

EFFECTS OF HORTICULTURE THERAPY FOR ELDERLY WITH DEMENTIA IN AN INSTITUTIONAL SETTING

A Literature Review

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Title:	Effects of Horticulture Therapy for Elderly With Dementia in an institutional setting.
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<p>Abstract:</p> <p>The aim of the study was to explore the benefits or the positive effects of Horticultural therapy that has on elderly with dementia , also other forms negative impacts such as loneliness, lack of physical activities and impairment's living in institution .which enhance the quality of life elders in institutional care.</p> <p>Method Literature review is the method that has been used to carry out this study. The data collected was analyzed using qualitative content analysis .Also for searching I search used was EBSCO, CINAHL, SAGE and Google Scholar. The results are grouped in categories and sub categories with the main themes to find out the result.</p> <p>Results The results showed that horticulture therapy has great impacts on the wellbeing's of elder's. Social support networks are important in the prevention of cognitive dysfunction and functional decline basically the demented person. There are many benefits were coming through with the experience of gardening among this age group. Previous researched articles are relevance to identify the effectiveness, acceptability of the study . The findings were presented positive effects on pain reduce stress reduction, improve fatigue and mood and increase social interaction, relaxation and environmental benefits which demonstrated positive intervention in dementia care. This study was guided by Rachel and Stephen Kaplan work on Attention Restoration Theory (ART) which was two types of attention, voluntary and involuntary to relief from mental fatigue and others.</p> <p>Conclusion people-plant interactions promote well-being of the Elders, and this interaction is very important not only for cure but also as a preventive treatment for individuals as well as groups which were enhancing life satisfaction, reducing loneliness and promoting activities of daily living.</p>	
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<p>Abstrakt:</p> <p>Undersökningens syfte var att utforska vilken nytta och vilka positiva effekter trädgårdsterapi har på äldre med demens. Dessutom utforskas hur terapiformen påverkar andra negativa inverknings så som ensamhet, avsaknad av fysiska aktiviteter samt nedsättningar av att bo på institution. Allt detta höjer livskvaliteten för äldre som bor på institution.</p> <p>Metod: Detta arbete är en litteraturöversikt. Det insamlade materialet analyserades enligt kvalitativ innehållsanalys. Databaser som användes var EBSCO, CINAHL, SAGE och Google Scholar. Resultatet grupperades enligt huvudteman i olika kategorier och underkategorier.</p> <p>Resultat: Resultatet visade att trädgårdsterapi har en stor inverkan på äldres välmående. Sociala stödnätverk är viktiga för att förebygga kognitiva och funktionella nedsättningar det vill säga de nedsättningar en person med demens har. Trädgårdsarbete hade stor inverkan på denna åldersgrupp. Tidigare forskning är relevant för att identifiera studiens effekt och acceptans. Resultatet visade positiva effekter på att minska smärta, stress och trötthet samt höja humör. Dessutom visade sig social interaktion, avkoppling och miljöförbättringar vara positiva interventioner i vården av personer med demens. Det här arbetet styrdes av Rachel och Stephen Kaplan som arbetar med Attention Restoration Theory (ART) som består av både frivillighet och ofrivillighet att minska mental trötthet med mera.</p> <p>Sammanfattning: Interaktion mellan människor och växter främjar äldres välmående. Denna interaktion är mycket viktig inte enbart som botemedel utan också som förebyggande vård för individer och grupper. Denna metod ökade tillfredsställelsen med livet, minskade ensamhet och främjade ADL aktiviteter</p>	
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FOREWORD

This thesis is dedicated firstly to the Almighty ALLAH WHO gave me the wisdom and strength to physically and mentally go through the entire process.

I am dedicating this work to my one and only daughter YUSRA so far, my beloved husband A.Rahman. and I am really great full to my family, my MOM and other family members have been praying and encouraging me, giving me hope always. My family friends Asma Khatun and Rezia hossain who were supporting me through the whole of my academic year and also I am great full to my Arcada school friend who are assisted and helped me.

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Farida Perveen

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1 INTRODUCTION

Throughout the world the number of older people is increasing rapidly, especially the oldest. According to The World Health Organization (WHO 2011), the world's elderly population age 60 and older as of 2011 was 650 million people, and this figure is estimated to reach 2 billion by 2050. (Official Statistics of Finland (OSF:2011))

Also the population in the WHO European Region is ageing rapidly: its median age is already the highest in the world, and the proportion of people aged 65 and older is forecast to increase from 14% in 2010 to 25% in 2050. (Official Statistics of Finland (OSF:2011)) Due to this sharp increase, it is really difficult or efforts to maintain elderly people active have been done by investigating all possible factors that may affect their lives. In addition to the size of elders different physical and mental diseases and impairment hamper functional ability that are the most common among the oldest, large number of the elderly. Residents in nursing home also stressed the feeling of loneliness and other negative feelings which effects on their health status and promote to a poor quality of life.

Horticulture is the art of cultivating fruit, flowers, and vegetables. It's use as a therapeutic modality. (Burgess 2008:52) Horticultural activity may be new strategy for elderly to enhance their physical mental, social and cognitive functions. Horticultural therapy is nature oriented and person centered therapy .Horticultural therapy has a pre-defined clinical goal on the basis of clients need and interest. Horticulture and gardening are used by many occupational therapists both to promote the physical wellbeing such as development motor skills ,pain control and also to promote social and mental and cognitive wellbeing of elders to develop their social skills ,networks and social interactions, particularly for those with mental health problems also improve functional activities.

In the old age, adults face the risk of experiencing a dementing illness. Individuals with dementing illness were very typically experience for the progressive impairment in mul-

multiple areas of functioning. In developed countries there is a rapidly increasing occurrence of dementia in the elderly. Dementia is normally treated as a cognitive decline problem, for the treatment of dementia uses the drugs that are demonstrated efficacy for patients with mild to moderate dementia, although some drugs have some deteriorating effects. Horticultural therapy is very significant as non-pharmacologic interventions. It is more active to improve the patients' cognitive function and quality of life. It encourages patients to use their five senses or sensory stimulation of some activities such as basking in the sun, feeling the wind blow, and hearing the song of birds and the sound of water flowing. This is also the low-cost therapy. (Yasukawa 2009 p431)

With the increase in average life expectancy, the impact of disease and the increase in the prevalence of disabilities, older adults are in increasing need of some form of alternative accommodation for their care facilities. Nursing homes basically provide different facility for elderly on the basis needs for disabled older people who are unable to function independently and who will benefit from 24-hour access to personal and professional care from nursing staff. However, life in nursing homes is very limited physical and social activity, leading to further decline in function for many older people (see Tse 2008:949). It is true that the number of elderly living in long-term care will be increase. In nursing homes they were very limited activity, they felt loneliness, less freedom. In this circumstance, horticulture therapy can play an important role as a treatment or a rehabilitation process to enhance their self-esteem and quality of life.

Therefore based on the above all facts and as study interest this paper attempting to define horticulture therapy to improve the daily living and also develop psychological, social, cognitive wellbeing of older people especially in dementia people who are living in nursing homes.

In Finland 2010 Increasing numbers of elderly was 17.5% (941,000) it will be rise in future 2020 is 22.9%(1,290,000) and 2060 will be 28.8%(1,770,000). (Statistical Days 2011: Population: Migration and Aging May 30-31, 2011, University of Helsinki) So Big number of senior citizens or dependency population will be facing different kind of chronic diseases and for that reason they need institutional care during their later life. This circumstance burden the health care system. Horticulture therapy can be consider a supportive environments which may reduce health care cost, it can provide positive

health outcomes ,also HT provide aesthetic pleasure and possibilities for engaging in meaningful activities. It may enhance coping capability during institutional living. The intention of this study was to define horticulture therapy and its actions which are related to plants that plants effects could be associated with the well-being of the elderly living in long-term care.

1.1 Aim and research questions

The aim of the study was to explore the benefits or the positive effects of Horticultural therapy that has on elderly with dementia, also other forms negative impacts such as loneliness, lack of physical activities and impairment's living in institution .which enhance the quality of life elders in institutional care In order to arrive at the objective of this work, the author will be guarded by one research question:

1. What are the benefits or positive Effects of horticulture therapy on elderly with dementia living in institution?

This thesis has been commissioned by the Kustankartano Elderly home's Snoezelen and Garden Therapy service, situated in Helsinki, Finland. In Kustankartano a total of 515 placements, there is long term care 404, short term 45 social crisis care 10 and intermediate care 56. Nursing home in Kustaankartano providing residents with geriatric care and special geriatric care like dementia care psycho geriatric care, physically disabled care and social crisis care. In nursing homes overage age 84, over 90 years 20%, under 65 years 0.2%.Male 25%, Female 75%.Average time of staying 4 years (Kustaankartano presentation document paper). Moderate or severe demented are about 70%. The mission of the organization is to continue development of gerent logical nursing and participating in gerent logical solutions, also ensure the good care and a safe and valuable life for resident. The author is carrying out the idea from rehabilitation practical training in Kustaankartano. During the working time the author observed the clients

especially ones suffering from dementia and how they reacted or communicated with natural environment especially in the outdoor garden in the Kustankartano.

2 BACKGROUND

The purpose of the present study to examine the effectiveness and utility of Horticulture Theory (HT) activities with different disability also cognitively impaired older adults. HT activities have the advantage of representing familiar tasks that can easily be adjusted to participant's' needs and interests. This work specifically concentrates on the effectiveness of horticulture therapy among the older adults basically suffering from dementia in the long term care. Over the last several decades, horticulture has been utilized as an effective treatment modality for individuals with various disabilities and needs, including adults with physical and mental disabilities, children with disabilities, frail older persons, and inmates (Relf et al, 1992). Regardless of the population receiving treatment, HT programs share the ultimate goal of improving both the physical and mental health of individuals.

According to the Alzheimer's Society (Alzheimer's Disease International, 1999) there are approximately 18 million people with dementia in the world today. In Finland, 2011, every fifth death at the age of 80 or over was caused by dementia or Alzheimer's disease. The number has more than doubled over the past 20 years.(Official Statistics of Finland (OSF):2011) Dementia becomes more common steeply with age, along with the lengthening of life expectancy; more people get dementia and die as a result of it. This concerns particularly women, because women live longer than men do, on average. The number of deaths from dementia and Alzheimer's disease was 6,200 in 2011. Sixty-nine per cent of them were women. Nearly three-quarters (71.4%) of deaths were caused by Alzheimer's disease.

Horticulture has been widely adopted as a therapeutic activity for persons with disabilities. Evidence shows horticulture could promote physical and psychological well-being, and could be used in psychotherapy and rehabilitation for persons with different needs. In general, horticultural activity groups has been found to promote social functioning, self-efficacy of the persons with psychiatric illness who showed typical symptoms such as limitation in thought content, emotion and attention . In a horticulture therapy programme, participants learned to work with plants in a therapeutic, vocational or recreational setting. In general, there is evidence that program me conducted in outdoor envi-

ronment often demonstrated more positive result than program me conducted in indoor setting (see Kam and Sui 2010:81f)

According to Trellis et al People with dementia may also have problems controlling their emotions or behaving appropriately in social situations. Aspects of their personality may change. Most cases of dementia are caused by damage to the structure of the brain (NHS, 2010). This decline in brain function can have the effect of causing confusion, hallucinations, agitation and difficulties in controlling body movements. The majority of people with dementia are over 65 years of age and may have additional sensory impairments associated with aging such as deteriorating eyesight and hearing. They may also have declining physical mobility and strength as well as painful arthritic conditions etc.

Moving to and living in a nursing home is a difficult experience for many people. It is likely to be traumatic and depressing for those already struggling with loss of health or ill health, pain, dependency and limited social and material resources. The establishment of nursing homes serves older individuals who are unable to function independently .Nevertheless, nursing home placement implies an alteration of living environment, which can lead to reduced socialization with family and community, a decrease in physical activity and an increased perception of loneliness (see Tse 2009:950f).

Gardening can evoke nurturing feelings within us because plants in human care rely on us for basic needs. Lewis (1996) refers to this shift as a role reversal, stating that it is particularly effective with clients who believe that they are dependent on others. This is a way of giving back a sense of responsibility and independence, especially for those individuals who perceive that they have lost these attributes because of illness, disability or confinement. Horticulture, then, can play a valuable role in increasing self-esteem.

Living in nursing homes older people are much lower levels of physical activity for compared with those of community-dwelling older adults? In nursing homes, older people face changes in their daily life routine, social networks and support. The older person may feel a great sense of loss at leaving their beloved homes, family and neighbourhood. Nursing home residents have expressed loss of freedom, loss of control, feelings of loneliness and a sense of failure at having to stay in nursing homes Residents also stressed the feeling of loneliness in the nursing home and said that they were by

themselves and surrounded by 'strangers' and sick people (Tse 2007:950). Such negative feelings about life in a nursing home have detrimental effects on their health status, leading to a poor quality of life.

The new paradigm for older people care can prevent of functional morbidity and premature mortality, also enhancing the quality of life for older people .It is noted that gardening activity may be a good strategy for enhancing physical and cognitive function as well as socialization among older people. Gardening is defined as 'the art and science of growing flowers, fruits, vegetables, trees and shrubs, resulting in the development of the minds and emotions of individuals, the enrichment and health of communities and the integration of the garden in the breadth of modern civilization' (Relf 1992,p. 201). Gardening activities provide patients physiological stability and high-level functioning. The benefits of gardening on levels of physical ability can be seen in increased muscular strength, improved fine motor skills and improved balance, including transplanting, which needs the practices of grasp and release and flexion of the thumb and forefinger (Tse 2007:950).

Over the last several decades, horticulture has been utilized as an effective treatment modality for individuals with various disabilities and needs, including adults with physical and mental disabilities, children with disabilities, frail older persons, and inmates (Relf et al, 1992). Regardless of the population receiving treatment, HT programs share the ultimate goal of improving both the physical and mental health of individuals

An important study had done by Kaplan (1994); he looked specifically at the benefits for Alzheimer patients derived from sensory stimulation in a garden setting. In her preliminary review of the literature, Kaplan points out that the interrelatedness of physical and mental functioning is a well-established fact and that sensory deprivation has been linked with decline in mental functioning and cognitive impairment. In institutions where older people suffering from moderate to severe confusion from diseases, such as Alzheimer's, are placed together with little or no creative stimulation or organized activity, these conditions can worsen. This, says Kaplan, is particularly true when a lack of patient activity is combined with an absence of decision-making and individual responsibility. Horticulture therapy can serve as the antidote to these situations since even a very confused person, with direction, can participate in gardening activities and receive

the accompanying sensory stimulation. Kaplan believes this will contribute to a lessening of aggressive behaviours, agitation, and self-stimulatory behaviours such as skin scratching, masturbation, or prolonged rocking.

2.1 History

Plants and gardens have long been associated with the process of healing. The earliest civilizations, from Alexandria and Ancient Egypt through to Renaissance Europe, recognized the therapeutic value of plants. According to the American Horticultural Therapy Association (1996), Ancient Egyptian physicians prescribed walks in gardens for patients who were suffering from mental disturbance. Knowledge of the curative power of plants was the beginning of medical wisdom and for this reason, the earliest physicians were botanists (see McDowell 1997.p21f). History of the horticulture is traced as it gradually developed independent of agriculture, into the sophisticated art and science that it is today. 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 (see Toyoda. 2012:52). Some horticulture historians believe that horticulture 'began in Egyptian temple gardens where fruit trees, palms and grape vines were cultivated. Egyptian horticultural advances did happen not in isolation but were borrowed and refined from the horticulture innovations found in the near and Middle East such as irrigation, one of the most important technologies developed in agriculture and horticulture. (Von Baeyer 1999.p2f). During the Middle Ages, around the grounds of the monastery hospital, gardens were cultivated, not only for the medicinal value of the plants, but for the express purpose of cheering the melancholy patients(see McDowell 1997.p21ff). In the hospitals of the Middle Ages gardens were thought to treat both the physical and spiritual ailments of the sick who visited them. Nor was there a distinction between the mind and one's earthly self -- what was good for the soul was good for the body. When demand caused by migration trends, plagues and growing populations exceeded the capacity of these early hospitals, the responsibility of caring for the sick gradually shifted to civic authorities, and the profile of the restorative therapeutic garden also diminished significantly (see McDowell 1997.p21ff).

The late 1700s and the early 1800s, in clinical settings in the United States, England, and Spain, that this understanding of a people-plant connection began to evolve into something greater—an accepted approach to treatment. The 1800s: Horticulture's Use in Treating Mental Illness Evolves.

Benjamin Rush, born 1745 in the United States near Philadelphia, was to play a key role in re-establishing the institutional garden and making the connection between farming and patient health (See McDowell 1997:22f). He was considered to be the “Father of American Psychiatry” in the United States. He reported that garden can play an important role for settings have people with mental illness. (See Detweiler 2011) Rush observed that “digging in the soil seemed to have a curative effect on the mentally ill” this analysis inspired him. The hospital grounds included landscape-shaded paths through grassy meadows. Gradually in the United States, agricultural and gardening activities were included in both public and private psychiatric hospitals. (Detweiler 2011). Rush's belief coincided with a general trend during the 19th century which advocated that patients should work in the hospital gardens harvesting crops for practical purposes and also for the associated therapeutic benefit. (McDowell 1997:22f).

Also in the 19th century, developing theories on the spread of disease, such as the green or miasma theory which contended that air needed to circulate freely within hospitals in order to prevent the spread of infection, greatly influenced hospital design. The 'nightingale ward', named after nurse and public health reformer Florence Nightingale, emerged as the preferred design for hospitals, where the patient beds were contained in one large open area or pavilion, well ventilated with windows which looked out over the grounds outside. Into the early part of the 20th century, good nursing practice, in keeping with this philosophy, dictated that patients needed to be moved to sun porches and roofs for a treatment regimen of sunshine and fresh air. The Early 1900s: The Beginning Use of Horticulture in Physical Disability Programming

The horticulture therapy was to improve the care of veterans during the WWI. The enormous number of wounded veterans took horticulture use in the clinical settings. Initially, horticulture was used for occupational and recreational therapy as part of psychiatric rehabilitation. Another pioneer in the field of horticultural therapy was psychiatric social worker and occupational therapist Alice Burlingame. In the 1950's she sought to

develop tools and conducted research on the use of horticultural therapy in 1972 the Menninger Foundation teamed with the Horticulture Department at Kansas State University to provide training for undergraduate students in the mental health field.

2.2 Concept of Horticultural therapy

The American Horticultural Therapy Association (AHTA) believes that horticultural therapy is an active process which occurs in the context of an established treatment plan where the process itself is considered the therapeutic activity rather than the end product. Horticultural therapy programs can be found in a wide variety of healthcare, rehabilitative, and residential settings.” From “AHTA Position Paper” as posted on (American Horticultural Therapy Association (AHTA) 2007)

2.3 Definition of Horticulture Therapy

Horticulture is defined as the

“ art and science of growing flowers, fruits, vegetables, and trees and shrubs resulting in the development of the minds and emotions of individuals and the enrichment and health of community’s civilization ” (Relf et al (1992).

Horticultural therapy (HT) is a remedial process in which plants and gardening activities are used to improve the body, mind, and spirits of people.(American Horticultural Therapy Association (AHTA). (2007.)

According to the dictionary, horticulture is derived from the root words Hortus, means a garden, and cultura for which the dictionary refers us to the word culture. Under culture we find: cultivation of the soil; the development, improvement or refinement of the mind, emotions, interests, manners, tastes, etc.; the ideas, customs, skills, arts, etc. of a given people in a given period; civilization. (Relf ,1992).

HT is thought to be an effective and beneficial treatment for people of all ages, backgrounds, and abilities. The terms 'horticultural therapy' and 'therapeutic horticulture' are describe the process of interaction between the individual and the plants or gardens .The UK charity Thrive uses the following definitions of Horticultural Therapy and Therapeutic Horticulture which were agreed by UK practitioners at a conference on Professional Development held in September 1999:

“Horticultural therapy is the use of plants by a trained professional as a medium through which certain clinically defined goals may be met.”

“Therapeutic horticulture is the process by which individuals may develop well-being using plants and horticulture. This is achieved by active or passive involvement.” (See Sempiket al.2010 , p 40f.)

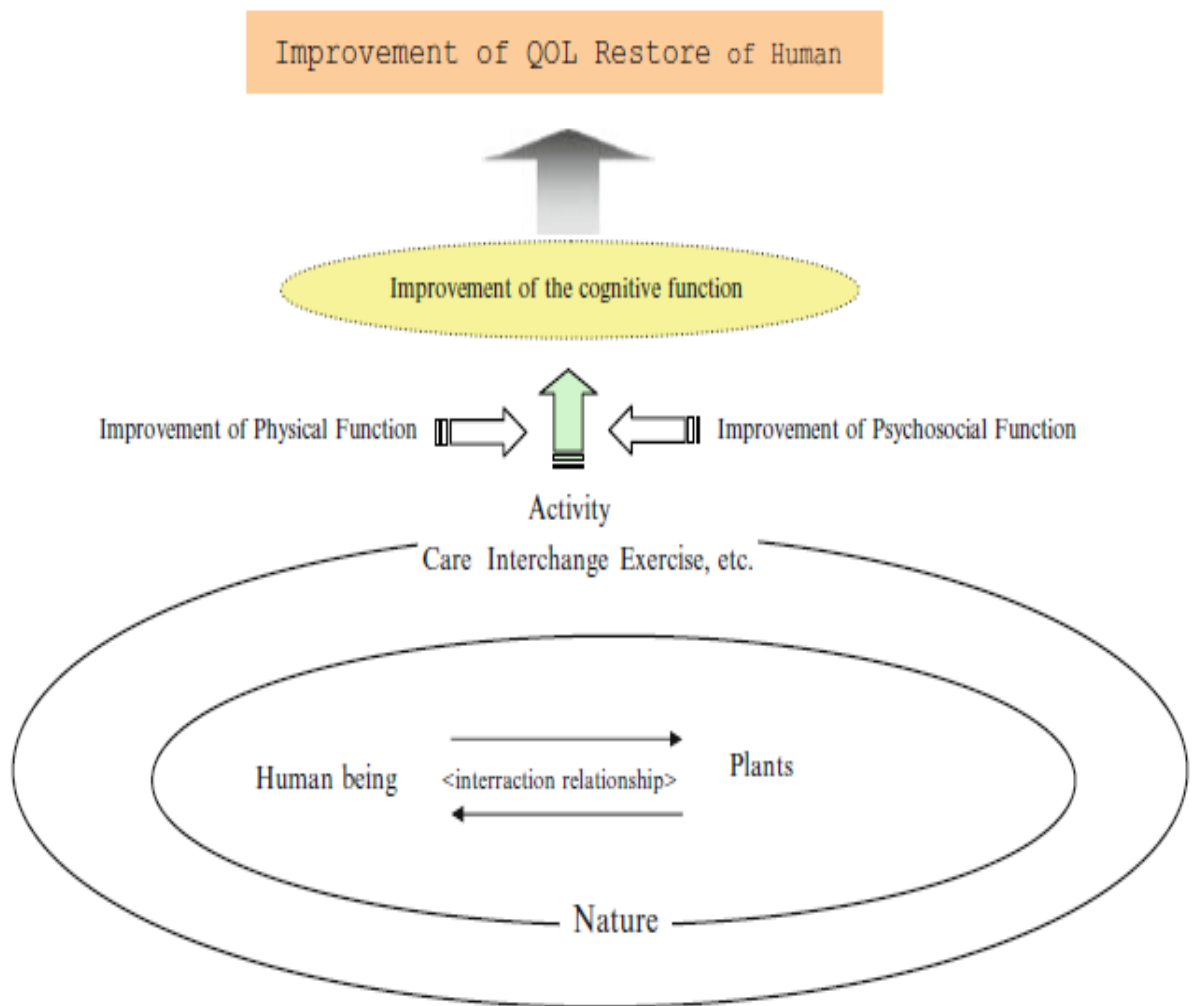


Figure 1 the process of development of human welfare and improvement of quality of life using horticulture therapy (Yasukawa 2009 p433f.)

According to Haller& Kramer “Horticulture therapy is professionally conducted client-oriented treatment modality that utilizes horticulture activities to meet specific therapeutic or rehabilitative goals of its participants” (2006:5)

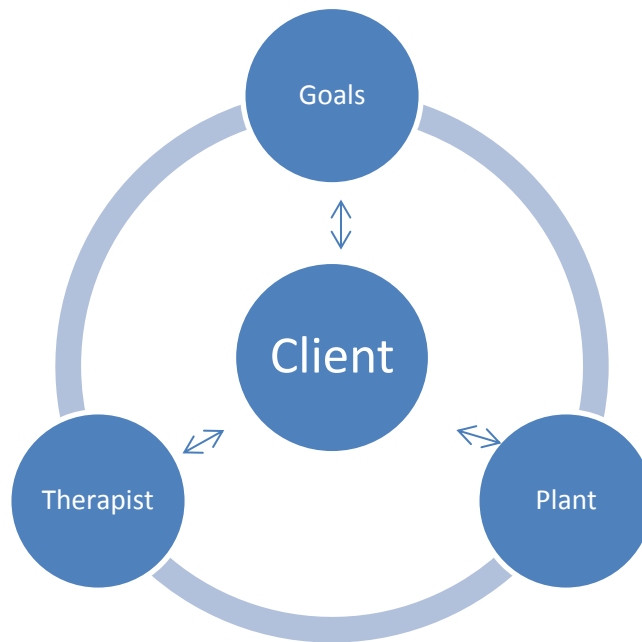


Figure 2 Practice perspective: Horticulture Therapy Elements and Process. Method (Haller & Kramer 2006 p6 f)

This model shows the client as the central figure within the process of horticulture therapy interaction (Figure 2). The client is both the receiver and initiator of the treatment process, The client is the person being served-usually someone with an identified need for intervention to improve, cognitive, emotional, physical or social functioning. Goals are those treatment goals and objectives defined by the client and the treatment team. The term Plant is used here to signify that garden and plant related activities and tasks used to provide therapeutic opportunities to the client the therapist interacts with the client through the plant or with direct contact. Plan activities are chosen to meet the goals of the client. The client interacts with all other elements and Centre of the diagram in horticulture treatment process.

2.4 Depression and Horticulture Therapy

Depression is common disorder and major health problem among elderly which negatively impact their quality of life and major depression increases somatic morbidity and mortality (See Rappe and Kivelä. 2005) .The prevalence of clinical depression in long-term care is high. In nursing home resident were less severe. One study reported that

garden setting or green care environment may alleviate the depression symptom as well as prevent depression, as stress reduce. Viewing natural settings for few minutes causes a rapid recovery from stress symptoms. (Rappe and Kivelä. 2005)

Physical exercise also has good link to reduce the depressive symptoms. Some negative feelings were showed in late life, such as guilt, apathy anxiety and cognitive symptoms. Viewing nature may associate a positive mood, also visit to balcony were indicate as passive nature experience which also associate as positive mood on clients. (Rappe and Kivelä. 2005)

2.5 Dementia and Horticulture Therapy for the Elderly

Horticultural therapy is an intervention that uses gardening to improve the treatment and rehabilitation of clients for their different goals. HT is especially suitable for older adults who have different disability. It can decrease or slow the negative effects of aging and reduce the occurrence of negative behaviours associated with dementia. Additionally, HT may be modified to suit persons with cognitive and social impairments caused by dementia so that individuals can experience success in the activity regardless of their abilities or impairments. (Jarrott et al.2002 p.403).

Therapeutic horticultural activities provide an ideal opportunity for engaging care-recipients with dementia in appropriate, stimulating, meaningful, and productive activities for modified cognitive and functional abilities.

Horticultural therapy consider as an effective method which may improve cognitive and psychosocial functioning of elderly people with dementia (Yasukawa 2009 p431) Now Horticultural therapy (HT) is utilized as rehabilitation perspective ,also from the medical fields especially such as occupational therapy and nursing care. So in that sense HT is effective for improvement of functional activities with brain-damaged patients. (Matsumot et al. 2008 p.269).

Most cognitively impaired dementia residents have little possibility of returning to a less restrictive environment. These residents are often dependent and confined to a safe custodial environment with limited exposure to natural settings. The mandatory indoor con-

finement of dementia residents can result in increased verbal and physical agitation and increased use of psychotropic medications. (See Detweiler et al 2008, P.31).

When patients were suffering dementia it also decreased awareness were presumed to receive sensory stimulation. Sensory stimulation was activating systematically. The flowers can make opportunities for stimulation through smelling and seeing. Memories connected to the sense of smell would increase arousal. Seeing butterflies and insects would stimulate eyes to follow them. Vegetables and spices would stimulate taste. Touches of different leaves from different species, identify with rough or smooth or hairy surfaces that would stimulate touch in the hand. Also they can feel sensations when standing or walking sand, soil in bare feet. Water, birds, bumblebees and soils make sounds that stimulate hearing and sound orientation. (Söderback. et al 2004)

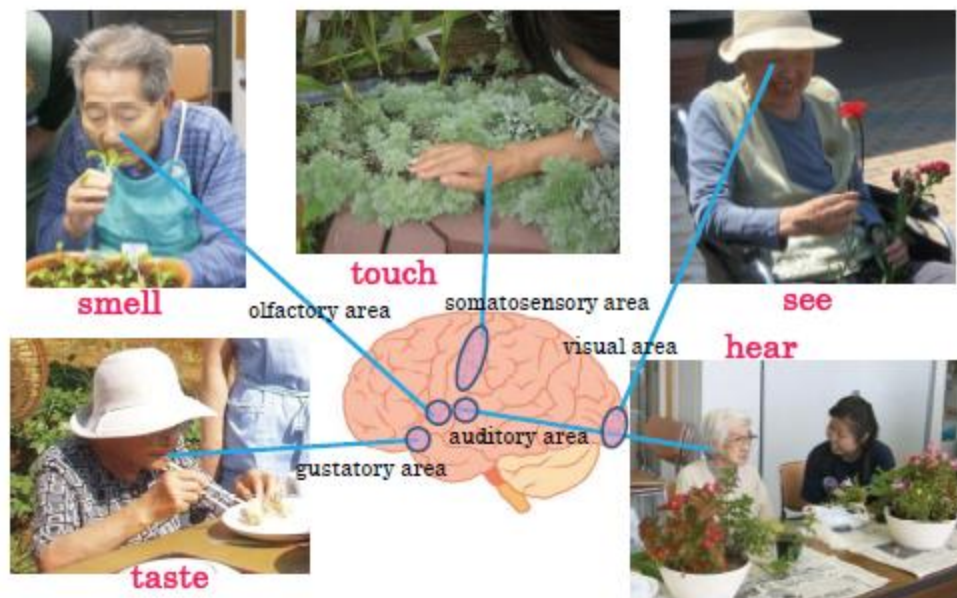


Figure 3 Stimulation of five senses in horticultural therapy (Masahiro et al 2012 p56-57)

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 (Fig. 2). 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. (Toyda.2012 .p.57f)

2.6 Therapeutic design and horticultural therapy

HT is an emerging profession in the modern society. The importance of maintaining relationship with nature to keep human health good is the most basic theory in HT. Therapeutic gardens might be a good solution. Gardening would be helpful for care prevention for the elderly, too. But for some limitations of people who cannot go to therapeutic gardens or enjoy gardening by themselves. People with disabilities or dementia may be eliminated, if caregivers do not know that horticulture is useful for such people. So the knowledge for taking care of them by means of horticulture or therapeutic gardens will be needed. It is the most important to train not only experts of HT but also many citizens who know how to utilize horticulture or therapeutic gardens in elderly care. Horticultural therapists can give citizens the knowledge of HT and show how to take care of the elderly with disabilities or dementia through HT. The purposeful and sustainable integration of the greenery environment, horticulture and people will be of great value for humans' society facing with aging issues or stress issue. (Toyoda.2012 .p.63f)

3 THEORETICAL PERSPECTIVES

This chapter covers the theoretical foundation which is related to the research question answer. In this section we define attention restoration theory. Attention Restoration Theory (ART) which were close to green care and closely tied to specific interventions. Horticulture therapy intervention is very significant for the elderly persons basically who are suffering in different disabilities like in dementia and others and who were living in nursing homes. In this study author investigate through the reviewed articles, what kind of benefit provides HT for the well-being of elders. Horticultural therapy includes people plant oriented views and spaces such as gardens , garden tools and garden occupations performed among disabled people for healing and for improving health and well-being in the rehabilitation perspective .

3.1 Attention restoration theory (ART)

Attention Restoration Theory (ART) asserts that people can concentrate better after spending time in nature, or even looking at scenes of nature. The theory was developed by Rachel and Stephen Kaplan in the 1980s in their book the experience of nature: A psychological perspective. According this theory Kaplan and Kaplan (1989) discovered that mental fatigue that experience of mental fatigue, which can play leading role people to be less tolerant, less effective, and less healthy. In this circumstance natural environments very significant for reducing these unfortunate effects .Naturally peoples depend to the nature because the natural environment that provided food and shelter, so the human psyche is close nature, and it is easy to quickly interpret, and therefore does not require any mental or directed attention, but it works to relief from mental fatigue. In addition to recovery from mental fatigue, they found nature more powerful, and at the same time more comforting. This natural settings leads to a recovery from mental fatigue as well as a variety of associated benefits, which call a restorative experience.(Kaplan 1992:137) .The ‘Attention Restoration Theory’ basis is that there are two types of attention, one is voluntary attention and another is involuntary attention . Involuntary attention is the ability where persons do not need any effort. This form of attention is preferable and active to relieve negative mood and stress. Attending to something of great interest is not hard work. The second type is voluntary attention that re-

quires effort and tends to lack interest. It need to engage in higher mental processes such as problem-solving and planning so this attention also requires much energy leading to remove negative stress. But it has one major limitation that it requires effort and that one's capacity effort is finite. In other words, directed attention is susceptible. (Kaplan 1992:135)

Nature has four components of restorative experience: being away, fascination, extent and compatibility. (Kaplan 1992,p137ff.)

Being away :refers to other setting where people can active and think of other things to relief from daily concerns as well as remove mental fatigue or make distance from one's usual mental content. Natural settings are often the preferred destinations for extended restorative opportunities. The seaside, the mountains, lakes, streams, forests, and meadows are all idyllic places for "getting away." Natural environments that are easily accessible thus offer an important resource for resting ones directed attention. Being away refers to "the sense of escape from a part of life that is ordinarily present and not always preferred. (Kaplan 1992,p137ff.)

Extent: It refers that when distant wilderness, extent comes easily. But extent always need not entail large tracts of place, even a relatively small area can provide a feeling of extent. Trails and paths can be arranged so that a small area seems much greater and it provides a feeling of being in a whole different world, though the area is in itself not extensive. Nature gives the idea that subjects are in a whole other world that has a meaning and is well-ordered. (Kaplan 1992,p137ff).

Fascination : Nature is certainly well-endowed with fascinating objects, as well as offering many processes that people find engrossing. Many of the fascinations afforded by the natural setting might be called "soft fascination." Clouds, sunsets, snow patterns, the motion of the leaves in a breeze-these readily hold the attention, but in an unromantic fashion. Attending to these patterns is effortless, and they leave ample opportunity for thinking about other things. When one thinks of sources of soft fascination, vegetation is a recurring theme. The View of trees and grass out the window, masses of flowers, the garden people find these patterns aesthetic and pleasurable; in the context of this pleasure, people can reflect on difficult matters that would be too confusing or too painful to contemplate under other circumstances. (Kaplan 1992,p137ff).

Compatibility The natural environment is experienced as particularly high in compatibility. It refers to the congruence between the natural setting and human inclinations.. It is interesting to consider the many patterns of relating to the natural setting. There is the predator role (such as hunting and fishing), the locomotion role (hiking, boating), the domestication of the wild role (gardening, caring for pets), the observation of other animals (bird watching, visiting zoos), survival skills (fire building, constructing shelter), and so on. People often approach natural areas with the purposes that these areas readily fulfill already in mind, thus increasing compatibility the environment meets the individual's goal. . (Kaplan 1992:139).

Gardens are ideal for restorative experiences due to their ability to satisfy the four elements described above.

3.2 Applying theory in Practice

The theoretical framework used for this study is the Attention Restoration Theory (ART).Research in health professions tested the (ART) Attention Restoration Theory. Clients with dementia or mental fatigue, can relief their mental stress when attention is directed towards a specific task. Also The view or experience of nature which is interesting or stimulating (i.e. has fascination) invokes involuntary attention which requires no effort but it active passively and also associate to reduce mental stress. “Attention al fatigue” can also occur in major illnesses such as cancer. Study carried out by Unruh, Smith and Scammell (2000) with a small group of women with breast cancer suggests that they experienced gardening and the natural environment as being ‘restorative. (Sempik et al 2010)

4 RESEARCH METHODOLOGY

This chapter deals with conceptually defining and illustrating the method used in building the entire study. In this study Author used systematic literature review and content analysis as method. Also the study is a qualitative study in which literature review to find the research question answer. In the process of reviewing the literature, the authors will come to determine the benefits of horticulture as a therapy for elderly with dementia living in institutions. This work is based on previous research and theories the authors chose to use deductive content analysis to review the scientific articles chosen for our work.

Content analysis is used to analyse data which was found in the previous research in order to find the results that provides the answers to the questions that relate to the study. A deductive content analysis is used on the basis of previous work (Elo & Kyngäs 2008).

4.1 Literature Review

Literature review is used for collecting data, exhaust searches formulated and related to the line of study, also writing the theoretical background, analysis of previous research articles to arrive at the results and answer the research questions of the study. In this study we follow the systematic literature review method.

A systematic literature review is defined as “a review prepared with a systematic approach to minimizing bias and random errors, and including components on materials and methods.” (Bowling, 2001:437).

Literature review also address and refers that it deduction from past researches arguments ,where the subject matter showed the positive effects of horticulture therapy on dementia and other forms negative impacts residents living in nursing home-

This approach of reviewing the literature is often contrasted with the traditional narrative review which tends to lack thoroughness and reflect the biases of the researchers as mentioned. (Bryman 2008:85)

According to Kumar (2011:30), review of literature is an integral part of the integral part of the entire research process and makes a valuable contribution to almost every operational step, it helps to established the theoretical roots of the research study also clarify the idea and develop the methodology.

4.2 Data collection

The study is conducted a review of past research articles on the subject of horticulture therapy to intervention in dementia elderly in nursing homes and its effects. The review of past research articles were summarizing the findings of these studies.

The articles used on the subject of horticulture therapy that were implementation on elderly residents who are suffering from dementia and other forms of disabilities. The articles retrieved from Ebsco and Google scholar databases. Other literatures were cited in books relating to the topic of the study. Also the study is written in following the accordance with the writing guidelines of Arcade University of Applied Science.

The criteria used in selecting the researched articles used in the study were free scientific researched articles published from year 1997-2012. Mostly to identify relevant useful articles the Authors conducted as search tool mainly Google scholar and Ebsco databases. SAGE, also another useful source of published articles which are beneficial to this study.

The aim of this study is to investigate the positive effects of HT on Elderly specially dementia residents living in nursing homes. So the articles were chosen the literatures which were relating the study aim and also promote to answering the research question used in the study. The Authors use secondary sources to gather Information for this study which were mainly in Journals and books.

4.3 Data base search

A literature was search by Arcada school computer to find the following databases: EBSCO host CINHALL, SAGE and Google scholar. Different key words use to find out the

right research article and journals paper, like: horticulture therapy and elderly, Aging and HT, effectiveness of HT, benefits of HT, dementia and horticulture therapy, HT in nursing home.

The articles retrieved were from the year ranging 1997-2012. Articles that were retrieved from the internet from school. Below is a table showing key words used and the number of articles used.

Table 1 Data base Search

Data base search	Key words	Hits	Articles Year Range	Articles used
CINAHL, EB-SCO host	Garden AND elderly	88	1999-2012	03
ABI/INFORM global Proquest	Horticulture AND therapy dementia	10	1999-2012	01
CINAHL, EB-SCO host	Horticulture, AND elderly	18	1999-2012	01
EBSCO HOST,CINAHL	Garden therapy AND elderly	8	1999-2012	1

EBSCO HOST,CINAHL	Horticulture AND elderly AND therapy	07	1999-2012	2
Google scholar	Garden therapy and elderly	31600	1999-2012	2
SAGE	Garden and el- der		1999+2012	3
Google scholar	horticulture therapy and garden	9630	1999+2012	3

4.4 Qualitative content analysis

Elo & Kyngäs (2008) have describe content analysis as a research method of making replicable and valid inferences from data to their context with the purpose of providing knowledge new insights a representation of facts and a practical guide to action.

This study is conducted to follow the guidelines of qualitative content analysis which are research method and where all steps are follow the required the data to analyse. The articles that are reviewed which are relevant to the study, also articles are gathering and selected through citation and full documentation of- the author, year of publication, data base of the source. The articles also highlighted the positive effects of horticulture therapy application in the Elderly special in the dementia care.

There were common themes that were taken from all the articles that were reviewed. For easily identified author use highlighted through colouring m on the data from different articles. The author has tabulated the common themes that emerged from the findings into different categories which are as follows; improved patient's different wellbeing (physical, mental, social, spiritual etc. through the HT program me. The main idea was to analyse the findings which relevant to answer the research questions.

4.5 Inclusion and exclusion criteria

For the systematic reviews, author discuss and develop a series of inclusion and exclusion criteria to fit in with the study to find out research questions answer, most of the article are scientific and peer reviewed. The selection criteria included full text articles .. The table below shows the selection criteria.

Table 2: Inclusion and exclusion criteria

Inclusion Criteria	Exclusion Criteria
<ul style="list-style-type: none"> • Peer reviewed articles which assess the quality of articles • Assessment measures used on elderly • Use directly Relevant articles, are garden horticulture therapy and elderly, dementia Researches to study the effects of non-pharmacological interventions. • Published articles between the years • 1999 – 2012 • Written in English • Articles with an abstract • Articles that were free to access the full text • Articles in full PDF format 	<ul style="list-style-type: none"> • Articles that were not scientifically written . • Articles that were not in full text • Articles written in other language than English • Articles lacking enough evidence

4.6 Validity and Reliability

According to Dictionary .com 2012, validity is the state or quality of having foundation based in truth. Validity in this study refers to the extent to which the research method used has been able to measure the objective that was set out to measure at the beginning of the study (Kumar 2011:178).

Validity is concerned with the question “Am I measuring what I intend to measure”. So in validity of a research is whether it measures what it intends measuring. Validity researcher are measuring what they think, they are measuring. In this work, the author carefully chosen and studied the articles. The aim of this study is to define the positive effects of Horticulture Therapy which are associated with the experience of dementia among elderly and to identify or measure of its benefits. All the information in this study was extracted from trusted and reliable databases that strongly support scientific work, and peer reviewed also all the articles used in the study had a link to the study topic and answered the research question that implies supports the validity of the study.

For this study the author chosen literature review and the data used as method from secondary source. Selecting articles and materials are gathered and keeping from reliable published and which were written by professionals of that field.

The reliability of the studies done in the research looked at how the measurement tools were used, when it is consistent, stable predictable and accurate. Reliability is the extent to which a questionnaire, test observation or any measurement procedure produces the same result on repeated trials. (Aveyard, 2010) In this literature, reliability is how stable and consistent the research outcome is, using the same data repeatedly when different evaluation scales or methods are used by different researchers.

4.7 Ethical Consideration

Before starting in the study author written and presented the short thesis plan to supervisors. The study was commissioned with permission from the school authority and then the author was carrying out the project. The author carefully read the Arcada ethical guidelines before conducting the study. The study is a secondary analysis of pre-

analysed data which implies that the ethical part. In order to get a clear understanding of ethical rules, the author read the rules and regulations of Helsinki Declaration (2004)

According to Collins Dictionary (1997:502) cited in (Kumar 2011:242), ethical means “in accordance with principles of conduct that are considered correct, especially those of given profession or groups”

The author has followed the guideline of Arcada University of Applied Sciences. The author tried as much as possible to avoid bias in analysing the data that was collected.

5 RESULTS

In this section the author will answer the research question that was posed at the beginning of this work. There is mention variety of literature that has to do with various ways to develop the different wellbeing's of the elderly. Research were took from the fields of healthcare, psychology, public health, and other disciplines which were indicates that access to nature can enhance health and wellness of elders.

This chapter consists of the results which found in the study. The theme, sub-category and categories are tabulated for easy understanding of the findings.

Below table shows the theme, categories and sub categories of the study. Based on the table it is possible to find out the contribution of each research finding to the categories and its implication to wellbeing's of .Elderly. The categories were based on the study aim and research question. Elo & Kyngäs (2008), have described that researcher is guided by the aim and research question of the study in choosing the contents they analyse.

The findings that reviewed from the articles are further discussed below according to the research question. Overview of the Themes, Sub themes and categories 'positive effects of horticulture therapeutic intervention towards the Elder's especially in dementia residents.

Table 3: Category and sub category (question answer)

Themes	category	Sub-categories
Effects/Benefits of Horticulture Therapy	Physical benefit	<ul style="list-style-type: none"> • Reduce pain, • Decrease heart rate, • Improve fine and gross motor skills and eye-hand coor-

		<p>dination,</p> <ul style="list-style-type: none"> • length of standing tolerance
	<p>psychological benefit</p>	<ul style="list-style-type: none"> • Relieving stress • mental fatigue relieved , • increase sense of integration rather than isolation or loneliness • Increase self-esteem, reminiscence, • Improve mood , • Decrease anxiety, • Alleviate depression , • good sleep ,satisfaction

	social benefits	<ul style="list-style-type: none"> • social network, • Increase social interaction • Enhance the perceptions of life satisfaction, • loneliness, • socialization, engaging in • activities of daily living.
	Cognitive	<ul style="list-style-type: none"> • Enhance cognitive functioning, • Improve concentration, • Stimulate memory • Improved Speech and vocabulary
	Environmental	<ul style="list-style-type: none"> • Provide clean air and water; maintain which foster human involvement in the natural environment.

5.1 Muscles strengthen. Improve Motor skills Balance and coordination

Being out in a beautiful garden environment in the fresh air is most likely which greatly affect the mind of Residents. Gardening can be made to strengthen, on the weak muscles and increase limited joint flexibility when the participants physically lifting and reaching motions of ranges. Physical stamina and skills such as balance and coordination can be improved. It can help improve bone density in older people and can help in tackling problems such as obesity which can lead to more serious problems such as diabetes. According to Kovach (2006 p.56), researchers at the University of Arkansas 'found that women 50 and older, who gardened at least once a week, showed higher bone density readings than those who engaged in other types of exercise including jogging, swimming, walking and aerobics. A green environment in general may encourage people to have physical exercise. So HT improve of fine motor skills, gross motor skills, standing or balance and endurance, mobility range of motion and strength(Haller & Kramer2009,P 34f)

Also Physical exercise can have more positive effects of different health outcome like chronic diseases. Some of research also suggests that physical exercise can be very significant for treatment of mental health problems such as anxiety and depression also lowers blood pressure and reduces heart rate. Visiting green environment also make recovery from stress (see Elings.M 2006, P47f.) Different studies into the effect of physical activity show that activities like gardening are associated with health and reduce risk factors for coronary heart disease. Also Physical health maintains and improves muscle tone and hand & eye co-ordination. And dynamic sitting or standing balance (Haller &Kramer 2009, p2) .So 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 (see Toyoda.2012p51f).



“After my stroke I wanted to get back in the garden and do as much as possible. You have to keep trying to do it for yourself.”(Thrive. <http://www.carryongardening.org.uk/>)

5.2 Reduce of pain

Therapeutic gardens have the power for residences of the elderly may get better pain control. Seeing plants and landscapes associate improved the pain tolerance.

Preliminary studies found that post trauma and postsurgical patients have improved treatment outcomes in secondary source of natural settings. A study performed by Roger Ulrich (1984), found that passive interaction with garden can make the positive effect to reduce pain, and also examined that sometimes view on trees by window compared with a view of a brick wall recovery earlier of surgery patients, which also associated reduced the use of pain medication . (Detweiler et al 2012.p.102)

One of study found that if patients stay in high sunlight rooms it had less probability to perceived stress, and also help to take fewer analgesic medications and also lower costs for pain medications. (See Detweiler et al 2012)

Fjeld (2000) conducted a different study with randomized period order, with one period with plants in the office and one period without plants in the office, was conducted

among 51 office workers (27 males and 24 females). The plant intervention consisted of 13 common foliage plants that were placed in three self-watering containers on a window bench and in a terracotta container in the back corner of the office. Indoor foliage plants affected self-reported human health and discomfort symptoms. On the result of foliage plants to an office room reduced cough and fatigue complaints by 37% and 30%, respectively. Complaints of dry or hoarse throat and dry or flushed facial skin decreased by about 23 % after intervention. When symptoms were grouped according to body responses, a significant reduction in neuropsychological symptoms (e.g. fatigue, headache, dizziness) and in mucous membrane symptoms was registered (e.g. irritation of eyes, stuffy nose) while skin symptoms (e.g. hands with dry skin) seemed to be unaffected. Plants also contributed to feelings of well-being: 82% of the participants were of the opinion that they felt more comfortable.

5.3 Strong sense of self-esteem and peacefulness and tranquillity

Different target groups can achieve the mental benefits work with plants, and increased strong sense of self-esteem, awareness and responsibility with the engage of HT. Plants beautiful colours and smell, increase clients tranquillity and peace. To use the HT client can also increase the relaxation, autonomy. In this way of working with plants elderly can get "peacefulness and tranquillity" that is the most important satisfactions gained from gardening. Improvement in attention

Fatigue is one of the most frequent complaints among elderly. Horticulture therapy is very significant to reduce of mental fatigue. As earlier we mentioned Attention Restoration Theory (ART). According to ART, Voluntary attention need some effort, when individuals were is attempting to concentrate on a specific task. This voluntary attention affects positively to remove mental fatigue and stress. On the other hand, involuntary attention is an individual does not need any effort, more spontaneous. It considered as fascination certain visible objects can affects to reduce mental fatigue and it can be stimulated by colours, motion, contrasts and the unusual sensory stimuli in garden settings. (See Detweiler2012:102ff) Gardens and other plant areas were considered very

as non-threatening environments, and it encourage clients to share their feelings and emotions in group and individual interactions perspective.

Several studies supported that the ART can associate the persons mental wellbeing. When the post stroke patients perceived restorative effectiveness from natural settings, viewing natural was ranked higher than the perceived restorative effectiveness of sports, entertainment centres and viewing urban settings. (See Detweiler2012:102)

One study found positive correlation between outdoor walking and attention improvement. After 40 minutes of completing a task attention, subjects that walked in a wilderness park reported improved mood and decreased errors in proof reading compared to subjects that followed the tasks with a walk in an urban setting or sat in a windowless room listening to music or reading magazines.(see Detweiler2012)

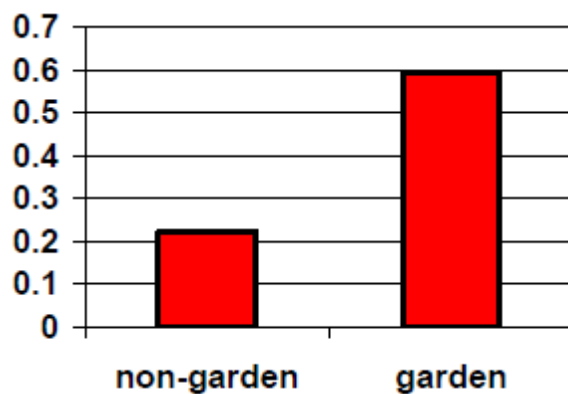
5.4 Recovery from stress and effects on mood

Many studies reported that horticulture can provide benefits for persons with disabilities, but the benefits of horticulture on stress management was most commonly mentioned .Gardening is usually significant for stress relief, relax and recover from the hassles of everyday life. (Van den Berg & Custers 2011 p4) .The prevalence of depressive disorders is high among the elderly, especially those in long-term care. Nature has the good power to reduce the stress. Viewing nature is positive for health, particularly in terms of recovering from stress, improving concentration and productivity, and improving psychological state. The beneficial effects of viewing nature on psychological state, and in particular mood affect were examined by Ulrich (2002:7). Ulrich found that participants who viewed slides of unspectacular scenes of nature had an increase in positive mood affect, while those who viewed scenes of urban areas experienced a decline in positive mood affect .

Positive mood state is also associated with subjective reductions in bodily pain, (see Wichrowski et al 2005) Improved mood, therefore, is an important outcome of a successful cardiac rehabilitation program, The reduction in TMD (Total mood disturbance)

resulted from a significant reduction ($P < .001$) in all negative dimension scales (i.e., tension, depression, anger, fatigue, and confusion) and an increase in the positive dimension of vigor/energy. (Wichrowski et al 2005)

One research conducted where participants were assigned to 30 minutes of either outdoor gardening activities or indoor reading. The result found that, after performing task, cortisol decreased significantly from post-stressor to post activity in the gardening group, than the reading group. (Van den Berg et al 2011 p4)



. Figure 3 Means for improvement in cortisol levels for non-garden and garden groups (Rodiek 2002:7).

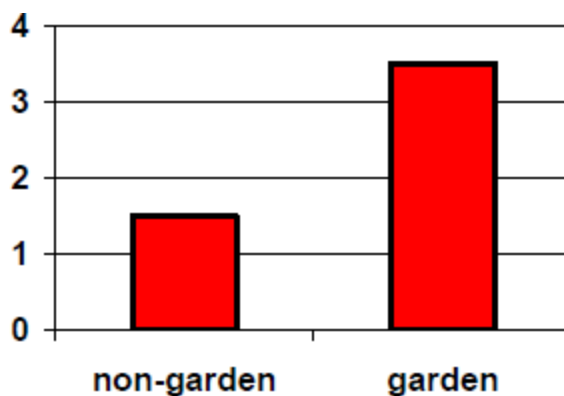


Figure 4 Means for reduction in anxiety level for non-garden and garden groups. (Rodiek 2002:7).

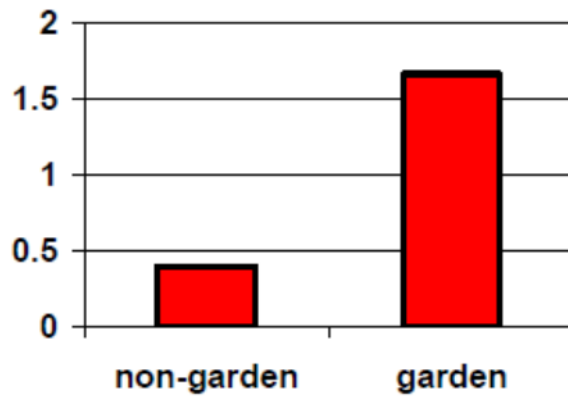


Figure 4: Means for reduction in negative mood level for non-garden and garden groups

(Rodiek 2002:7).

Viewing nature has positive effect on health, especially recovering from stress, improving concentration and improving psychological wellbeing, particularly of people in hospitals and high-rise apartments/high density living. (Maller et al 2008).

One research (Ulrich et al., 1991) examined that people can relief emotional and physiological stress, by viewing slides of natural scenes, also watched photographic simulation of natural settings can recovery faster physiological condition also recovery skin conductance, muscle tension and pulse transit time. Another study reported that in a mildly stressful situation, subjects viewing natural setting and drives through nature had greater stress reduction, compared to subjects viewing simulated automobile drives with manmade hardscape. (See Detweiler et al 2012).

In more active garden activities, a study identified that walking in a garden or park can improved resident attention performance compared who walked in an urban setting. “ Restoration of blood pressure, emotion and attention were all more positively affected for the nature group compared to the urban group.”.(See Detweiler et al 2012) A recent study by Van Den Berg and Custers2011, also involved active participation within gardens. After 30 minutes of light gardening activities can significantly lowered salivary cortisol levels and increase positive mood as compared to those who engaged in indoor pleasant reading after the stressful event. Although the relaxing reading did also reduce cortisol levels, but this reduction was less than with the gardening, and no increase positive mood with the indoor activity. The authors suggest that “gardening, as an in-

volved and goal-directed way of interacting with nature, can be valuable in promoting restoration from stress.” (Van Den Berg and Custers 2011:3)

Emotions affect greatly on Residents psychology. Emotions determines not only how peoples react or feel but it also associate longley their mind. Ill health may lead to negative emotions, which are related to anger and anxiety. One study showed that high levels of anger and anxiety are associated with increased risk of coronary heart disease. (Rappe 2005). Also life dissatisfaction, anxiety and angry feelings were identified as risk factors of cardiovascular diseases. Scientists have found that certain moods such as anger, anxiety and hostility are associated with stress and elevated blood pressure levels. The natural landscapes with vegetation had lower blood pressure compare to the built landscapes with concrete, buildings, and billboards. (see Wong 200:20)

Adults with severe negative mood can be change when they were more visiting natural sites rather than other places. (Rappe 2005) Horticultural therapy has been shown to reduce stress as measured by a variety of physiologic markers (blood pressure, HR, skin conductance, and cortisol levels).

Visiting the garden also was associated with enhanced emotional well-being. The positive effect of seeing green environment on mood was obvious. Four out of five participants felt that visiting the garden enhanced mood. Also from research study, half of the participants felt that visiting the garden enhanced sleep, increased the feeling of balance, and promoted ability to concentrate. (Rappe. and Kivelä 2005 p300-302).

5.5 Social Network

Horticultural therapy and gardening projects stimulate social benefits in a various way. Very simple way when Residents are meeting for group session. In this group processes

promote social cohesion and the development of social and communication skills (Sempik et al. 2003).

A research has shown that people who receive higher levels of social support they are less risk to get stressed and chance to have better health than those who are more isolated, and that higher social support improves recovery or survival rates for various medical conditions. (Marcus p 64)

For a garden to foster opportunities for social support it needs to provide sub-spaces and seating arrangements that permit groups of two or more to sit and talk in relative privacy. A study at a Canadian psychiatric hospital found that patients and staff preferred natural, spatially enclosed settings for “talking with others.”(See Marcus)

Horticultural therapy in groups can thereby enhance social interaction. More social contacts can indirectly lead to a better health because they can reduce the sense of loneliness and the chance of dying, depression and loss of cognitive functions especially with elderly (see Ellings.2006) Research on healthcare gardens indicates a high proportion of use revolves around visitors, patients and staff seeking social contact in a setting which is in marked contrast to the hospital interior. (Marcus and Barnes, 1995).

For instance, in The Netherlands 15% of the population have feelings of solitude. Research points out that people with more social contacts feel healthier, have less chance of getting coronary heart diseases, and live longer. With elderly it seems that less solitude reduces the risk of dying, depression and loss of cognitive functions. (See Elings 2006)

Also social benefit enhance the socialization process conversing with other people when weeding, bounty of the garden They learn to respect the rights of others, to be more cooperative, and to share responsibility. They also have an opportunity to develop the relationship qualities. It helps motivate people to move out of sedentary lifestyle. It provides also an esthetics of a home or facility. (Haller and Kramer 2006 p.38)

One exclusive study conducted by Tse (2008), the result showed that there were significant improvements in life satisfaction and social network and a significant decrease in perception of loneliness for older people in the experimental group after the eight week indoor gardening program me.

5.6 Enhance cognitive functioning, Stimulate memory

Horticulture therapy can play a major role in determining the cognitive level at which a resident is functioning. In different ways HT can be very significant for the patient's improvement of brain functions. "Viewing" nature, "interaction", and "action" in this three process HT can affect the patient's brain visual area's also improved patient's sensory stimulation skill. (Matsumoto et al 2008 p177-178)

The National Nursing Homes Survey reported that 30% to 50% of late-stage dementia patient's exhibit inappropriate behavior's .Dementia patients have a very limited capacity to express their thoughts and need and also sometimes caregivers and family members are facing inappropriate behaviours for the lacking of proper communication

Study found that inappropriate behaviours is the reflection of patients inadequate need or when anyway they are not fill-up their demand and needs .Also from study they found having a daily view of a natural setting, or access to flowers, gardens, and trees, can promote patients tension reduce. Also a garden setting likes seeing and having activities might reduce patient's aggression. (See Detweiler et al 2008p32).

Working with seasonal plants helps residents can improve the reminiscence for identified the time or season of year and master the environment. Resident can memorize the plants such as the name of the plants and where they come from geographically. (Haller and Kramer 2006)The plant shapes, sizes and colors demonstrated the people with dementia "code" and perceive their environment. Plants also provide an excellent source of visual, taste and touch stimuli, it means it increase the sensory stimulation. In addition, their projects based around gardening and horticulture they found it provides patients an awareness of time and seasonal events. During the winter, residents can plan their garden and select the plants they would like to grow. In spring and summer, they can plant seeds, transplant flowers, and maintain the gardens.

A study conducted by Yasukawa 2009 Patients with dementia who participate in horticulture therapy in Japan. The patients work in groups of three or four, together performing a horticulture task, artistic activities, such as flower pressing ,picking flowers;

or pick vegetables, and cooking and eating them. After the HT program, Horticulture therapy significantly ($p < .05$) influenced the cognitive function of patients with dementia, as demonstrated by the results of horticultural therapy positively influencing recovery, communicational skills, and body functioning.

Matsumoto et al (2008:171ff) conducted one study and investigated the effectiveness of horticulture therapy on five brain-damaged patients for their improvement of brain functional activity from the medical perspective. From their investigation they found positive effectiveness of HT and they hypothesized that imagination and observation in growing vegetation makes a positive effect on a patient's actual activities, and also simple under sunlight viewing colourful vegetation improves the patients' visual abilities in the brain. In this study they found patients can also observe the vegetation growing process from the seeds and also they are sharing their achievements with other people. In this process the results from one study showed that after HT all the patients had improved their expressions and motivation in all different activities. Finally, also patients improve his/herselves.

The results from one study showed that after HT all the patients had improved their expressions and motivation. The author used different evaluation measurement tools like FIM (Functional Independence Measure) fMRI (Functional magnetic resonance imaging) for measuring the task before and after HT. Results showed that HT made different features for participants such as objectively observation powers an evaluation tool used to quantify the ability of patients to enter rehabilitation treatment) significantly improved.

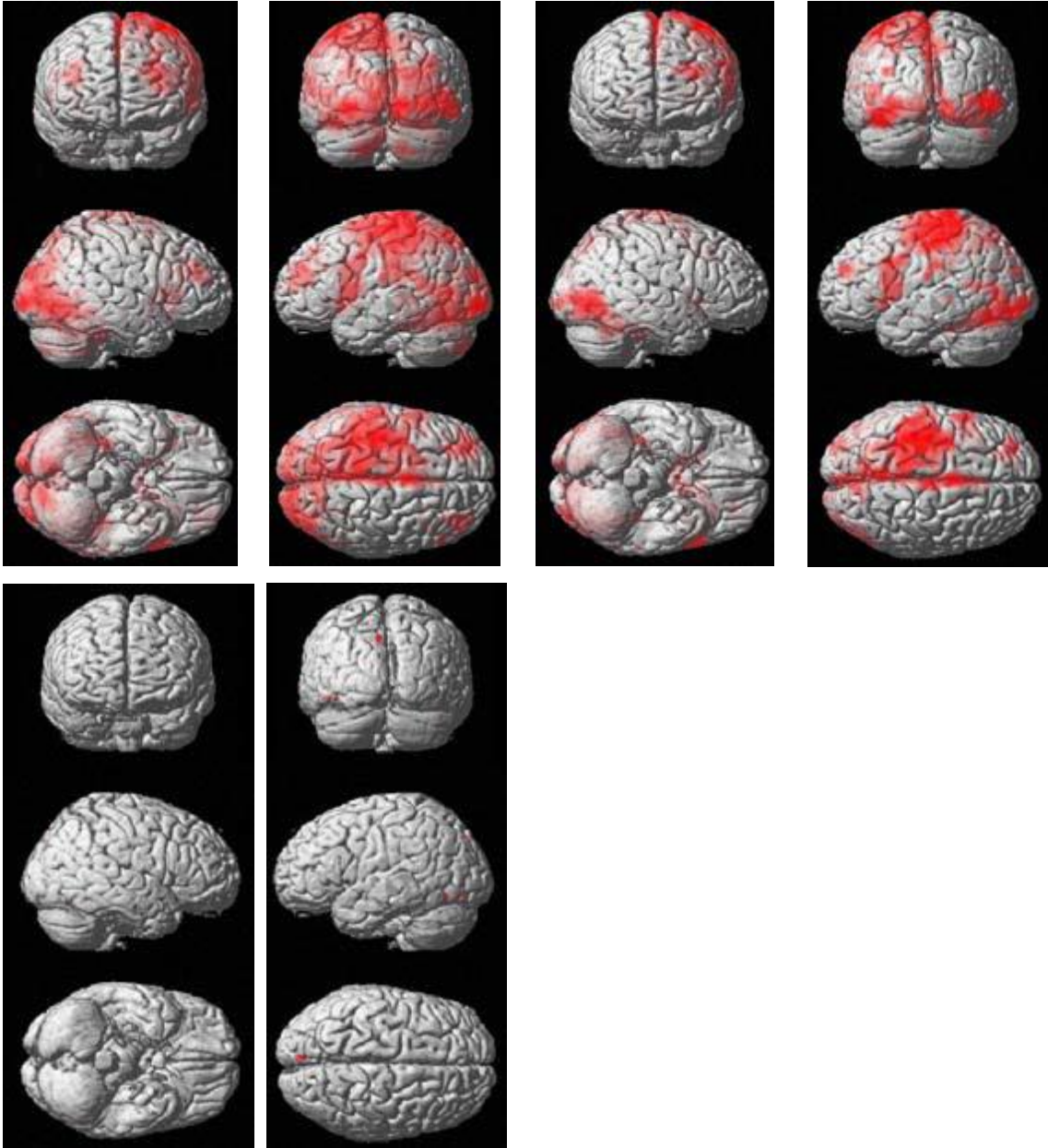


Figure 5: before HT (left) and after HT (middle) , and increased areas in activation after HT, compared to the activation level before HT (right) . (Matsumoto et al 2008 p175f)

5.7 Involvement in the natural environment

Parks and nature have enormous untapped health potential as they provide an opportunity for people to re-establish and maintain their health in a holistic manner. Recent developments in public health and health promotion have recognized the benefits of a holistic approach. (Maller et al 2009).

Natural light is an important ingredient in an effective therapeutic program. Persons who are elderly require three times the amount of light for sight, depth perception and overall health and safety. In addition to these physical needs, the elderly also respond positively to natural light; studies have shown that light affects the body rhythms and Vitamin D levels.(Hewson2007:2)

Yard care and gardening activities have a direct impact on the neighbourhood and community environment. Grass traps and thereby helps control dust and pollen in the air that contribute to allergic reactions. Grass helps abate noise and reflected light, common irritants in the urban setting. Grass is a very effective element of the urban ecosystem to break down pollutants. A healthy stand of turf grass can reduce surface runoff to almost zero. In the landscape setting, grassy areas provide the primary process to abate pollution caused by surface runoff. Mowed lawns are a major fire control component in residential areas.

6 DISCUSSION

Increase in average life expectancy and the increase in the prevalence of disabilities older adults were need of some form of alternative treatment for the facilities of clients care. Nursing homes or institution for elderly serve the needs of disabled older people who are unable to function independently and will need personal and professional care from the nursing staff. But in nursing home they falls loss of freedom, loss of control, feelings of loneliness and no freedom of movement. HT can be considering the new paradigm for older people care which prevent of functional mobility and premature mortality, and also increase the quality of life. It is noted that gardening activity can be a good process for enhancing clients physical mental, emotional or and cognitive functions. In the beginning of this thesis, research questions to consider were: looking to define Horticulture therapy and what kind of positive effects provide HT on elderly's wellbeing such as physical, mental social, cognitive, environmental health.

In many different ways horticulture can be used as a therapy for the treatment and prevention of disease. It has been also associate the clients need and interest, based on that clients can achieve physical, social and psychological, cognitive benefits. Many occupational therapists also used Horticulture and gardening for the development of physical and social wellbeing particularly those are suffering different health problems.

Different studies had mentioned that the benefits of horticultural therapy and garden settings play as a mediator role for patients' physical functions such as reduction of pain, increase of tolerance standing balance, emotional or psychological functions such as stress reduction and modulation of agitation, increasing sensory-motor functions and activities, cognitive functions and activities and promoting participation in social life, or the avoidance of social isolation or loneliness. These different forms of benefits are important factors for improving older people's quality of life and also reducing costs for long-term care.

Some of study showed the people-plant interactions relationship which suggests that passive and active participation with plants and the natural environment can have a beneficial impact on human well-being. Different research supports the findings that people-plant interactions have a positive impact on human well-being. Another study noted

that residents in horticulture group had a significant increase psychological well-being as compared to the control group , study indicated that horticulture activities have a psychological beneficial effect of older people who were in a long-term care facility.(Barnicle and. Midden200)

Especially viewing and observing plants play an important role for the participants in all levels of functional and cognitive abilities. Visual exposure of plants can create a positive emotions and it decrease mental stress and also enhanced emotional and cognitive well-being of older people.(Rappe 2005)

It was noticed from the different study that elderly care homes could bring numerous benefits for the elderly by visits the indoor and outdoor garden, such as bring more relaxed, have diminished agitation and be less aggressive and good sleep. Since it is difficult to accurately measure feelings, especially those in clients with memory disorders.

7 CRITICAL ANALYSIS

The process of the thesis writing has been very difficult because some exclusive research literature concerning in the general population compared to aging people which were not related to thesis topic for that reason I had to search lot to find the related articles to find the research question answer. Some literatures reviewed for this study which were provides the significant result and writing scientifically, but some of were not .Other challenging was, some of full text material could not be accessed reasons being that there was need to subscribes or pay. By so doing, important articles that would have added the study were left out.

Language is another barrier. I had found some research work on which were carried out gardening and horticulture therapy with elderly, but all were Finnish language, sometimes I spent lot of time to translate it.

The strength of the study is that the general result is reliable. Majority of the authors had similar issues concerning the benefits or effect of horticulture garden with the aging people. Such as stress reduce. Pain, management fatigue, looseness, social network.

8 CONCLUSION

Nowadays, horticultural therapy is known as the one of cost effective rehabilitation process. For rehabilitation, dementia and other disabilities patients were actively or passively acting in outdoor and indoor place. However, the outdoor environment around a nursing home can be a supplementary environment for treatment and rehabilitation process, it increasing quality of life for older persons, So HT not only consider a curative process but also as a preventive treatment process from individual and group perspective. Outdoor environment can be beneficial as an integral part of rehabilitation care. Therapeutic horticultural activities has potential value for this population .It provide opportunities for clients reminiscence, physical activity, and sensory stimulation .From the existing studies, it is very hopefully clear that benefits of horticultural settings are very significant for reduction of pain, improvement in attention, relive from stress, of agitation ,aloneness and social network. So these benefits are important factors not only in improving the quality of life but also possibly reducing costs for long-term care, living with different disabilities and dementia unit. Most of the studies showed, garden settings like views of nature of indoor or outdoor plants has been also greatly consider a therapeutic value and rehabilitation process. Also horticultural therapy is a holistic approach for healthy life. Man has an innate good biological and emotional relationship with nature. So I would seem that there is time to need to further inventory, innovative studies to investigate an alternative treatment approach for our beloved Senior Citizens.

9 RECOMMENDATION FOR FURTHER RESEARCH

According to research, dementia and other kind of disability are very common in elderly and sometimes bring the feelings burdens' for caregivers also even the family or relatives. Therefore, it will be very important to continue investigate the effects horticulture therapy can help to reduce stress. Positive mood, reduce from fatigue, aloneness which improve quality of life of client's on the caregivers perspective and family perspective.

From my point of the view, I hypothesis that it is very important to carried on this kind of research work also it was good if the research will carry out on the basis of Primary data collection and analysis it could have been more specific to get the expected result. Also it is very good, if further research will carry out the implementation of HT that means how older people can get the maximum benefit from technic of HT.

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APPENDIX

In this chapter authors will summarize the results from the selected articles. The 15 articles that were selected were read several times, so as to understand and find meanings with the research questions in mind

Table 4 List of articles used in the literature review.

Author(s), and year of publication	Title	Result
1. Rappe & Kivelä 2005	Effects of Garden Visits on Long-term Care Residents as Related to Depression	Visiting the garden improves the mood which has the impacts on quality of sleep, and ability to increase concentrate; it generated good feelings in mind.
2. Rodiek 2002	Influence of an Outdoor Garden on Mood and Stress in Older Persons	Result indicates that after gardening cortisol level improved, anxiety level and negative mood reduced.
3 Van Den & Custers 2010 SAGE	Gardening Promotes Neuroendocrine and Affective Restoration from Stress	Gardening group restored fully Positive mood , promote relief from acute and chronic stress
4.	Gardening activities for nursing home resi-	Improve functional capacity of residents with

Thelander et al	dents with dementia	dementia.
5 – Matsumoto et al (2008)	Horticultural Therapy has Beneficial Effects on Brain Functions in Cerebrovascular Dis- eases	Result showed after Horticulture therapy the patients' were more assessed physical ac trini- ties of daily living (ADL) and improve depres- sive states. Also gardening improved on partic- ipants the visual area, the, inferior temporal ar- ea, the fusiform gyros, and the supramarginal gyrus (SMG), the motor area, the supplemen- tary motor area (SMA), and the sensory area.
6 Detweiler et al 2008	Does a Wander Gar- den Influence Inap- propriate Behavior's in Dementia Resi- dents?	Wander gardening improved participants posi- tive agitation, mood, decreased inappropriate behaviours and improve quality of life. In- crease also personal conversation and reminis- cences.
.7 Goshen (2003-2005)	Horticulture Therapy in Dementia Care Im- pact on Behavioural Symptoms, Physical and Cognitive Activi- ties	Results showed gardening has a positive im- pact on the agitation behaviours (Physically Aggressive behaviours (PA), non-physical agi- tation (NPA) verbal agitation,) of those resi- dents suffering from dementia.

8 Barnicle and Midden 2003	The Effects of a Horticulture Activity Program on the Psychological Well-being of Older People in a Long-term Care Facility	The results of this study indicate that horticulture activities may have a beneficial effect on the current psychological well-being of older people in a long-term care.
9 Wichowski et al 2005	Effects of Horticultural Therapy on Mood and Heart Rate in Patients Participating in an Inpatient Cardiopulmonary Rehabilitation Program	Study demonstrates that HT has a positive effect on mood .Improve mood also reduce the stress and that has a great impact on coronary artery disease patients, and it is also effective to prevent coronary events.
10 Jarrott Et al 2002	An Observational Assessment of a Dementia- specific Horticultural Therapy Program	HT activities affected participants' moods or mood, it brought more positive compare than the HT and non-HT activities. HT activities effects of more ADS activities ,also HT play an affecting role to maintaining moderate levels , persons with dementia
11 Jonasson. et al (2007)	Working in a training garden: Experiences of patients with neurological damage.	Patients with neurological damage, A study reported that garden develops new skills and activities which provided joy and creativity and it generated feelings of worth , which increase functional ability from neurological illness,

12 Bloedel et al (1999)	Gardening and the elderly: A study involving the effects on purpose of life and activity involvement	Participant's to gain a sense of control. This sense of control plays a role in regulating human cognition, motivation, and emotion. Also participant's motivation is high or increase while participating in the gardening sessions
13 Milligan 1 (2004)	'Cultivating health': therapeutic landscapes and older people in northern England.	Study showed that gardening activities make the participants sense satisfaction and aesthetic pleasure .Older people also can gain benefit from gardening activity from a supportive environment that brings social isolation and that development of their social networks.
14 Tse 2008	Therapeutic effects of an indoor gardening program me for older people living in nursing homes	The result identified that a gardening program me has a great therapeutic effects to enhancing the older peoples life satisfaction and social networking, reducing loneliness and increasing (ADL) activities of daily living.
15 Rapee 2005	The Influence of a Green Environment and Horticultural activities on subjective well-being of the Elderly living in long term care	This study showed that supportive environment like a garden and activities of plants has great impacts on psychological and social well-being of the elderly who were living in long-term care. Visual exposure of plants enhancing emotional well-being and its make aesthetic beauty especially elderly with dementia also they improved sensory stimulation.