Therapeutic Gardens for Dementia People

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Contact with nature involves the exposure to greenery in general, or it can involve specific activities such as gardening therapy or the use of therapeutic gardens, both of which are among the non-pharmacological treatments recommended for PWD and other kinds of disease [7,8]. Therapeutic gardens can be used more or less actively, for gardening or other activities (e.g., psychotherapy), or passively (for walking or simply sitting in). They can be built inside or outside care facilities. Including therapeutic gardens in care environments has positive effects on agitation, behavior, walking, stress levels, self-esteem, depression, and aggressiveness.

Keywords: therapeutic garden ; horticultural therapy ; Alzheimer's disease ; dementia ; restorative environments

1. Benefits of Contact with Nature

The positive effects of nature on human beings have their theoretical grounds in several bio-psycho-evolutionary approaches and theories that, starting in the 1980s, have promoted numerous empirical studies supporting the importance of contact with nature in improving people's psychophysical wellbeing and quality of life. A first approach, called the biophilia construct, was proposed by Wilson [1]. It is based on the assumption that our species is instinctively attracted to the natural world. The word *biophilia*, deriving from Greek, literally means love of life. Two psychological theories justify the positive effects of contact with nature, one focusing on its physiological and affective effects, the other on its cognitive impact. Ulrich [2] developed a Stress Reduction Theory (SRT), according to which exposure to the natural world after an exhausting or threatening experience would promote psychophysiological recovery from its stressful effects. This regeneration mechanism would begin with a very rapid, positive affective response to certain environmental stimuli immediately identified by a human observer (an abundance of vegetation, the presence of water, animals, and so on). In an organism under stress, this first affective reaction triggers a physiological rebalancing mechanism: the parasympathetic system is activated, inducing a drop in physiological stress indices (cortisol level, heartbeat, and blood pressure). The psychological perception of stress decreases at the same time, as the related negative emotions fade and positive emotions replace them. A recent meta-analysis [3] conducted on 32 studies with 2356 participants confirmed the importance of contact with nature in promoting positive affective states and reducing stress. Another influential approach is called the Attention Restoration Theory (ART) [4]. Focusing on attention functions, it distinguishes between two attentional mechanisms [5]: voluntary attention, activated by the execution of complex cognitive tasks, which is liable to decay and needs to be restored; and involuntary attention, spontaneously captured by environmental properties, which is not subject to fatigue. ART suggests that the particular features of certain environments activate spontaneous attention, enabling voluntary attention to be restored at the same time. According to ART, there are four key components that characterize a restorative environment: fascination (the property of the environment to hold our attention with no voluntary effort); extent (the opportunity to feel immersed in the environment); being away (establishing a distance between us and our everyday routine); and compatibility (with our own inclinations). Fascination is considered the most important to the restoration process. As also confirmed by recent reviews [6], the natural environment (among others) has precisely these characteristics and can promote this process.

2. The Therapeutic Effects of Gardens and Horticulture

Contact with nature involves the exposure to greenery in general, or it can involve specific activities such as gardening therapy or the use of therapeutic gardens, both of which are among the non-pharmacological treatments recommended for PWD and other kinds of disease [7][8]. Therapeutic gardens can be used more or less actively, for gardening or other activities (e.g., psychotherapy), or passively (for walking or simply sitting in). They can be built inside or outside care facilities. They are defined as "therapeutic" because they are designed in such a way as to emphasize their curative potential. Sometimes the literature refers to "healing gardens" [9], where visitors can experience a lessening of their stress, and feel physically and mentally restored. Thaneshwari et al. [7] recommends that therapeutic gardens be designed specifically for the care of certain types of patient, such as Alzheimer's gardens, or gardens for people with cancer.

Söderback et al. [10] defined horticultural therapy as a gardening activity that includes interventions mediated by natural spaces such as gardens, using suitable tools, and proposing activities designed to suit a given type of patient. To be “therapeutic”, the purpose of the horticultural activity must be to promote the participants’ health and wellbeing. From a recent scoping review [11] of different therapies revolving around the use of natural elements (therapy with animals, horticulture, farming activities, presentations of natural stimuli in virtual reality), it emerged that 41 of the 85 studies identified had to do with gardening. They concerned different settings, including hospitals, retirement homes, and prisons, and reported positive results on several indexes of participants’ wellbeing. Studies on gardening and/or therapeutic gardens appear in several types of review dealing with different therapeutic activities and types of patient. Some reviews focused on a wide array of interventions involving the natural world [11][12][13]. Others examined general environmental interventions [14], sensory interventions [15], and interventions mediated by therapeutic gardens for various types of patient [7][16][17]. Some reviews focused specifically on horticulture [18][19][20], others more generally concerned outdoor spaces [21]. Some discussed a whole range of non-pharmacological interventions, including therapeutic gardens and gardening therapy [22]. Some were narrative reviews [23], or discussed the effects of therapeutic gardens and gardening therapy by drawing on qualitative studies [24]. A systematic review and meta-analysis [25] included five studies relating to horticulture in combination with other activities, and two studies that involved watching videos of natural scenery. Finally, a scoping review by Gonzalez and Kirkevold [26] examined the effects of the purposeful use of outdoor sensory gardens, gardening activities, and indoor plants in dementia care.

3. The Effects of Therapeutic Gardens and Horticultural Therapy on People with Dementia

The effects of therapeutic gardens on PWD are still being investigated. Recent reviews and studies [23][26][27] found that including therapeutic gardens in care environments has positive effects on agitation, behavior, walking, stress levels, self-esteem, depression, and aggressiveness. A quantitative review by Zhao et al. [20] on the benefits of gardening on PWD reported improvements in cognitive function, agitation, emotional state, and engagement, while no such effects on agitation or emotional state were obtained from visits to gardens or viewing nature scenes. For specific positive effects of gardening on patients with Alzheimer’s disease, see D’Andrea et al. [28], who found evidence of it promoting creativity, self-esteem, social interaction, sensory stimulation, gross and fine motor skills, and hand-eye coordination. Compared with the above-mentioned reviews, the present work focuses more specifically on dementia, therapeutic gardens, and gardening therapy, and only quantitative studies were considered. We explored the effects of therapeutic gardens and horticultural therapy on PWD in relation to the characteristics of the samples studied (severity of dementia), and the variables considered (behavior, affect, cognition). Our aims were to conduct a systematic review and critical analysis of the empirical support for these therapeutic approaches, and to suggest future directions to advance the field of such interventions for PWD. An added value compared with existing reviews lies in that the latest studies were included.

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