Learning Area 8 – Research

Literature Review

Task 1: Undertake a literature review exploring and substantiating the efficacy and development of a Therapeutic Horticulture program to support children and young people who have experienced trauma

Title: Therapeutic Horticulture as a proposed intervention and its impact or perceived benefits for children and adolescents who have experienced or have had a history of trauma

Introduction

This review of the literature endeavours to create a context for understanding the relationship of sustaining trauma in early life in childhood or adolescence, with the relevance of the therapeutic intervention of Therapeutic Horticulture (TH). It will endeavour to ascertain the effectiveness and the value of therapeutic horticulture for children and adolescents who have experienced trauma. The presence of trauma ultimately acts as a risk factor and hinders normative child development, often correlating with attachment disruptions, development of mental health issues, and possible long-term ramifications. The effect of traumatic experiences on a child is enormous, and 'at such a young age, trauma has a developmental impact, adversely affecting the child's global identity' (Nicholson et al, 2010, p32). Analysis of Therapeutic Horticulture and its origins and theoretical underpinnings will be explored in response to this. There exists a considerable amount of research on using TH and nature-assisted therapies as a response to veterans' post-traumatic stress disorder (PTSD) after World War One and Two, as well as TH and its healing capacities being shown to be a useful intervention for a wide range of vulnerable groups. For the purposes of this review, risk will be paralleled with having experienced trauma and vulnerability, and the phenomenon of resilience will be explored which has been conceptualised as a protective factor (Happer et al, 2017, p30), drawing direct links with the protective factors associated with Therapeutic Horticulture. The review is reflective of a positive evidence-base for therapeutic horticulture as an intervention for children and adolescents who have endured trauma, and on this foundation; it is apparent that this form of therapy could feasibly be implied as an effective means of therapy for this vulnerable, at-risk target group. Additional research is needed.

Research question: *Will the proposed intervention –Therapeutic Horticulture (TH) ultimately produce a significant or effective impact on vulnerable children and adolescents who have experienced trauma?*

Method

An initial search was conducted composed of four main search terms: ("horticultur* therapy" or "therapeutic horticulture" or "healing garden" or therapy) AND (trauma or traumatized or vulnerable) AND resilience AND children or adolescents or youth or young people), via the following electronic

databases: PSYCinfo , CINAHL, ERIC, Medline and SCOPUS. Abstracts were then reviewed to ascertain relevance to the research topic. For the purposes of this review, databases and sources were selected due to recommendations for healthcare purposes, as well as gaining consultation from the University of Melbourne library staff. In addition to the sources reaped via the search, there is inclusion of supplementary texts of relevance. including recommendations from staff from Kevin Heinze Grow. There are variations of the term, amongst the main being 'horticultural therapy' (HT) and 'therapeutic horticulture' (TH). For the purposes of this review, the latter terminology will be adopted. The search produced a wealth of literature of the discipline of therapeutic horticulture being of benefit to a range of other vulnerable or at-risk groups of people. The criteria for articles and studies used were not exclusively peer-reviewed ones, and thus grey literature was used.

Discussion

Origins of Trauma and Trauma Theory

Trauma refers to '…situations where a person is confronted with situations that exceed and overwhelm their coping capacity' (Harms, 2010, p119), aligning with the metaphor of comparing trauma to a deep wounding or injury, as opposed to a mere disruption, which has occurred to all dimensions of the person (Harms, 2010, p120). It is important to keep in mind that trauma is relative to an individual's experience and can be an ordeal significantly ranging in nature; but it cannot be measured by perceived extremity or severity as trauma is a subjective experience. The one uniting concept that characterises traumatic experiences, '…is [its] capacity to cause acute distress and horror and massive disruption to a person's physical, psychological, spiritual and/or social functioning' (Harms, 2010, p121). From the 1960s onwards, following the First World War and 'shell shock' mental health diagnoses of veterans, '…the effects of trauma were more systematically identified following recognition of the diagnosis of post-traumatic stress disorder (PTSD)…' (Harms, 2010, p122).

Demographics and Correlates – Vulnerability and Risk

Children or youth who have experienced trauma, it could be said, are likely to have encountered complex issues and needs from a young age. The trauma that manifests today for the child, could well have been preceded by early disruptions; which in turn can cause hindrance to social and emotional development. 'At least 50% of the children in child welfare and 60% to 70% of youth in the juvenile justice system experience trauma' (Hodas, 2006, Kerig & Becker, 2010). However, the experience of trauma cannot be confined to these circumstances. The experience of trauma has the capacity to cause enormous disturbance, which can '…find the child's weak spot' (Greenwald, 2015, p9). Trauma during childhood and adolescence is '…now so common as to be normative. Trauma rhetoric is often affiliated with complex attachment issues or disruptions for children in early childhood, which describes the holistic implications of the child-caretaker dynamic. Bowlby's (1969) Attachment

theory recognises that '…separation and loss sustained a profound impact on [children's] developmental experiences' (Ringel & Brandell, 2012) and become evident in the aftermath of traumas (Ringel & Brandell, 2012).

The principle theoretical principles of Therapeutic Horticulture

It is important to contextualise and explain the rationale for employing nature as a healing therapy, whereby '…the therapeutic value of horticulture is derived not from the outcome of the activity but from the process itself' (Chapin, 1996, p2). The evidence that various aspects and applications of horticulture have a positive influence on human health is persuasive (Reed, 2015, p7) and the garden fosters a safe space for young people to thrive. Therapeutic Horticulture (TH) has been defined as '…a process that uses plants and plant-related activities through which participants strive to improve their well-being through active or passive involvement' (Reed, 2015). Gardening is a purposeful activity which involves both mind and body… (Ulrich, 1999, Riaz et al, 2012, p67). The benefits of horticulture '…can take many forms, from physical and cognitive, to spiritual and emotional' (Ballon, 2012, p10) and countless studies attest to the success of TH for all sorts of vulnerable groups in a number of areas, from '…reducing recidivism in at-risk youth, to reducing aggression in adolescents…to reducing cortisol levels, improving self-esteem, reducing the severity of depression and improving perceived attentional capacity' (Ballon, 2012, p10).

Neurobiological and Psychosocial consequences of trauma

The understanding of trauma proposed by the neurobiological perspective in relation to trauma, has garnered appeal from the 1990s onwards (Harms, 2010). Implicit in this understanding is the intrinsic 'plasticity' of the brain '…with the implication that children can alter the ways they respond both neurobiologically and behaviourally if provided with consistent experiences of an alternative, healing environment' (Gordon & Archer, 2012). Neuroscience confirms that trauma is experienced in the deep affective and survival areas of the brain where there are only sensations…' (Steele & Kuban, 2014, p19). Traumatic experiences activate the fight-flight mode; where the brain effectively disassociates in the presence of perceived threats. Children exposed to trauma may be hypervigilant in being sensitive or reactive to perceived threats in their environment (Nicholson et al, 2010, p30).

Healing capacities of Therapeutic Horticulture and children in natural environments

Distinct parallels can be drawn between the neurobiological effects of trauma and the respective neurobiological 'people-plant connection' (Rice, 2012, p12), supporting therapeutic horticulture as an intervention. Wilson's Biophilia (1984) which contended that there exists a link between human wellbeing and natural environments (Reed, 2015, p2) and being in nature accommodates healing. This people-plant connection is vital to human wellbeing and generates positive results - plants actively '…meet our needs by providing nourishment to all our senses whether invigorating us or calming our

minds [and] offer pure aesthetic pleasure and some even go so far as to heal and restore our bodies' (Etherington, 2012, p10). Kaplan & Kaplan's Attention Restoration Theory (1989), a key theory in the foundations of TH, describes four levels of restoration that one must progress through in order to experience full restoration: clearing the head, recharged attention, soft fascination, and reflection on one's own life" (Han, 2009, p. 665; Uvanile, 2012), whereby being in the garden allows a kind of mindfulness and consciousness to take place, having a restorative effect. In the research paper, *The benefits of nature experience: Improved affect and cognition,* investigating the effect of nature on affect and cognition, it was found that after completing a 50 min walk: either through urban or natural environments, compared with the urban walk, the nature walk resulted in affective benefits, as well as cognitive benefits…', thus supporting the idea that exposure to nature can enhance both affect and cognition (Bratmana et al, 2015, p41).

The multidimensional benefits of Therapeutic Horticulture

Therapeutic Horticulture involves the systematic use of a garden base for learning and engagement. The approach of this form of therapy has an abundance of benefits to wellbeing including '…reduced symptoms of anxiety, depression and improved social functioning' (Harris, 2017, p1328) and possesses healing properties to act as a vehicle to promote connection. One of the prime themes gained from the literature is the accessibility and universality of TH, whereby engagement isn't reliant on previous experience in outdoor horticulture-based activities and meets the needs of people of many different capacities. The study: *Effect of horticultural activities on environmental awareness and behaviour of youth with learning disabilities* included high-school students with learning disabilities partaking in a horticulture based program. Findings indicated positive results; one being '…that all students benefited from the activities with or without previous experiences in horticultural or outdoor activities. (Yamaya & Mattson, 2004). Further, the study *Design of evidence-based gardens and garden therapy for neurodisability in Scandinavia* (2016), attests to the multidimensional benefits of horticulture, with the inclusion of sensory gardens and the results were positive; '…gardening promoted physical movement, presented cognitive challenges and provided opportunities for social participation' (Spring, 2016). Another qualitative exploratory study sought to examine the meaning youth ascribe to a therapeutic horticulture approach, where youth gained '…holistic benefits including the social experience, the cognitive experience, resiliency, interconnectedness…' (Uvanile, 2012, pi). Reference to horticulture practice with children is recurrent in the literature and is discussed by Simson and Strauss (1998), with some of the advantages identified in engagement in horticulture activities were: learning to work together cooperatively, learning new skills and gaining transferrable skills that offer opportunities for success (Uvanile, 2012, pi). The relationship and perceived benefits between children and natural environments is clear (Reed, 2015, p20), as natural spaces are thought to be conducive to children's wellbeing. Bowker and Tearle (2007) found that children who took part in

a garden-based program were more motivated, achieved greater learning outcomes, and had increased self-esteem (Reed, 2015, p20).

The social dimensions of Therapeutic Horticulture – Fostering 'pro-social behavior'

Therapeutic Horticulture affords many social benefits for youth, promoting the concept of 'prosocial behaviour', that is, '…voluntary behaviours that contribute to the formation of healthy relationships with oneself, others and the environment…' (Suprise, 2013). The tenets of therapeutic horticulture have been shown to '…increase levels of self-confidence and self-esteem and enhance a sense of belonging and purpose' (Annerstedt & Wahrborg, 2011 et al, Surprise, 2013, p31). A study was conducted titled: *Horticultural Therapy Program for the Improvement of Attention and Sociality in Children with Intellectual Disabilities,* in which a TH program was created for the improvement of social skills and attention, involving 24 participants with an intellectual disability in Seoul, South Korea. The results were positive and '…the HT program improved the sociality of the children' (Kim et al, 2012, p320). Another study *the social dimensions of therapeutic horticulture* (2017) The participants were composed of two focus groups with mental health issues attending a garden project in southern England. Findings were positive, with enhancement in social engagement. (Harris, 2017, p1328). A further study on the social dimensions of TH; *The effects of social and therapeutic horticulture on aspects of social behaviour* (2014) analysed scores in four areas, namely; social interaction, communication, motivation, and task engagement, during a social and therapeutic horticulture program. The sample of participants included vulnerable and isolated people, most who had a mental health problem or learning disability (Sempik et al, 2014, p313) and the findings presented with an increase in social interaction.

Engagement in Therapeutic Horticulture enhances protective factors

The available evidence of therapeutic horticulture for many vulnerable, at-risk groups is affirmative. Engagement in therapeutic horticulture activities has numerous benefits can add value to just about every dimension of one's life, be it; physiological, psychological, social, emotional, cognitively, spiritual – bearing a holistic impact. Any nature setting or garden has a wealth of tools for engagement available, through nurturing plants we making learning more meaningful, as well as…social skill learning and prevocational' (Etherington, 2012, p11). The act of purely being outside; using the garden as a base for therapy, harnesses numerous healing benefits and opportunities for growth and resilience. Engaging in TH '…can enhance protective factors, such as developing self-awareness, building self-esteem, connecting youth with the community and the environment, and heightening their sense of mastery' (Annerstedt & Wahrborg, 2011 et al, Suprise, 2013, p31). Further, the skills and awareness one learns caring for plants parallels the compassion, awareness and curiosity one needs to care for themselves and others, and to thrive (Sabra, 2016, p32). Evidently, therapeutic

horticulture is a platform for enhancing protective factors in restoring a sense of security and stability (Annerstedt & Wahrborg, 2011, Suprise, 2013, p31).

Resilience: Re-affirming strength building in relation to vulnerability

Central to healing and recovering from trauma is children being active in their own healing and subjective experience, which '…. gives young people a renewed sense of self-control, safety and purpose' (Steele & Kuban, 2014, p19). In terms of responding to traumatic events, what has been referred to as 'positive psychological changes' is discussed, as an implicit component of the strengths perspective (Saleebey 1997; Rapp 1998; Harms, 2010, p125). Akin to this discourse comes the notion of resilience, which has been defined as "the process of, capacity for, or outcome of successful adaptation despite challenging and threatening circumstances" (Masten, Best, & Garmezy, 1990, pg. 426, (Happer, 2017, p30). Therapeutic Horticulture as therapy resonates with strength-building and opportunities for growth, which has '…a dual focus of improving personal competencies through the teaching of life skills' (Surprise, 2013, p30). Central to the healing process is empowering the child in their own process of healing and as such, TH attends to this in allowing the child to engage on their own terms.

Therapeutic Horticulture as a response to stress reduction and a response to PTSD

Studies have indicated that gardening promotes affective restoration from stress' (Detweiler et al, 2015, p36) and it is well accepted that spending time in nature alleviates stress. The literature explores how soldiers suffering from post-traumatic stress disorder (PTSD) following active service in WWI and WW2 received Nature-assisted therapy (NAT) and horticulture-based treatment (Poulsen et al, 2015). A relevant study: *Healing and Empowering Veterans in a Botanic Garden* discusses a program implemented in Chicago for war veterans in treatment for stress-related disorders (Kreski, 2016, p110), with the anecdotal and observed response to the program being overwhelmingly positive (Kreski, 2016, p110). Another review titled: *Whatever happened to the soldiers? Nature-assisted therapies for veterans diagnosed with post-traumatic stress disorder: a literature review* (2015) explored the response of horticulture and nature-assisted therapies for soldiers following the war. It was evident that most of the literature concludes that nature-assisted therapies (NAT) has a positive impact on the symptoms of PTSD for veterans (Poulsen et al, 2015). In another study: *Stress rehabilitation through garden therapy: The garden as a place in the recovery from stress* (2013), a rehabilitation programme for stress recovery using the therapeutic role of nature, in the form of a garden room, which was '…associated with many positive experiences… and greenery was perceived as a safe and useful arena in their recovery'(Adevi & Martensson, 2013, p230).

Therapeutic Horticulture incorporates sensory-based interventions as a viable response to trauma

It is proposed that sensory-based interventions or activities will be effective for the treatment of children and adolescents who have experienced trauma, fostering active participation in one's healing. This resonates with the practical, experiential learning that is adhered to in therapeutic horticulture in its creative and resourceful capacity. In the text *Working with grieving and traumatised children: discovering what matters most through evidence-based, sensory interventions* (2013), the authors contend that '…to be helpful we need to relate to grieving and traumatized children at a sensory level rather than primarily at a cognitive level' (Steele & Kuban, 2013, p24). A study titled; *Gardening as Therapy for Children with Behavioural Disorders* (1989) saw a gardening horticulture program installed by nurses for in-patients with behavioural disorders on a children's psychiatric unit (McGinnis, 1989), as a creative therapeutic pursuit. From this study, it was expected that engagement would produce physical, emotional and social benefits.' (p88). The creative therapy of gardening was tested on this unit and proved to be a successful component of the treatment regimen for many patients' (McGinnis, 1989, p87). Further, the text: *Gardening for children with autism spectrum disorder and special educational needs: Engaging with Nature to combat anxiety, promote sensory integration and build social skills*, highlights the effectiveness of sensory-based activities through engaging in horticulture, as well as a response to anxiety (Etherington, 2012).

Discrepancies in the literature and limitations of the review

It was ascertained through undertaking the review that there is a need for more research to be done in using Therapeutic Horticulture as an intervention for children and adolescents who have sustained trauma. However, as it has been utilised as a therapy for other vulnerable, at-risk groups, including as a response to trauma for veterans suffering PTSD, supporting the efficacy of using this intervention.

Conclusion

Based on the existing evidence on the therapeutic and healing values of Therapeutic Horticulture support the notion that it dynamically addresses and contributes to human wellbeing in a wealth of ways; '…from physical and cognitive, to spiritual and emotional' (Ballon, 2012, p10). Therapeutic Horticulture can be offered as a therapy for children and youth who have experienced the complex dimensions of trauma; which actively encompasses a sensory-based focus; while fostering empowerment, engagement, capitalising on strengths and personal agency. The evidence for the perceived benefits of therapeutic horticulture to combat risk factors and alike foster protective factors of resilience is apparent. Additional research is needed in specific relation to TH as a therapeutic intervention for trauma, but based on the overwhelmingly positive available evidence supporting this therapeutic approach; for a response to veterans post-traumatic-stress-disorder (PTSD) (as a trauma-affected group), as well as other vulnerable groups, it is viable to offer this therapeutic intervention as a response for children and adolescents who have experienced some form of trauma.

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