the unavailability of an HT professional to deliver this type of therapeutic service.

University of California Irvine (UCI) CARE Therapeutic Horticulture Program

A therapeutic horticulture workshop *People & Plant Care*, a pilot session for UCI CARE, was available for those who identified as survivors of violence and who were seeking tools for personal growth and restoration. "UCI CARE provides free and confidential support services to members of the UCI community who have been impacted by sexual assault, relationship abuse, family violence and/or stalking" (UCI Care, 2015). No data on type of trauma or identification of female survivors of human trafficking was/is gathered. "Programs and services are available to people of all identities and regardless of status. UCI CARE aims to end these forms of power-based personal violence by engaging the campus community in education, programming, and transformative action".

The TH program was delivered as a safe place for participants to gain insight into how regular practice with horticulture can bring joy and balance to life. The program sought to provide new opportunities for coping skills and healing, with parallels between caring for plants and nurturing self, creative outlets for providing resiliency in times of stress and recovery, and insights into cognitive, physical, spiritual, and emotional health benefits. Delivered by horticultural therapy practitioner Joanna Brown as a contracted service, the hands-on activity of potting a plant has been effective in working towards the stated goals. The TH workshop involved 10 participants (adults, a mix of college students and mixed gender identities, ages ranging from 18-45) in a 60 minute session. Future collaborations with UCI CARE RE: GROW holistic healing resources are being explored.

This program model has been included due to the relevancy to FSHT of the program's therapeutic

goals and a possibility that some participants may be FSHT. This TH program model is unique given the setting within an academic institution, and for identifying terminology/description of sexual violence expressed as power-based violence.

Selah Freedom Therapeutic Horticulture for Survivors of Human Trafficking Residential and Outpatient Program

Selah Freedom, an anti-human trafficking non-profit organization 501(c)3 based in Florida and the Midwestern U.S.A., has as its mission to end sex trafficking bringing freedom to the exploited (survivors). It utilizes a multi-themed program involving Awareness, Prevention, Outreach, Residential habitation, and Consulting. The therapeutic program, *Horticulture For Healing's Plant Care is Self Care*, was funded through a grant and was delivered by contracted horticultural therapy practitioner Joanna Brown in support of participants/survivors. Both residential and transitional/reintegration care departments were involved in conjunction with Selah's established mentorship and advocacy program at their Florida location. Due to COVID-19, the workshops were delivered virtually, some in group residential setting (the facilitator was on zoom), and others, in collaboration with a Selah Freedom advocate/mentor, who took the workshop's care kit (with plant, soil etc.) to their homes.

Program goals included improving or strengthening spiritual and emotional health through connecting to nature and plant activities, channeling anger, and expressing strong emotions through creating seed bomb activity, discovering therapeutic horticulture as a form of self-care through the practice of plant care and how it mirrors personal self care, and practice nurturing a living organism while witnessing its growth. Using plant and plant-related activities as metaphors for these, and for advocating for their own creation of personal and sacred safe space, 12 program participants participated in 6 sessions once a month for a 6 month period.

Program facilitator Brown developed the program so that it could be delivered by other staff. (Brown also produced 5 videos on related topics). A total of 40 Plant Care is Self Care kits were distributed: 10 kits for residential participants and 10 for at home mentorship. The remainder of the kits (20) went to Selah Freedom outreach services in which the facilitator did not have direct participant contact. Selah Freedom's outreach program provides outreach on the streets and in the jails through their sex trade support group, case management and resources for survivors of sex trafficking and exploitation.

New Hanover County Extension and Arboretum North Carolina: Trauma Survivors Therapeutic Horticulture Program

A collaborative partnership with A Safe Place (ASP), North Carolina Master Gardeners, and the Therapeutic Horticulture Agent of New Hanover County Cooperative Extension, developed a program called, "Building a Personal Connection with Nature" which is offered for female survivors of human trafficking. The non-profit organization, A Safe Place, focuses "on prevention, advocacy, and restoration to assist victims of commercial sexual exploitation and sex trafficking". Their staff accompany the women to the program delivered at the NHC Arboretum (North Carolina) and are responsible for addressing issues related to the individual's treatment plan that may arise during therapeutic horticulture (TH) sessions. Clinical issues are not discussed in TH sessions at the NHC Arboretum. The New Hanover County Therapeutic Horticulture Program has been in place since 1999, with trauma forced programming beginning in 2020.

The program focuses on two goals: to help the women feel safe in a public space, in this case, a public garden, and to foster a sense of resiliency through nature-based activities. While activities are facilitated by trained program leaders, the concept is to teach the women independent skills to use as

they navigate their healing process and the rest of their lives. Learning to feel safe in a public area is an important component of their self-resiliency, making the grounds of the NHC Arboretum an integral component of their work to strengthen personal connections through engaging with nature.

The program is offered twice a year, April/May and September/October, with weekly, one and half hour-long sessions, eight or nine weeks, depending on the calendar. Attendance is capped at six women per seasonal program, with the same women attending each week. It is facilitated by two trained Extension Master Gardener Volunteers (EMGVs) who developed the curriculum with support from the New Hanover County Therapeutic Horticulture Agent. The EMGVs facilitate TH activities using all five senses to develop a life-long relationship with nature. Each weekly session follows the same structure: welcome (centering and recognition of place), introduction of the day's activities, passive activity (meditation, relaxation, centering exercises), active activity (planting, flower arranging, harvesting), session evaluation (with participants identifying what was useful, what was not useful, their personal interests), homework (individual practice of observing nature), closing (summary of the session), and check out (addressing any questions or needs). All activities focus on the (healing) process, not the horticulture product (flower arrangement) in accordance with AHTA standards of practice, with the expressed goal of working to build positive experiences for the women who attend.

Specific activities that are employed include: dividing aloe vera and learning about aloe's healing properties, sensory awareness by focusing on one sense while working through breathing exercises, walking the garden's labyrinth, potting fragrant herbs, creating nature mandalas, sensory awareness through ecology of trees, planting seeds, nature journaling and dried flower wreaths. The curriculum is adapted as the EMGVs get to know

female participants and receive feedback from ASP staff so that a dynamic program which can best address each individual woman is delivered.

The comments made by women attending the program and their accompanying staff have been overwhelmingly positive and an evaluation tool is being designed where health outcomes can be captured, to be used as data for program improvement.

Healing Garden for Children and Families: Chamchamal, Iraq

The Jiyan Foundation for Human Rights, in partnership with international organizations, have built the Healing Garden as a sanctuary and delivery site for a range of programs and therapeutic services using a holistic approach to healing and recovery for women, children and families who have experienced violence, trauma and trafficking. On-going violence in the city of Chamchamal and the surrounding northern Iraqi region of Kurdistan has persisted since the 1980s begun under the Saddam Hussein regime. Since 2014, ISIS has systematically gone into Yezidi villages killing the men and selling the women into sexual slavery (International Federation for Human Rights & Kinyat, 2018).

The documentation of atrocities includes trafficking. Survivors including FSHT have acute trauma, social and psychological issues, physical injury and loss of livelihoods. The Jiyan Foundation does not use the term female survivors of human trafficking. Individual and group therapy utilize the Healing Garden for therapeutic services. Prominent among these is horticultural therapy for survivors of trauma and other health concerns with a focus on psychological trauma care, stress reduction, improvements in motor function and muscle memory, and skill development. Since 2020 "in cooperation with the German institute Garten Helfen Leben, Jiyan therapists from Chamchamal have been trained in horticultural therapy"

providing HT interventions with clients from Chamchamal's treatment center and women's clinic (Jiyan Foundation for Human Rights, n.d.).

Discussion

Horticultural therapy as a component of trauma care with implications for services with FSHT

The field of trauma care is evolving, with standards of practice being discussed and developed worldwide including the 6 guiding principles previously mentioned (American Hospital Association, 2019). These developments have direct impact on FSHT including implementing trauma-informed care in primary medical settings (Hamberger et al. 2019), greater awareness of vicarious trauma, women's health issues (Harvard Medical School, n.d.), state and non-state torture, the latter emerging as an important issue and component of trauma and trafficking being discussed at anti-trafficking conferences and online forums (Canadian Sexual Exploitation Summit 2023, Persons Against Non-State Torture website) (Acharya, 2019; Sarson & MacDonald, 2021). As the field develops, additional services and health interventions will emerge. Horticultural therapy appears to be on the cusp of this with a few programs for victims of trafficking available, and specifically for FSHT as identified in this paper. Horticultural therapy is a lesser-known treatment modality, which has a few obstacles to its greater use in trauma-care including not being 3rd party reimbursable by U.S. health insurance (making program funding more challenging), the small number of HT credentialed practitioners, limited number of HT/TH programs for FSHT, and consequently few HT professionals experienced with this population. It does however offer health benefits and outcomes validated with other populations in hospital programs, and other settings.

Validation of HT programming for FSHT

Given the limited number of HT programs for FSHT, additional programs and research will be needed to validate this type of health intervention. There is demand for health services addressing and improving the health of human trafficking victims, not just women. And as noted previously, HT/TH interventions within the larger field of trauma-informed care will also provide important data and protocols. Practitioner Poláčková comments that the HT/TH modality has the capacity to quickly adapt, and when used within interdisciplinary treatment teams, can for example, treat individuals across disciplines when physical manifestations relating to understanding their reality and aftermath occurs at the point when their full stories happens. As more HT practitioners and health professionals become aware of HT interventions for trauma informed care it is probable that more programs will be available.

Identifying victims of human trafficking

Identifying victims of human trafficking is challenging, not just for HT/TH programming, but globally for many institutions and for many reasons. The UN's Office on Drugs and Crime's Global Report on Trafficking in Persons 2022 stated that "institutions are too often failing to detect (and protect) trafficking victims". Countries with patriarchal societies and cultures have higher incidences of violence against women (in 18 countries husbands have legal authority to prevent their wives from working, and 49 countries lack laws to protect women from domestic violence) (UN Women, n.d.; The World Bank Group, 2017).

Internationally recognized definitions of human trafficking are guided by the United Nations Convention Against Transnational Organized Crime and its Palermo Protocol (2000) within the anti-trafficking sector. The label "disordered"

for people and women impacted by torture and trafficking is now regarded as unethical and intellectually inaccurate when behavior has been survival adaptations, these being complex survival responses to atrocities they have endured (Sarson & MacDonald, 2021). There is need for a distinction between identifying trafficked persons for the purposes of health services separate from crime prevention.

Research undertaken for this paper revealed two distinct approaches to identifying FSHT. Some programs specifically identified and delivered programs for FSHT as a distinct and separate population (New Hanover County Extension and Arboretum (in NC) Trauma Survivors Therapeutic Horticulture Program). Other programs did not identify FSHT (intentionally or not), where FSHT were included in programs described as vulnerable population programming (UK Community Gardens).

Horticultural therapy programming is using both approaches, sometimes choosing to be very specific regarding program participants and their specific needs as is the case of the Kenya model with young females and early child marriages. Other programming includes FSHT in programs for vulnerable populations with a focus on health goals pertinent across this broader population which may include FSHT though not specifically identified. As noted previously, some people prefer or do not recognize themselves as survivors of human trafficking. This is yet another component of human trafficking that health professionals need to be sensitive to - legitimate need for identifying an individual as a victim or survivor of trafficking, as well as American health HIPPA confidentiality regulations, and the individual's preference for being identified or not identified as a FSHT.

Metanarrative-storytelling technique used in HT/TH programs with female survivors of human trafficking

Mindfulness, guided visualization, and metanarrative-storytelling techniques were incorporated into HT sessions delivered to FSHT (Z. Poláčková, personal communication, Jan. 2023). These were informed by Kaplans' attention restoration theory (Kaplan & Kaplan, 1989). Storytelling is considered a therapeutic intervention that is proven to help participants cope with a physical disease (Chelf et al., 2000) and can help a person understand their emotions and reframe the traumatic experiences (Brockington et al., 2021; Sarson & MacDonald, 2021). "A metanarrative technique was particularly effective with FSHT. This technique discussed fictional figures like Don Quixote and four historical and anecdotal garden settings that provided situations where allegories and metaphors for real-life experiences of participants were explored in a safe environment. This technique/activity re-enforced an overarching account or interpretation of events FSHT had experienced providing a pattern and structure for participant's beliefs, giving meaning to their experiences. Metanarratives helped connect individuals to other group participants, each with their own personal journey but with a shared violent situation. This therapeutic technique was the basis for developing coping tools where their own reality could be interpreted in a new (healthier) way within the HT modality because often the healing and recovery starts by accepting their own stories, expressing, and sharing them with others" (Poláčková, 2023). "Silence is a tool of the perpetrators to keep people isolated in their gruelling ordeals of getting by each day" (Sarson & MacDonald, 2021).

Applications of HT programs for other survivors of human trafficking

Based on programs delivered to FSHT, the modality appears capable of addressing goals related

to human trafficking. Though each individual who has survived human trafficking has their own experience, many of the health challenges including trauma, physical and psychological harm are present across trafficked populations. Horticultural therapy and therapeutic horticulture lend themselves to flexible and individualized treatment interventions. Attention to the specific needs, challenges, and type of trauma experienced by individuals, and populations of child, male and LGBTQ trafficked groups should be considered when developing HT programs (UNODC, 2022).

Summary

Seven programs have been identified where HT/TH has been used with female survivors of human trafficking. The programs can function as models, replicable for other FSHT and individuals trafficked and experiencing trauma and co-occurring health harm. Each of the programs is unique, with distinctive characteristics, communities, host facilities, and circumstances where FSHT were brought together for this specific health intervention. Developed and delivered in several countries and continents, the HT/TH models were used in diverse settings—academic institution, botanical or healing garden, residential housing for trafficked women, substance misuse treatment

center, community garden, and a rescue center in Africa. Each program's defining characteristic was also unique—young girls vulnerable to forced child marriages, Iraqi violence targeting ethnic/religious communities including women, substance misuse, sexual assault experienced by university-aged women, geographical concentration of trafficked individuals, and formalized services delivered in community partnerships with anti-trafficking agencies. The common thread of violence and exploitation of women sheds light on human trafficking, a global issue with criminal and health impacts.

The seven programs with FSHT reflect the breadth and scope of applications HT/TH programming can provide. Recent articles and presentations on HT/TH interventions with FSHT have expanded awareness in Canada, Dominican Republic, U.S., Germany, the UK and other countries. Foundational elements of horticultural therapy including connections to plants, nature and garden settings, and health services delivered in non-threatening contexts provide alternative treatment options for FSHT, and potentially to other human trafficking survivors. As such, further use, research, and review of horticultural therapy for FSHT may yield effective health outcomes and expand health services across this population.

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