

The Effect Of Horticultural Therapy On The Elderly In Taiwan

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Abstract—This paper reviews the horticultural therapy literature and reveals horticultural therapy in promoting health and successful aging among elderly individuals in Taiwan. Scrutinizing previous literature, this paper focuses on the role of horticultural therapy related to the physical, cognitive, emotional, and social well-being of older adults. Four themes emerged from the analysis of the literature review: promoting health and successful aging through horticultural therapy, positive effects of horticultural therapy on the elderly, connecting with life and community through horticultural therapy, and using evaluation indicators to customize horticultural therapy. This review paper highlights the benefits of horticultural therapy for the elderly, including relief of emotional distress, development of social connections, and a sense of life meaning and self-integration. By engaging in activities such as planting and appreciating plants, elderly individuals experience improved emotional well-being and resilience against the physical and mental challenges of aging. The literature review suggests that horticultural therapy represents a valuable tool for elder individuals, families, caregivers, and community-based long-term care professionals. As a holistic intervention, it not only enhances physical and mental health but also supports social engagement and personal

development of the elderly. Consequently, horticultural therapy emerges as an effective social prescription for fostering healthy and successful aging in older populations.

Keywords—*elderly, horticultural therapy, healthy aging, successful aging, social prescription*

The Effect of Horticultural Therapy on the Elderly in Taiwan

The global average lifespan is steadily increasing, resulting in a growing proportion of elderly populations. According to the World Health Organization (WHO, 2022), the population aged 80 and above is projected to double between 2020 and 2050. The transition from an aging society to an aged society occurred in 2018, Taiwan is expected to become a super-aged country by 2025 (National Development Council, 2022). People aged 65 and older constitute 18.35% of the total population, with this proportion rising annually; and currently, 23.3% of individuals aged 65 and older live alone in Taiwan (Ministry of the Interior, 2024). As the elderly population grows, it becomes imperative for professionals, policymakers, families, and the elderly themselves to pay attention on the issues related to healthy and successful aging. Horticultural therapy proves effective to support physical health, cognitive function, emotional stability, and social connectivity among the elderly (Wei, 2023; Yun et al., 2023).

Researchers in this study reviewed over 30 studies with key terms such as “healthy aging,” “successful aging,” and “horticultural therapy.” The existing literature supports the role of horticultural therapy in supporting healthy and successful aging.

Healthy and Successful Aging

Aging is accompanied by the gradual decline of physical functions and social transitions due to factors such as the loss of loved ones, children leaving home, and retirement. These changes often lead to the loss of personal roles and an increased need for care. The expanding elderly population also poses challenges for caregiving systems. To address these challenges, the WHO introduced the Decade of Healthy Aging 2021–2030 initiative, which emphasized creating age-friendly environments, combating ageism, adopting person-centered care models, and strengthening long-term care to improve the quality of life for older adults (WHO, 2022). Healthy aging as “the process of developing and maintaining functional ability enables well-being in older age” (White House Conference on Ageing, 2015). It emphasizes to maximize the physical, mental, and social well-being of older adults, thereby fostering independence and reducing the societal burden of aging.

Similarly, Taiwan launched the Long-term Care 2.0 program in 2016, which integrated diverse services, including home-based and residential care, to support aging in place (Ministry of Health and Welfare, 2016). This program aims to enhance preventive and prognostic care by leveraging community resources to provide health promotion activities for frail, unhealthy, and/or healthy elderly individuals, thereby fostering an age-friendly society (Ministry of Health and Welfare, 2024). Given the demographic trends in Taiwan, fostering healthy and successful aging is essential.

Healthy aging is an ongoing developmental process aimed at sustaining physical health, cognitive

function, emotional well-being, and social engagement, which collectively contribute to the broader concept of successful aging. Rowe and Kahn (1997) defined successful aging not only as minimizing disease and disability, but also as maintaining high cognitive and physical function, and engaging actively in social relationships. Healthy aging requires adaptive strategies to manage physical, familial, and spiritual transitions (Hung et al., 2010). Nguyen et al. (2019) highlighted the importance of social support and autonomy alongside physical and mental health in achieving healthy aging. Bryant et al. (2001) emphasized the importance of meaningful activities, resilience, external resources, and proactive engagement in achieving successful aging. In brief, perspectives of older adults on successful aging include social connections, optimism, health, financial security, life participation, spirituality, autonomy, cognitive and physical activity, and achieving a “good death” (Teater & Chonody, 2020).

Among various care interventions, horticultural therapy has emerged as an effective approach to promoting well-being among older adults (Chen et al., 2018; Wang et al., 2022; Yao, 2015; Yun et al., 2023). Horticultural therapy, often described as a form of “social prescription,” integrates social activities with therapeutic interventions to enhance physical, mental, and social health (Wang et al., 2022; Drinkwater et al., 2019). As a non-pharmacological intervention, it links medical and care services with community resources, reducing healthcare costs while promoting public health (Frostick & Bertotti, 2019).

Horticultural Therapy Facilitating Healthy and Successful Aging

Plants serve as a medium for fostering self-awareness and interpersonal dialogue, enabling individuals to connect with their lives and communities. The act of sowing, nurturing, and harvesting plants mirrors the human life cycle, providing opportunities for

reflection, self-integration, and emotional expression (Erikson et al., 1994). The notions of horticultural therapy align with Ryff and Keyes' (1995) framework of well-being, which includes emotional well-being (positive emotions and life satisfaction), social well-being (social acceptance and self-realization), and psychological well-being (self-acceptance, purpose in life, and autonomy).

By engaging in horticultural therapy, older adults can achieve developmental maturity and enhanced well-being at both individual and community levels (Lopez et al., 2018). Through this therapeutic process, elderly individuals not only benefit physically and mentally but also experience improved social interactions, emotional resilience, and a deeper sense of purpose and meaning in life. As societies grapple with the challenges of aging populations, horticultural therapy offers a holistic and cost-effective solution to support healthy and successful aging (Chen, 2016; Chen et al., 2018). By integrating physical activity, cognitive stimulation, and social engagement, horticultural therapy helps elderly individuals navigate the complexities of aging while fostering emotional well-being and social connectivity. For policymakers, caregivers, and families, incorporating horticultural therapy into aging care strategies represents an effective approach to addressing the needs of older adults in an increasingly aging world.

Horticultural Therapy in Taiwan

Horticultural therapy refers to professionally guided gardening-related activities designed to achieve therapeutic, rehabilitative, and/or occupational goals, with therapeutic effects emerging through engagement in these activities (American Horticultural Therapy Association, 2024). Plants chosen for horticultural therapy should be resilient, rich in sensory stimulation, and culturally relevant to participants. Therapists should understand the attributes, growth patterns, and care requirements of plants to design interventions.

Promoting Health and Successful Aging through Horticultural Therapy

Humans have an intrinsic connection with nature, which influences the nervous system, eliciting feelings of relaxation, calmness, and stability (Chen, 2021). The therapeutic effect arises from the dynamic interactions between individuals and plants, encompassing physical labor in gardening, emotional investment in appreciation of plants, and the impacts of plant growth on individuals (Relf, 2005). Lee (2021) identified "care" and "life experience" as key features of horticultural therapy, emphasizing that caring for plants can evoke past memories, and foster self-worth and self-identification. By engaging participants' gardening interests, horticultural therapy creates a reciprocal exchange wherein the vitality of plants inspires the vigor of participants.

Horticultural therapy integrates prevention and treatment into daily life, encouraging self-help and mutual assistance. By fostering self-reflection, horticultural therapy alleviates emotional distress and symptoms, using plants as a medium for building supportive relationships. As an intervention, it utilizes gardening as a medium, wherein therapists assess clients to establish goals and develop tailored activities. Through processes such as "integration, experience, resonance, and sharing," participants experience the restorative effects of nature and plant life (Shen, 2010). Participants revisit past experiences, engage in the present, and find new meaning in life. Garden spaces and plant stations offer opportunities for stress relief and healing through activities such as planting and appreciating plants (Shen, 2021).

Positive Effects of Horticultural Therapy on the Elderly

Research consistently demonstrates the multifaceted benefits of horticultural therapy for the elderly. Wang et al. (2022) identified improvements in

physical function, emotional well-being, and overall quality of life. Horticultural therapy enhanced physical abilities such as standing, arm flexibility, wrist endurance, and muscle strength, while also stabilizing blood pressure, reducing BMI, and boosting immune cell levels. Social interactions during therapy sessions fulfilled the elderly's social needs, increased social interest, and fostered positive emotions, further enhancing their overall quality of life.

Chung and Chwo (2024) examined horticultural therapy among elderly individuals with dementia in long-term care facilities, finding significant reductions in depressive symptoms and improvements in self-esteem and well-being. Similarly, Huang et al. (2014) highlighted the physical, psychological, and cognitive benefits of outdoor gardening activities for older adults. Chien and Hsieh (2015) conducted an eight-week horticultural therapy program in nursing homes, reporting that 80% of participants experienced stable or improved mental states, along with enhanced physical, psychological, and cognitive outcomes. Chen and Ji (2015) observed significant reductions in depression and loneliness among nursing home residents following a 10-week horticultural therapy program.

In a community care setting, Chen et al. (2021) implemented a six-week horticultural therapy program with 65 elderly participants, reporting improved cognitive functions, including spatial perception, memory, and executive functions, as well as enhanced general health. Wu (2023) emphasized the importance of incorporating nostalgia, safety, sensory stimulation, and social engagement into horticultural therapy designs to enhance cognitive, emotional, and social adaptability.

Wei (2023) conducted a two-stage horticultural therapy program with 13 elderly participants aged 55 and older. Data from diaries, observation records, feedback sheets, interviews, and questionnaires

revealed that participants gained knowledge about plants and health care, found gardening enjoyable and practical, and experienced increased group cohesion. The activities stimulated creative inspiration, spiritual growth, and improvements in physical, cognitive, emotional, and social well-being.

Liu and Chu (2018) explored the emotional experiences of elderly individuals with mild to moderate dementia, noting increased contentment, achievement, and optimism during horticultural therapy sessions. Lee et al. (2022) highlighted that horticultural therapy rekindled participants' passion for life and engagement in purposeful activities, fostering a cycle of positive emotions and well-being, consistent with findings by Layous and Lyubomirsky (2014). Horticultural therapy positively impacts physical, mental, social, cognitive, and economic well-being (Chen et al., 2018). Yao (2015) compared elderly residents of long-term care institutions before and after participating in 8-week horticultural therapy. The participants showed significant improvements in daily life functions, sense of well-being, meaning of life, and interpersonal interaction.

Horticultural therapy demonstrates significant potential as an intervention for promoting health and successful aging among the elderly. Its holistic approach addresses physical, emotional, social, and cognitive dimensions, offering therapeutic benefits through engagement with nature. These findings suggest that incorporating horticultural therapy into aging care frameworks could improve the quality of life for elderly individuals, supporting their well-being and fostering meaningful connections with their environments and communities.

Connecting with Life and Community through Horticultural Therapy

Plants with therapeutic potential support individuals to connect with nature within their living environments.

Chen and Ji (2015) explored the experiences of elderly participants in horticultural therapy and identified core themes, including expectations, hope, a sense of accomplishment, companionship, and social connection. Chen (2021) highlighted the importance of integrating medical and community systems in delivering social prescriptions, enabling personalized, community-based services that build social health capital. Similarly, horticultural therapy activities for the elderly provide various benefits, such as low physical demands, creative and diverse activities, and role reversal between caregivers and recipients (Feng & Kuo, 2020). It enhances the elderly's responsibility and self-efficacy, sensory stimulation, social engagement, and emotional improvement. Hsin and Lee (2014) reported that the elderly in the institution participated in seven-week gardening activities; and they increased interpersonal interaction, reduced loneliness, and improved physical and mental health.

By addressing individual health needs and fostering community identity, horticultural therapy serves as an effective medium for cultivating connections within communities. Horticultural therapists play a pivotal role in connecting community elders by forming horticultural therapy groups. Through community gardening activities, the elderly can foster interpersonal interactions and relationships, and encourage shared experiences and participation. Gardening activities serve as a bridge for enhancing outdoor engagement and appreciation of plants, while also deepening participants' understanding of the cultural and historical landmarks of the community in which they live in. These experiences contribute to building a sense of belonging, engagement, self-worth, and life meaning.

Using Evaluation Indicators to Customize Horticultural Therapy for the Elderly

Feng (2014) proposed that plants suitable for horticultural therapy should possess characteristics

such as easy maintenance, rapid growth, multiple uses, and sensory stimulation (e.g., visual, olfactory, and tactile features). Additionally, plants with cultural or symbolic significance can enhance the therapeutic experience. To assist therapists in selecting appropriate plants, Feng categorized evaluation indicators into three dimensions. First, plant characteristics include olfactory stimulation, cultural symbolism, edibility, and multifunctionality. Second, aesthetic sensory plants appeal to encompass visual and appealing experiences. Third, easy-to-grow plants highlight low maintenance, quick propagation, and rapid growth cycles of plants. These indicators enable horticultural therapists to screen and select plants based on seasonal and regional conditions, ensuring the practicality and effectiveness of horticultural therapy activities.

Customization of horticultural therapy is essential to address the unique physical, emotional, and social conditions of elderly individuals. For instance, therapy plans for the elderly may begin with simple, repetitive tasks to maintain hand muscle flexibility, gradually increasing complexity to build confidence and engagement. For solitary elderly individuals, the focus of interventions should be on strengthening social connections, as their support networks often include family members and friends (Hsin & Lee, 2014). Incorporation of community resources and sources of local surroundings into horticultural therapy further facilitates social integration of the elderly (Hsieh, 2014).

Chan (2024) invited 30 elderly residents from nursing homes and long-term care institutions to participate in horticultural therapy. Results show that horticultural therapy intervention reduce their loneliness. Male participants feel less lonely than female participants, and participants with higher extroversion traits reveal lower degree of loneliness. The findings of this study also report that horticultural

therapy is effective overall, but no significant difference exists in the effect of loneliness reduction among elderly people with different personality traits.

Huang et al. (2014) emphasize the therapeutic potential of small indoor plants, which can soothe emotions and provide a temporary reprieve from stress. These plants serve as a gateway to emotional reflection and the motivation to engage in other activities. For solitary elders, incorporating green plant spaces near or into their homes can provide emotional relief while fostering sensory stimulation and symbolic connections to life. Horticultural therapists must carefully consider the characteristics of the elderly, the relationship between plants and the environment, and the metaphors plants hold to create meaningful and effective interventions.

Conclusion

Through engagement with plants, communities, and nature, elderly individuals can reconnect with past experiences and forge meaningful relationships with their surroundings. Horticultural therapy promotes social development, self-integration, and a sense of belonging, offering holistic benefits to physical, mental, social, and cognitive health. Horticultural therapy is helpful for elderly individuals to maintain physical health and cognitive function and to facilitate healthy and successful aging. It, as a medium, can enhance interpersonal interactions, relationship building, and social network connections among the elderly, fostering a friendly, positive, and active atmosphere of community. Using evaluation indicators to customize horticultural therapy can be tailored to the characteristics of the individual elder and the features of the community context. Horticultural therapists should carefully observe participants' physical abilities, emotional states, social interactions, and cognitive needs to design tailored activities that foster engagement and well-being. Collaboration among community service organizations, long-term care

professionals, and family members can further enhance the safety and inclusiveness of horticultural therapy programs, while family members play an essential role in encouraging elders' participation and supporting the development of partnerships in horticultural therapy. As an effective green social prescription, horticultural therapy leverages community resources to promote healthy and successful aging. By connecting the elderly with plants, culture, and nature, horticultural therapy enhances their physical and mental health, facilitates their interpersonal interactions, and strengthens their social support, independence and autonomy. The literature review collectively contributes to the goal of achieving healthy and successful aging.

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