

Effect of Horticultural Therapy in Psychopathology among Patients with Psychiatric Disorders: Depression as a Module for Clinical Study

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Abstract

Background: The burden of psychopathology and mental disorder continues to grow with significant impact on health and major social, human rights and economic consequences in all countries of the world, with the depression account for the largest part which affect over 300 million people worldwide with women more affected than men.

Aim: This paper aimed at evaluating the effectiveness of horticultural therapy in the treatment of patients diagnosed depression and psychopathological conditions. The paper reviewed literature related to the effectiveness of horticultural therapy in the treatment of patients with psychopathological condition that were published both locally and internationally.

Methods: Various studies employed nonrandomized clinical trials. The DMS-IV&V scale were employed for specification of mental disorders. For pragmatic reasons, the research team conducted a nonrandomized, pretest-posttest, controlled group study in most of the reviewed papers. The horticultural therapists participated in the activities and closely observed changes in behaviors of the patients diagnosed with depression and other psychopathological conditions.

Results: The results of various reviewed papers found significantly larger improvements for the horticultural therapy group vs the control group among patients with dementia and significantly improved level of agitation, cognition and total sleep time $r = 0.612$, $P < 0.01$, $r = 0.544$, $P = 0.000 < 0.01$. On discharge, the patients were evaluated for effect size (ES) up to 0.61) within both groups. The other study demonstrated significantly larger improvements in patient diagnosed of depression for the horticultural therapy group vs the control group in SF-36 functional domains: physical (ES = 0.61 vs 0.12; $P = .011$); SF-36 mental health (ES = 0.46 vs 0.14; $P = .032$).

Conclusion: The addition of horticultural therapy to a patient with depression and other psychopathological condition results in better clinical outcomes and is considered safe and effective. Therefore, the integration of new set of nature paradigms in the management of mental disabilities in our local settings is recommended.

Keywords: Green; Care; Horticulture; Depression; Therapy

Introduction

The burden of mental disorder continues to grow with significant impact on health and major social, human rights and economic consequences in all countries of the world, with the depression account for the largest part which affect over 300 million people worldwide

with women more affected than men (World Health Organization, 2017). A study in United States of America reported that 1 in every 5 adult was affected with this disease (National Institute of mental health). Rates of depression across the African continent are higher than those found in Europe or the United States [1]. Depression in Africa affects women at twice the rate of men and is the number one cause of disability for African women of reproductive age [2]. According to a recent study conducted at Aminu Kano Teaching Hospital North Western Nigeria, the prevalence of depression among the mean ages of 36 years was reported to be 49.8% which shows an increased compared to the previous prevalence of 25% and 38.5% reported in earlier studies [3].

The impact of depression on the life of an African woman is wide-ranging and severe: Depressed patients required significantly higher health care costs [4] and are at a heightened risk of contracting HIV/AIDS [5]. Depression sufferers exhibit more maladaptive parental behaviours such as harsh punishment and spending less time with their children [6]. Children of depressed mothers have poorer health, lower primary school attendance and achievement, and are at increased risk for depression during childhood and adolescence.

The response to this health crisis is extremely deficient, on average 85% of Africans suffering from depression have no access to effective treatment [7] "If the extent of human suffering were used to decide which diseases deserve the most medical attention, then depression would be near the top of the list... depression is the biggest blight on human society - bar none" (Nature Magazine, November 2014).

Conventional treatments for depression such as psychotherapy and pharmacotherapy provide Relief for approximately 50% - 70% of patients who complete treatment [8]. One third of individuals who access treatment for depression terminate prematurely because they are not satisfied with their present treatment or these individuals are unable to tolerate the side effects from the Medication they are prescribed [8]. Considering the impact of depression on human beings, the importance of gardening in the process of healing the disabled and mentally ill by restoring, and improving their health and well-being deserves particular attention in psychopathology. Therefore, knowing and understanding the symptoms of depression, using selected skills, and strategies including horticultural therapy to reduce the impact of depression may improve functioning for the participants in a horticultural therapy. Through horticultural therapy, an individual can strengthen coping skills for depression through horticultural activities which can lessen depressive symptoms.

Methodology

Various studies employed nonrandomized clinical trials. The DMS-IV&V scale were employed for specification of mental disorders. For pragmatic reasons, most research teams conducted a nonrandomized, pretest-posttest, controlled group study in most of studies. The horticultural therapists participated in the activities and closely observed changes in behaviors of the patients diagnosed with depression and other psychopathological conditions and significant improvements were found with the use of horticultural therapy in most of psychopathological condition with depression being the leading clinical module for the study.

The first recorded use of horticulture in a treatment context occurred in ancient Egypt, when court physicians prescribed walks in palace gardens for royalty who were mentally disturbed [9]. In the 1800s, horticulture as therapy was conducted to people with mental disabilities, disadvantaged young people and mentally handicapped children in the US. During and after World War II, horticulture was adopted extensively in hospitals. In 1951, a horticultural program started in hospital's geriatric ward [9]. Horticulture became a kind of therapy in hospitals conducted by medical staff such as occupational therapists in the US. Horticultural therapy (HT) is defined as a process through which plants, gardening activities, and the innate closeness we all feel toward nature are used as vehicles in professionally conducted programs of therapy and rehabilitation (Davis, 1998). HT is considered to consist of three components: environment, plants and people involved. Environment is classified into two categories: environment with greenery and environment without greenery. The former gives clients a comfortable atmosphere. In the latter, a horticultural therapist may think of using a container garden, cut flowers or handcraft of plants etc. to make the place more comfortable. Furthermore, he/she may think how to use plants in order to make clients

pleasant and to elicit or stimulate their remaining abilities. Here, plants are the objects of perception, cultivation (or use) and process. He/she may also think of utilizing people to attain clients' goal effectively.

Team for horticulture therapy doctors, nurses, care workers, family members, friends and colleagues in the same hospital or facility are kinds of vehicles too. A horticultural therapist makes the best plan by combining and coordinating these vehicles effectively. HT is adopted successfully for various groups of patients: people with physical and cognitive impairments, seniors, cancer patients, physical therapy clients, alcohol recovery clients, spinal cord and brain injury patients, people with neurological impairments, Alzheimer's and dementia groups, children, etc. Virtually, it is applicable to all patient groups. In the 1st European COST Action 866 conference, horticultural therapy is a kind of Green care (Ferrar and Hine., *et al.* 2007) reported that therapeutic applications of various green exercise activities and other nature based approaches such as therapeutic horticulture are effective at promoting health and well-being and by enabling healthier communities, Green care may have great potential to reduce the cost of public health HT became well-known in Asian countries such as Japan, Korea, Taiwan, and China recently. Those Asian countries are faced with aged or aging societies, which may be one of the reasons for attracting attention to HT in these countries.

Results

The results of horticultural therapy in psychopathology were observed to have significant effects in viz; Stimulating the five senses, visible accomplishment, developing empathy and improvement in psychopathological conditions. The results of various studies found significantly larger improvements for the horticultural therapy group vs the control group among patients with dementia and significantly improved level of agitation, cognition and total sleep time $r = 0.612$, $P < 0.01$, $r = 0.544$, $P = 0.000 < 0.01$. On discharge, the patients were evaluated for effect size (ES) up to 0.61) within both groups. The other study demonstrated significantly larger improvements in patient diagnosed of depression for the horticultural therapy group vs the control group in SF-36 functional domains: physical (ES = 0.61 vs 0.12; $P = .011$); SF-36 mental health (ES = 0.46 vs 0.14; $P = .032$).

Discussion

Stimulating the five senses: It is known that views of nature have positive, physiological impacts on individuals whether or not they are consciously aware of them. These effects include lower blood pressure, reduced muscle tension, and lower skin conductance [10]. Plants which the client feels comfortable are used in HT. The color, shape, smell, touch and taste of plants, sounds of wind/water/insects/birds and conversation with others stimulate the sensory organs, attract people and make them comfortable. It is also believed that touching plants with beauty and good fragrance and doing gardening activities which the client feels comfortable lead to stress reduction in HT. taste see hear smell touch gustatory area auditory area visual area somatic area olfactory area. Stimulation of five senses in horticultural therapy Selection of plants is based on safety of the material and the environmental conditions for cultivation. In addition, the following plants are selected: plants which easily elicit the client's interest and are combined with his/her memory, plants which cause the sense of season, annual flowers and vegetables whose growth is fast and plants the client prefers.

Visible accomplishment: It is a common knowledge that decision-making is conducted by a man based on reward. Gardening is accompanied by germination, flowering and fruition after sowing or planting seedlings. Sometimes making a handicraft using plants is conducted in HT. These activities are so easy to understand visually that the rewards and results can be imaged soon. Because of this, gardening is suitable for conducting goal-oriented activities and easily leads to a highly-motivated action. Horticulture is a meaningful, purposeful activity that is motivating, normal, and tangible [11]. Even in the gardening work description, there is no need to explain the work in language only. Showing the motion of work enables the client to understand what he/she should do. This means that the tasks are easily recognized visually. Gardening provides good motivation for people with the declined memory function and/or reduced ability of undertaking tasks, patients with mental disorder who are in depression state, and people with intellectual disabilities who are not good at linguistic information processing. In gardening activities, such people can work with a sense of self-affirmation maintained.

Developing empathy: It was mentioned above that the environment, plants, people are the basic elements in HT. Plants, which are objects of gardening, are familiar for us all and the topics concerning them, e.g. the names, color, shape, anticipation for growth and fun of harvesting are acceptable for everyone. Such plants can successfully bring people empathic conversation and smile. Opportunities to communicate through the gardening like this will lead to enhancing motivation for life and self-affirmation. As horticultural activities have the potential to be highly effective means for improving social interaction [11], they might be also effective in practicing rebuilding the human relationships.

Stress reduction: Regain of confidence, Recovery of self-affirmation (useful sense of self), Preservation or recovery of mental functions. Mental functions, as listed in ICF, include orientation functions (orientation to time, place, person, etc.), energy and drive functions, attention functions (sustaining, dividing and shifting attention), memory functions, emotional functions, perceptual functions, thought functions, higher-level cognitive functions, mental functions of language, mental function of sequencing complex movements and experience of self and time functions. There is ongoing research on stress reduction after horticultural activities by analyzing some stress markers in saliva. As extraction of saliva is not invasive, it is suitable for validating the change of psychological stress before and after horticultural activities.

The physiological: Prevention of disuse syndrome of sensory functions, Reduction of sensations of pain, Preservation of neuromuscular, skeletal and movement-related functions E.g. Preservation of mobility, Improvement of ability of changing and maintaining body position, Preservation of ability of walking and moving, improvement of ability of self-care such as washing, dressing, eating and drinking.

In the 19th century, Dr Benjamin Rush a signer of the declaration of independent and recognized as the Father of American psychiatric, was the first to document the positive effect working in the garden had on individuals with mental illness. Base on this, many studies have been conducted on horticultural therapy. According to Borg and Davidson [12] study which looked at the effectiveness of horticultural therapy with individuals who experience severe mental illnesses and how they experienced the illness, its impact on daily life, and how they overcome challenges. The 13 participants result showed that horticultural activities were effective. Another study conducted recently shows significant reduction of depressive symptoms after horticultural activity [13]. Additional studies by Chambers 2009, Fried and Wichrowski 2008, Söderback, Söderström and Schäländer 2004 all conducted horticultural therapy in a rehabilitation setting with patients with depression as a result of illness or injury. Most of these studies looked at how the performance ability of participants can be altered based on the level of performance in a participant who is severely and persistently mentally ill that participates in a horticultural psycho-educational group [14].

Conclusion

The addition of horticultural therapy to a patient with depression and other psychopathological condition results in better clinical outcomes and is considered safe and effective. Caring environments always promotes the act of caring. Therefore, the integration of new set of nature paradigms in the management of mental disabilities in our local settings is recommended, and green care may have great potential to reduce the cost of public health.

Recommendation

Recommendations were made on how to achieve proper utilization of horticultural therapy:

1. Government should develop policy for establishment of horticultural garden within the psychiatric unit.
2. Training of psychiatric nurses on how to participate on horticulture therapy.
3. Implementation of horticultural therapy as a component of management of depression might have biopsychosocial benefits.
4. Promoting gardening and horticulture to the general public.

Bibliography

1. Ferrari A. "Burden of Depressive Disorders by Country, Sex, Age, and Year". *PLoS One* (2013): e1001547.
2. Institute of Health Metrics and Evaluation (2016).
3. Salihu AS and Udofia O. "Prevalence and Associated Factors of Depression among General Outpatients in a Tertiary Institution in Kano, North-Western Nigeria". *Open Journal of Psychiatry* 6.3 (2016): 228-236.
4. Patel V. "Prioritizing health problems in women in developing countries: comparing the financial burden of reproductive tract infections, anemia and depressive disorders in a community survey in India". *Tropical Medicine and International Health* 12 (2007): 130.
5. Prince A and Martin G. "Global Mental Health 1: No health without mental health". *The Lancet* 370.9590 (2007): 859-877.
6. Khasakhala L. "Major depressive disorder in a Kenyan youth sample: relationship with parenting behavior and parental psychiatric disorders". *Annals of General Psychiatry* 12 (2013): 15.
7. World Health Organization. "Depression Factsheet No 369" (2016).
8. Zhang W, *et al.* "Combination of acupuncture and fluoxetine for depression a randomized, double-blind, sham-controlled trial". *The Journal of Alternative and Complimentary Medicine* 15.8 (2009): 837-843.
9. Lewis AC. "Fourth annual meeting of national council for therapy and rehabilitation through horticulture". Philadelphia, PA, Development of the Profession of Horticultural Therapy, "Horticulture as Therapy: Principles and Practice". The Food Products Press (1976): 3-20.
10. Relf PD. "People-Plant Relationship". "Horticulture as Therapy", The Food Products Press (1998): 21-42.
11. Haller RL. "The Framework in "Horticultural Therapy Methods: Making Connections in Health Care". Human Service, and Community Programs, Boca Raton, FL, CRC Press (2006): 1-22.
12. Borg M and Davidson L. "The nature of recovery as lived in everyday experience". *Journal of Mental Health* 6 (2008): 138.
13. Alston LY. "The Effectiveness of Horticultural Therapy Groups on Adults with a Diagnosis of Depression". Masters thesis, College at Brockport, State University of New York (2010).
14. American Horticultural Therapy Association (2012).

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