

The Importance of Getting Back to Nature for People with Dementia

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ABSTRACT

As people age, the ability to interact with the outdoors may lessen. Frailty and mobility problems create barriers to engaging in outdoor activities or even experiencing the outdoors. The barriers are greater for people with dementia. As the disease worsens to the point of institutionalization, access to the outdoors may be completely barred and opportunities relinquished to the determination of facility personnel. This article will review current literature and some older seminal works on nature and nature-based stimuli for people with dementia, especially those living in nursing homes.

Alzheimer's disease (AD) and related dementias is one of the greatest impending health issues the world will face with the aging of the Baby Boomer generation. AD affects areas of cognitive capacity, which may include memory, attention, language, personality, and problem solving, and eventually progresses to neuromuscular involvement, disability, dependence, and death (Aalten, de Vugt, Jaspers, Jolles, & Verhey, 2005; Morris, 2006). Dementia is associated with behaviors that can be disturbing and disruptive and often results in a mismatch between environment and needs or excessive stressors (Algase et al., 1996; Hall & Buckwalter, 1987). Nursing home

These behavior symptoms may be exacerbated or triggered by environmental and/or interpersonal interactions (Logsdon et al., 2005). The precipitating factors of the behavior are many and are often specific to individuals. Getting to know and understand the person are key to discovering some of the underlying variables that precipitate the behaviors so the potential for them to occur can be eliminated or minimized.

Some strategies focus on prevention while others focus on the environment or management by medications. Historically, the focus of interventions has not been on psychological or emotional well-being (Reimer, Slaughter, Don-

helping the person achieve a sense of mastery, and ultimately enhancing quality of life.

NATURE AND HEALTH

Nature can have a profound effect on people's health, well-being, and quality of life. As AD progresses, the symptoms worsen, and the result is often severely diminished capacity to communicate one's needs and desires, as well as determine where one goes and when. The result is often institutionalization where self-determination is restricted further (Aalten, van Valen, Clare, Kenny, & Verhey, 2005). Studies have demonstrated some effectiveness of multimodal sensory stimulation (of which nature has an abundance) approaches to interventions. Although people with dementia react differently to stimuli, intervention study findings include reductions in agitation, improved depression, greater diversity of activity, improvement in mood, positive staff interaction, and enhanced well-being (Brooker & Woolley, 2007; Detweiler, Murphy, Myers, & Kim, 2008; Logsdon et al., 2007; Milev et al., 2008). It is a natural progression to look more specifically at interventions and environments that include opportunities to interact with nature as a way to promote the physical and mental health, well-being, and quality of life of people with dementia.

For the purpose of this article, the definition of nature exposure or experience includes a passive interaction, such as watching birds through the window, listening to bird calls, or sitting on a bench outdoors looking at flowers, as well as a more active and interactive approach that could involve gardening, walking along a path, doing chair exercises in a sunroom, or animal-assisted therapy. However the interaction or exposure occurs, it can provide an abundant source of multisensory stimulation

Overall environmental design that includes nature experience opportunities has been demonstrated to be important in dementia care and quality of life.

placement is often due to difficult and disruptive behaviors, which occur in nearly every person with the disease at some point during the course of the illness (Lyketsos et al., 2002). Behavior symptoms associated with dementia account for many negative health outcomes, such as declines in functional status, social engagement, and physical activity (Lyketsos, 2007), and increase the cost of care (Murman & Colenda, 2005). Behavioral consequences have also been shown to negatively affect quality of life and increase caregiver burden (O'Brien, Shomphue, & Caro, 2000).

Management of behavior symptoms associated with dementia is a complex process, and many approaches have been used to intervene on the behavior (Logsdon, McCurry, & Teri, 2007).

aldson, Currie, & Eliasziw, 2004), and it is now generally agreed that preserving the opportunity for meaningful, constructive interactions between resident and caregiver is paramount. Provision of environmental support to maintain function as long as possible is increasingly being recognized as a way to address the psychosocial needs of individuals with dementia. Therefore, it is important for both formal care providers (e.g., nurses, nursing assistants) and informal caregivers (e.g., family, friends, community service providers) to address the physical and mental health of people with dementia. This includes understanding the environmental preferences, experiences, and activities to which the person with dementia responds, promoting these aspects of health,

in physical, emotional, behavioral, psychological, spiritual, and/or cognitive domains.

Although the use of nature may differ in individual studies, as a whole, nature exposure may represent any or multiple forms. Overall environmental design that includes nature experience opportunities has been demonstrated to be important in dementia care and quality of life, so at times, the integration of natural environmental components may be the variable studied (Zeisel et al., 2003).

UNDERLYING THEORY

Studies have demonstrated the environment is an important contributor to the quality of life and well-being of people with dementia (Kolanowski & Whall, 2000). Environmental factors include the physical, social, psychological, and emotional environment, as well as the experience of nature. In a study of people with dementia, the experience of being in nature was shown to be important for many reasons, including well-being and a sense of normalcy (Duggan, Blackman, Martyr, & Van Schaik, 2008). Nature is an important part of our physical world, and although we react to nature in different ways, human beings have a connection to all natural things (Wilson, 1984). Many components in the natural environment are described as having restorative and healing powers (Kaplan, 1995, 2001). These factors, along with a world that can become increasingly restricted for people with dementia, make it incumbent on nurses, as care providers, to understand the importance and meaning of being in nature for people with dementia.

Harvard biologist Edward O. Wilson (1984) coined the term *biophilia*, which describes an innate interconnectedness human beings have with nature. It is an essential or basic experience that connects us to all other organ-

isms at a primal level, and we are all interdependent. This creates a mind-body connection that reacts fully to nature. When human beings are exposed to natural objects or views, a response is elicited in a physiological, psychological, and/or emotional process. The response to a nonthreatening natural environment stimulus has a positive effect on people's emotional state, followed by an autonomic arousal that is seen through positive changes in physiological activity levels, increases in sustained attention, and decreases in negative emotions (Berto, 2007; Kaplan, 2001; Rappe & Topo, 2007; Ulrich, 1984). This was first demonstrated by Ulrich (1984) in his seminal study that supported improved healing times of surgical patients with view of trees from a window in an urban hospital.

THE HEALING POWER OF NATURE: REVIEW OF LITERATURE

Studies provide examples of the effective use of nature-based interventions with people with dementia. Nature's healing powers have been described in many examples and include interactions among behavior and outcomes and human phenomena. For instance, it may be difficult to differentiate whether positive outcomes are a result of increased exposure to natural light or fresh air, increased socialization, or greater autonomy. Nature-based interventions may target specific behaviors, actions, or systems; yet, this level of specification is relatively new and requires additional research. Although there are many kinds of behavior symptoms associated with dementia, not all specific behaviors have been studied in relation to nature interventions. Behaviors are usually categorized into the more generalized term *agitation*. For example, there has been some research on wandering

but little on repeated vocalizations (von Gunten, Alnawaqil, Abderhalden, Needham, & Schupbach, 2008).

The healing properties of nature are not a new concept. During the Crimean War, Florence Nightingale recognized the decreased mortality rates of soldiers infirmed in tents compared with those housed in conventional hospitals (germ theory); in addition, her perspectives on sunshine and fresh air as critical to improved recovery have been noted (Nightingale, 1971). There is also a growing body of knowledge on the healing power of nature (Berto, 2007; Chapman, Hazen, Noell-Waggoner, 2007; Detweiler, Murphy, Kim, Myers, & Ashiai, 2009; Detweiler et al., 2008; Gerlach-Spriggs, Kaufman, & Warner, 1998; Kaplan, 2001; Rappe & Topo, 2007).

Attention, a cognitive skill that is increasingly impaired by AD, is essential for problem solving, appropriate behavior, and coping with situations. Restorative environments lead to stress recovery and improved affective states (Kaplan, 1995; Ulrich, 1984). Kaplan (1995) described a model of restorative environments and proposed the concept of attention restoration therapy. The properties of a restorative setting include:

- Being away physically or conceptually.
- Fascination: items or activities in the environment that effortlessly hold attention.
- Extent: the idea that one is extended in time and space to expand the mind.
- Compatibility: the fit between a person's purpose and preferences.

Natural settings are rich sources of the components Kaplan (1995) outlined regarding restorative environments.

In addition, prolonged mental effort (voluntary or directed attention) leads to fatigue; the result is lowered ability to concentrate and

suppress distraction, heightened irritability, and a greater likelihood of accidents and errors in functioning (Herzog, Chen, & Primeau, 2002; Moore, 2007). This supports the idea of fatigue being a stressor that leads to behaviors associated with dementia. Providing opportunities for attention restoration therapy has the potential for restoring attention and mental capacity, lessening the chance of disruptive behaviors.

Agitation often occurs simultaneously with sleep disturbances and appears to have a strong circadian component in many people with dementia (Martin et al., 2006). This idea is supported in the results of Lee and Kim (2008), who conducted a pilot study that used indoor gardening. They looked at sleep, agitation,

increased use of outdoor spaces was found in several other studies (Cohen-Mansfield, 2007; Connell et al., 2007; Detweiler et al., 2008; Namazi & Johnson, 1992; Whall et al., 1997).

Research findings on wandering have varied, but this may be due to disagreement about what constitutes wandering. There are several theories on wandering and how to affect it (Yao & Algase, 2006). Studies on gardens for wandering often have not specified the specific behavior of wandering, instead using the general term *agitation*. One study evaluated the effect of a supervised walking program; however, although it did include an opportunity to walk outdoors, the walking partners were not directed to walk outside, and analysis did not control for that variable. The

socializations, and increased social competencies from the familiar cueing in the natural environment that leads to reminiscence (Rappe & Topo, 2007).

A study by Detweiler et al. (2008) supported the quality of life and mood findings of Rappe and Topo (2007) but also looked at the influence of a wander garden on inappropriate behaviors in a dementia unit. They demonstrated that the more exposure to the garden, the fewer agitated behaviors; they also found that physical incidents increased while verbal inappropriateness did not change.

In a grounded theory study, Duggan et al. (2008) interviewed 22 people with dementia and 14 caregivers about how the disease had changed experiences for the person. The identified reasons the people with dementia valued the outdoor environment included exercise, fresh air, emotional well-being, the opportunity for informal encounters with neighbors and friends, and appreciation of the countryside. They also reported a loss of confidence and anxiety due to lack of familiarity in the environment. Three main themes were identified: the significance of the outdoor world to the people with dementia, the impact of dementia on outdoor life, and the importance of familiarity of outdoor environment (Duggan et al., 2008).

ENVIRONMENTAL IMPORTANCE IN NURSING HOMES

The design of environments in long-term care has focused on addressing individual needs, personalizing care plans (or more recently, person-directed care), making the environment home-like, educating staff and caregivers to understand the disease process, and facilitating appropriate interactions (Barba, Tesh, & Courts, 2002; Day, Carreon, &

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and cognition after a prolonged period of activity. Scores on cognition and agitation significantly improved, as did wake after sleep onset, nap time, nocturnal sleep time, and sleep efficiency; however, total sleep duration did not significantly improve. In a study that included unspecified outdoor activities, Connell, Sanford, and Lewis (2007) also evaluated sleep and agitation. Their findings differed in that their intervention group showed a significant increase in maximum sleep duration, a decrease in verbal agitation, and trends toward a decrease in physical agitation; both the control and intervention groups had improved total sleep duration. A decrease in agitation scores after

study did not find a significant impact on wandering (Thomas, Glogoski, & Johnson, 2007).

A search of qualitative research revealed several studies with people with dementia that included differing aspects of nature and outcomes. Rappe and Topo (2007) reported on two studies: One focused on the effect of greenery with results assessed by staff report, and the other included observations of residents who were either passively or actively interacting with nature. In measures of well-being and enhanced competence, they found positive correlations with those in both adult day settings and nursing homes. In addition, they noted decreased aggression, improved

Stump, 2000). Concepts such as the Eden Alternative® (Thomas, 1994) incorporate plants and animals into the daily life of the nursing home environment. In a study that examined environmental factors and how they related to behavioral health outcomes for people with dementia, Zeisel et al. (2003) found significant correlations between specific behaviors and environmental characteristics. For example, reduced aggression, agitated behavior, and psychological problems were associated with the environmental attributes of increased privacy and personal settings in bedrooms, an ambient environment, and residential character that facilitates resident understanding. The environment has been recognized as a therapeutic entity that can promote functionality and well-being if designed correctly. Zeisel (2005) and Zeisel et al. (2003) identified appropriate features for dementia units, including walking paths and accessibility to outdoor freedom (e.g., a dedicated space for use by people with dementia, unlocked garden doors), that have the appropriate environmental support to ensure safety but decrease confusion with visible landmarks. They found a distinct association between measures of health and environmental design (Zeisel et al., 1994, 2003).

The number of garden areas or patios in nursing facilities is increasing. However, while these additions may provide an opportunity for experiences with nature, it is apparent they are not considered an integral part of life for people with dementia. Several studies have investigated barriers to use of outdoor spaces. Barriers include difficulty with access (e.g., locked or heavy doors, distant location), lack of handicapped-accessible designs (e.g., no handrails, poor surface materials), lack of safety features, lack of resting spaces once outdoors, untrained staff,

lack of cueing features or landmarks, limited or small windows, lack of weather protection (e.g., canopies, screened or glassed-in enclosures), weather-related problems (e.g., excessive heat, cold, sun, rain), and lack of easy access to bathroom facilities and drinking fountains (Cohen-Mansfield, 2007; Detweiler et al., 2008; Gibson, Chalfont, Clarke, Torrington, & Sixsmith, 2007; Grant & Wineman, 2007; Rappe & Topo, 2007).

Staff knowledge and concerns for safety are a crucial part of access to and use of outdoor areas for people with dementia. This is an important area for education, as an increased incidence of falls is not supported in the literature (Detweiler et al., 2009). In their study of people with dementia using wander gardens, Detweiler et al. (2008, 2009) demonstrated a reduction in falls in a group of high-garden-use residents compared with a low-garden-use group in the year following the garden opening. They also found decreased use of high-dosage antipsychotic medications.

There are some general limitations in the many of the available studies, such as small samples, lack of a control group, and poor control on definition and dosage of interventions. Research has been limited to case studies, exploratory and observational studies with convenience samples, and a limited number of randomized controlled trials. Many studies use qualitative methodology, and some would consider this a limitation. However, if it considers the perspectives of people with dementia, such research is an important source of information that can lead to improved person-directed care.

SUMMARY

Nurses and other caregivers in the multiple care environments that provide services for people with dementia need to expand

their understanding of the importance and meaning of experiences of the natural environment for the people with dementia. By making available a window with a view, a breath of fresh air—natural multisensory stimulation—we can provide a chance to restore and renew, as well as an opportunity for people with dementia to enhance their sense of mastery, their dignity, and their quality of life.

Nurses need to become aware of the importance of nature experiences for people with dementia and the role these experiences play in these individuals' well-being and quality of life. Understanding of the experience of being in nature for people with dementia may lead to insights into individuals' preferences and care needs and could provide valuable assistance for both formal and informal care providers in helping people with dementia optimize the experiences the individuals deem important.

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