

The Role of Visual Art in Improving Quality-Of-Life Related Outcomes for Older Adults

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Abstract

There is a credible amount of research establishing the healing effects of visual art in acute care hospital settings, over the relatively short period of stay of inpatients. There is a need to extend this research in terms of its long-term effects on quality of life, especially in the context of older adults who may receive healthcare outside institutional settings. This paper provides a short overview of the current body of literature on healing visual arts and puts it in the context of the physical, emotional and cognitive needs of older adults. It explores the role of art as both a participative medium, and a more passive medium, in engaging older adults and improving quality of life. Finally it creates a theoretical foundation for new research on visual art as an integral part of the aesthetics and design of environments for older adults, whether they live independently or in some type of long-term care facility. The review of studies with older adults suggests that both viewing and making art contribute to overall improvement in health and well-being. As our country ages, we need a great deal more knowledge about how humane and supportive spaces can be designed and how non-pharmaceutical interventions such as art can be integral to that design.

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Introduction

Aristotle believed that art imitates nature and that there is a natural link between art and life itself. We now understand that images are preverbal, tied to our emotions and unconscious mind. Butler (1993, p. 117) points out that “(a)rtists also have recognized that images can communicate feelings in ways our thinking minds cannot understand. Whenever we say that a painting, a photograph, a piece of music or the smell of a flower moves us in a way we cannot express, we are acknowledging the power of images.” We use the phrase “too beautiful for words” when we lack the ability to verbally express our depth of feeling and emotion.

Ulrich and Gilpin (2003) suggest that the impact of visual art on healing, in particular the benefit of nature images to hospital patients, is grounded in two basic theories: evolutionary theory and emotional congruence theory. Evolutionary theory holds that the process of evolution and development of survival skills in a natural world have hardwired humans to find certain kinds of nature scenes calming and restorative (Wilson, 1984). Emotional congruence suggests people perceive their emotional state in a manner congruent with their current emotional state. It is likely that the high stress that patients and staff are under in a hospital influences their responses to the art, and makes this response distinct from how they may respond to the same piece of art in a museum (Bower, 1981).

Another interesting theory is Appleton’s (1975) Prospect/Refuge Theory which suggests that early man was driven by opportunity (prospect) and by the need for safety (refuge). This theory holds that modern man views art from our primitive ancestors’ instinctive, fight or flight analysis of the world around them that assured survival. “The theory predicts that humans are attracted to art that has broad, unoccluded vistas; visible places for easy refuge (e.g., a cove of trees, caves); water; plants; a smattering of prey species; and human placement at the edge of spaces where one’s back is protected (rather than in the middle where there is more exposure) and covered, rather than open to the sky” (Appleton, 1975).

The impact of views of nature directly, or via art, has been measured in studies spanning the last few decades. Ulrich’s landmark study of patients recovering from gall bladder surgery found that patients whose rooms had views of a park required less medication and were discharged sooner than patients whose rooms faced a brick wall (Ulrich, 1984). In an extensive review of the literature Ulrich has shown that nature depicted in art through various media (still art, videos, virtual reality) has the same beneficial outcomes for viewers as does nature itself (Ulrich & Gilpin, 2003). Ulrich places visual art under the broader umbrella of positive distractions, a key element of the designed environment that distracts patients from the pain, anxiety and stress they experience in a healthcare setting. Studies suggest that the perception of pain can be reduced by viewing nature scenes (Diette, et al., 2003; Tse, et al., 2002). Studies also suggest that patients report reduced anxiety and show less anxious behavior while viewing nature art (Coss, 1990; Heerwagen, 1990; Nanda et al., 2011; 2012; Schnieder, et al., 2003; Ulrich, 1993). Additionally, response to visual art has been linked to improved perception of quality of care (Hathorn & Nanda, 2008; Pati & Nanda, 2011; Ulrich & Gilpin, 2003).

To date a majority of the research linking visual art to health outcomes within the healthcare design context has been limited to acute care settings, and relatively less is known about how older viewers experience art. Wikström (2011) suggests that when we look at a

work of art, emotions allow us to tie the past and the present together experientially, an important function especially for older viewers experiencing emotional and/or cognition problems. In the context of nature images, Kaplan and Kaplan (1982; 1989) suggest memory is hardwired to recall early experiences with nature (plants, animals, etc.) which may result in clarity and perhaps pleasure for the cognitively impaired. Randolph, Tirnery, and Chase (1995), also suggest that “a positive prior response of Alzheimer's disease patients to plants and animals may account for a portion of the increased affect during these natural experiences.”

Numerous studies document the beneficial outcomes of access to nature and gardens. In a study set in four hospital gardens in San Francisco, Cooper and Barnes (1995) found that 95% of people who used the gardens said that they experienced an overall improvement in mood and in general perception of wellness in general. Similarly, McCaffrey (2007) found that older adults with mild to moderate depression who frequented museum gardens reported reduced depression and improved attitudes toward life in general. Gardens may also offer opportunities for stimulating long-term memory. Activities such as gardening, raking leaves and other associated activities may stimulate memory and emotion, triggering remembrance for the cognitively impaired people (Brawley, 2001).

Delivering nature and its pleasures through art holds promise for opportunities for improving well-being for older adults, especially those with cognitive deficits. But to explore this, it is important to understand the unique physical, cognitive, and emotional context of older adults, which may affect their perception of art.

Physical, Emotional, and Cognitive: Effecting Perception of Art

Physical

The world as we see it changes as we age. A 20 year old has three times the amount of light available at the retina as does a 60 year old (Weale, 1963). Many older individuals develop various degenerative eye diseases, including lens sclerosis, which results in thickening and yellowing of the lens of the eye and the reduced size of the pupil, adversely affecting image and color perception. Brawley suggests that “the light requirement for very old people may be as much as five times greater than for young people... age of assisted living residents is 84... age of nursing home residents is 86” (p. S81, Brawley, 2001).

Color vision is most accurate from the late teens to the mid-thirties. By the time adults reach age 55-65, red to green discrimination is less accurate than the yellow to blue range or the violet/blue range (Lakowski, 1958). As lens sclerosis progresses, blues may appear to be a darker value and greens make take on a very yellow cast due to the yellowing of the lens (Perez-Carpinell, et al., 2006). Older individuals, particularly, those with cognitive loss, may experience difficulty with color discrimination, depth perception, and sensitivity to contrast (Cronin-Golumb, 1995). Environmental factors such as glare compound these conditions and make vision loss more challenging for the older adults (Brawley, 1997).

It is obvious that vision effects how art is perceived in the eyes of the older viewer. Great care should be given to passive art chosen as an accessory in senior care facilities. This not only pertains to color, but clarity of image, depth of field, contrast, etc., but even to the type of framing that is used. Because glare is both stressful and potentially disorienting to many older viewers (Day, Carreon, & Stump, 2000), it is important to consider the option of non-glare

glazing for framed art that would normally be framed under regular glass.

Cognitive

Cognitive changes can effect perception of art; however, this is an area that largely remains unexplored. The most feared human conditions are loss of independence and loss of cognitive function (Ebersole & Hess, 1981). According to Emory University (2012), with normal aging there can be some loss of *fluid* intelligence, i.e., the ability to think and react quickly, mental flexibility and multi-tasking, and learning new information. Aging persons may also have more problems remembering new information. In addition the ability to pay attention, learn languages, reason and problem solve, and processing speed in general may decline. The loss of behavioral abilities and cognitive functioning (thinking, remembering, and reasoning) to the extent that it interferes with daily life is termed as dementia and is a growing problem in older adults (National Institute on Aging, 2011).

This is particularly challenging for older adults suffering from Alzheimer's. According to the Alzheimer's disease research unit at the American Health Assistance Foundation (AHAf), in the early stages cells in the hippocampus (the memory center of the brain) begin to decline making those with Alzheimer's lose the ability to perform routine tasks. As the disease spreads through the cerebral cortex (outer layer of the brain) judgment begins to worsen, emotional outbursts and language impairment become likely. As the disease progresses, wandering and agitation become common and people can lose the ability to speak, recognize people and control bodily functions. Memory worsens to the extent of becoming non-existent and control over basic functions of daily life reduces (AHAf, 2012).

What subject matter, shapes, and composition are appropriate? These are all questions without answers at this point in understanding how art can either improve or worsen individuals with impaired cognition.

Emotional

Linked to physical and cognitive states, emotional state can significantly affect our judgment of the world around us and perception of overall quality of life. This is particularly true of the elderly. Those with Alzheimer's are particularly sensitive to other's emotional states and emotional events, because the amygdala stays unaffected late into the disease (Zeisel, 2009). Loss of sense of control and feelings of social isolation may lead to depression in even healthy individuals. According to physicians treating their disease, Alzheimer's patients present the classic "4 A's", anxiety, aggression, agitation, and apathy (Blakemore, 2006).

Just as our emotional state can affect how we perceive our environment, inversely, our environment can affect our emotional state. Emotional congruence (discussed earlier) serves as a theoretical basis for understanding how the negative emotions associated with aging, in general, might cause vulnerable individuals to negatively interpret their surroundings more than younger, healthier individuals would in the same environment.

It is apparent that art which functions as a fixed, and essentially passive, part of the built environment must be carefully chosen to evoke positive emotions from elderly viewers rather than negative. Ulrich (1991) uses the term "unambiguously positive" to describe art that elicits positive outcomes in his studies. These are the types of images that leave little or no room for

interpretation, or reading in negative connotations, for the viewer.

Aging and the Environment

There are over 700 thousand people living in assisted living and another 1.5 million living in nursing homes in the United States (Caffrey, et al., 2012; Jones, et al., 2009). Sheer numbers alone stress the importance of addressing and improving the physical environment in which these individuals live. The elderly are among the most vulnerable and least able to deal with environmental stressors. Many of them are living in environments not of their own choosing. The physical, emotional and psychological obstacles of growing older frustrate and challenge them in all aspects of daily life. It is especially important to acknowledge these challenges in choosing artwork for the elderly.

The last quarter of the 20th century saw a shift in thinking highlighted by legislative changes that were aimed at improving the health and well-being of older adults. Prior to this, age-associated issues were considered normal and irrevocable, but this shift in thinking had begun to look at the problems of aging as disorders that could be modified (Cohen, 2006a).

Powell Lawton was first to focus on the role of the built environment and people with Alzheimer's and associated dementia. The Press-Competence theory suggests that the more compromised individuals are with regard to their physical or emotional health, the more susceptible they may be to negative aspects of the physical environment (Lawton & Nahemow, 1973).

The Nursing Home Reform Act in 1987 mandated restrictions on ways in which physical and pharmacological restraints could be used (Whall, et al., 1997), leaving physicians and caregivers searching for more humane ways of dealing with agitation and disruptive behavior. More recent studies examining the effects of art in the environment, examine art as a non-pharmacological intervention to improve overall quality of life of older adults (Cohen, 2006a; Day, Carreon, & Stump, 2000; Tilly & Reed, 2006).

Along with the changing attitude of promoting care and treatment that focuses on positive rather than negative behaviors, there is growing evidence that the design of the built environment, by itself and in combination with organizational policies and procedures, has a direct and measurable impact on the physical and psycho-social functioning of residents with dementia, which may translate into higher quality of life (Caulkins, 2009).

Recent legislation is changing the way healthcare is provided from a fee-for-service to a quality (outcomes) basis, meaning that senior facilities must provide physical environments that are safe and supportive of higher quality of life for their residents and patients. Coupled with legislation, there is a more demanding consumer now, the baby boomer, whose parents are at typical ages for entering long-term senior care facilities. Enhanced architecture and interiors which prominently feature art will continue to be designed to attract new clients, including the baby boomers themselves in a couple of decades. For this very reason alone, we need new research about art to inform design if spaces are to contribute to better outcomes for older adults.

Martin Bayne, a young-onset Parkinson's disease patient living in an assisted living facility, poignantly explains that, "On the outside, there might be a calm, even peaceful veneer. But beneath the surface, all of us are susceptible to the ambient despair that is a permanent

component of life in this type of facility. It's the result of months or years of loneliness and isolation and of a lack of true social interaction among residents. It's also the result of burying our feelings and emotions about the exceptionally high numbers of demented and disabled neighbors around us and being surrounded by frequent death" (pg. 1634, Bayne, 2012).

For the Martin Bayne's of this world who have no other choice of where they live, research provides almost no information about how to create effective visual art programs as a part of the designed environment, the art that hangs on the walls, day in and day out. Research is sorely lacking in exploring the effect of visual art on elderly viewers when art is not a part of a facilitated experience. In other words, we know precious little about how elderly people respond to art that is routinely interjected into their environments as a passive decorative element. Since there is some amount of compelling evidence about improved outcomes from participatory making or viewing of art, the author of this paper hopes to encourage other research to look at the role/value of passive art in facilities for seniors, since it surrounds them on a 24/7 basis without the benefits of an "interpreter".

Engaging with Art: The "Chocolate" for Aging

Viewing Art

Both viewing and making art have been documented as being beneficial to older adults. Exactly what happens in the brain when we look at art? Neurologists agree that brain plasticity, or the brain's ability to adapt and remain vital, can exist well into old age. The formation of new synapses means improved communication among brain cells (Cohen, 2006a). According to Bagan (2009), "making art or even viewing art causes the brain to continue to reshape, adapt, and restructure, thus expanding the potential to increase brain reserve capacity." Cohen (2006a) states that the brain becomes more bilateralized as it ages, allowing the two hemispheres to function more in unison. Cohen (2005) hypothesizes that when the two hemispheres of the brain communicate, there is an effect "like chocolate to the brain."

A study in Sweden compared two groups of elderly women (average age 82.6 years), the experimental group in which discussions about particular paintings were conducted, and the control group, in which general topics of broad interest were discussed, including newspaper articles and television programming, hobbies and other topics of general interest to older women. Researchers found better outcomes in the experimental group versus the control group. The experimental group who discussed paintings demonstrated a higher degree of social interaction while the control group did not. There were significant differences found in the reported desire for more social interaction with family and friends. It was also noted that the dialogues of the visual arts group changed over time and became more experience and knowledge-based, and were "characterized by imagination and happiness." Conversely, control group discussions displayed "downheartedness" and it became difficult to sustain meaningful topics during the latter phase of the study (Wikström, 2002). Lastly, a similar study with elderly adults found that groups engaged in visual arts dialogue, perceived their life situation as better than those in the control group (Wikström, 2000).

Visual art seems to stimulate the emotional functions that remain intact in persons with Alzheimer's, thus allowing for increased socialization and communication skills. Because art stimulates both hemispheres of the brain, neurologists see it as a way of engaging older

viewers, especially those with Alzheimer's and related dementia (Musella & Fasanaro, 2011). In his book *I'm Still Here*, Zeisel (2009) argues that "Alzheimer's does not take away memory, rather it is the part of the brain that gives you access to the memory that is damaged." Art can help trigger activity in this part of the brain. As Zeisel terms it, "It's as if you put the memories in the glove compartment and lost the key, and art unlocked it" (Zeisel, as cited in Blakemore, 2006).

A number of museums around the world now have programs for these older adults whereby they are engaged in discussions about works of art (Musella & Fasanaro, 2011). The "Artists for Alzheimer's" program at the Museum of Modern Art (MoMA) in New York City was one of the first museum programs in the country. Small groups of individuals are brought by family or caregivers to the museum on Tuesdays when the museum is closed. A trained museum professional guides a discussion group based on certain works of art deemed to be appropriate for the group's ability to understand.

Amir Parsa, director of the program, concludes that the patients' engagement with art allows (pg. 2, Smith, 2010):

- "An opportunity for personal growth
- An exchange of ideas without relying on short-term memory
- Opportunity to access long-term memories
- New insight into others' ideas and interests
- A means to make connections between individual experience and the world at large
- A social setting that allows connection to one's peers
- A respite, both physically and psychologically."

The New York University School of Medicine looked at the program and noted improved outcomes in the program participants that included a reduction in depression, improvement in socialization and reported higher self-esteem (Smith, 2010; Zeisel, 2009).

Other museum programs of note include those at the Carnegie Museum of Art, whose program is similar to the one at MoMA (Smith, 2010) and a program at the Kreeger Museum in Washington, DC which pairs elderly adults, their caregivers, and children from local middle schools in a program which encourages mutual socialization and respect (Stamberg, 2012).

While these programs provide demonstrably worthwhile opportunities to those fortunate enough to be a part of them, it is clear that the vast majority of people arguably around the world may not even live close to a museum. In the United States, the fastest growing Alzheimer's population is in the sparsely populated West and Northwest (Alzheimer's Association, 2012). So while we praise the programs that do exist, we must realize that many seniors in these areas will not have the same opportunities as their counterparts living in large metropolitan areas, making the need for facility-based art therapies even more important.

While there is compelling evidence that shows interaction with art to be beneficial, a majority of this research has been conducted in the presence of care providers or facilitators such as in the museum programs. The question of how older adults, and adults suffering from dementia, interact with art passively, in the absence of structured activity around it remains in question.

Additionally next to nothing is known about the content of visual imagery that may be more beneficial for improving the quality of life in older adults. While there is a credible

amount of research suggesting types of visual art that can improve stress, anxiety and pain outcomes of potentially younger patients in both inpatient and outpatient healthcare facilities (discussed earlier), research leaves us without adequate knowledge to know if those same types of images might improve the outcomes of older adults.

A study in five Midwestern nursing homes dealing with patient bathing, Whall, et al. (1997) included showing patients pictures of birds, along with bird calls, prior to and during bathing. Patients demonstrated improved behaviors, suggesting that nature art may have the potential to reduce stress in cognitively impaired individuals as well as in other patients if it is used in a controlled environment. A pilot study at Laguna Honda Hospital, a long-term care facility in San Francisco, suggests, however, that they might not (Nanda, 2011a). When shown classic nature landscapes with broad vistas and high depth of field, subjects with mild cognitive impairment commented that the images seemed lonely and asked, "Where are the people?"

Those same subjects preferred figurative images where they seemed to be drawn emotionally to images that evoked relationships and family, begging the question to what extent can figurative art be used to improve the emotional well-being of older adults (Nanda, 2011a). Research shows that reminiscence can be a powerful tool in dementia care (Gibson, 2004; Schweitzer & Bruce, 2008). Pictures of family, friends, familiar places, etc., have been used to trigger memory, reduce confusion and improve quality of life for individuals with dementia (Chaudhury, 2003a; 2003b; 2008; Woodrow, 1998).

While there is a glimmer of understanding resulting from the earlier mentioned pilot study (Nanda, 2011a) with patients with mild cognitive deficits suggesting that they preferred art with people (social component), there is question that the same findings would be the same in patients with advanced dementias. With the loss of the ability to recognize other people or even themselves in a mirror, these individuals could potentially suffer harm from figurative art.

Additionally, very little is known about how the socio-economic or cultural connotations within images might affect older viewers suffering from dementia. There are many such questions about engaging in viewing art in environments for older adults that need answers.

Making Art

There is general agreement that making art can lessen depression and anxiety and increase imagination and creativity, both outcomes that improve quality-of-life for people with Alzheimer's disease and other chronic degenerative diseases. In his book, *The Creative Age*, Gene Cohen (2000), MD, PhD, suggests that creativity prepares us to deal with problems more effectively in old age. Bagan (2009), who is an art therapist who works with the elderly, including Alzheimer's and Parkinson's disease patients, believes that creative arts activities provide the following benefits:

- "helping individuals relax;
- providing a sense of control;
- reducing depression and anxiety;
- assisting in socialization;
- encouraging playfulness and a sense of humor;
- improving cognition;
- offering sensory stimulation;

- fostering a stronger sense of identity;
- increasing self-esteem;
- nurturing spirituality; and
- reducing boredom.”

Art therapy may be broken into two distinct types differentiated as art in therapy and art as therapy. The first of these incorporates art and clinical psychology whereby art becomes a catalyst for specific clinical interventions targeting certain outcomes, a technique that has been used for many years in psychiatric care of patients of all ages (Bagan, 2009). Art as therapy, or the making of art, has also been used routinely for at least the last three decades as a part of healthcare facilities’ alternative treatment plans. One of the oldest (1973) and most noted programs is the Children’s Art Program at MD Anderson Cancer Center in Houston, Texas, where holiday cards created by kids with cancer are marketed and sold around the world.

The Society of Arts in Healthcare (SAH) identifies 43% of 2,333 responding healthcare institutions had art programs of some sort, with the top reasons for the program’s existence cited as benefiting patients and contributing to a healing environment (Rollins, 2009). While there is no survey to date on the number of senior care facilities using art as either a therapeutic intervention or decorative interior design element, anecdotal information suggests that the percentage is even higher than for acute hospitals.

Artists-in-residence programs provide meaningful opportunities for creative expression for older adults (Rockwood, 2004). In the Creativity and Aging Study, conducted by Gene Cohen (2006b) in Washington, DC, Brooklyn, and San Francisco, subjects in the intervention group (long-term art participatory group) displayed significantly higher outcomes than subjects in the control group who were not involved in the arts program. Subjects were at least 65 years old or older and participated in intensive community-based art programs led by professional artists. Sessions were held weekly, with a duration of nine months per year for two years. Participants in the arts group spent time making art and also going to art exhibits, concerts and other artistic events. The control group actively participated in various community activities, but those activities did not include art programs led by professional artists (Cohen, 2006b).

Even though both the intervention group and the control group participated in activities that involved social engagement, the results were compelling. Compared to the control group, subjects involved in the weekly participatory art programs reported: (a) better health, fewer doctor visits, and less medication usage; (b) more positive responses on the mental health measures; (c) more involvement in overall activities (Cohen, 2006b).

With Alzheimer’s and other dementia, the ability to continue making art well into the later phases of the disease is possible (Cohen, 2006a). The frontal regions of the brain, and in particular, the medial parts related to emotion seem to be spared along with the circuits involved with aesthetic judgment (Aharon 2001; Francis 1999; Rolls 2000; & Small 2001 as cited in Musella & Fasanaro, 2011).

The famous Dutch American painter, Willem deKooning, produced works after he was diagnosed with Alzheimer’s that were acquired by museums. He continued painting up until shortly before his death. In a comparison of the art of three well-known artists, Willem deKooning, Carolus Horn, and William Utermohlen, Musella and Fasanaro, (2011) illustrate the results of advancing Alzheimer’s disease in the striking changes in work produced before the artists were diagnosed through the late stages of their disease. DeKooning, whose chaotic

personal and artistic life is well-documented, seemed to have found a certain acceptance and peace in his illness. His paintings no longer possessed the characteristic angry energy, harsh geometry or chaotic use of color. Through the progression of the disease, color became harmonious and lines softened to curvilinear so extremely different that some critics questioned whether the work was actually his. He was also much more prolific during the later years, suggesting that he was painting from a place of peace (Musella & Fasanaro, 2011).

Carolus Horn was a well-known graphic artist who produced many iconic brand images for international clients. He also produced many personal paintings as “art for art’s sake.” Venice’s famous Rialto Bridge was a favorite subject throughout his lifetime. By comparing the same subject matter created before and during the course of his disease, it is apparent that very detailed and intricately worked pieces were gradually reduced to flat images without proper spatial relationships, suggesting the spatial disorientation which is always characteristically present in the disease itself. It gives us the possibility to compare the works he created both before and during the course of AD. The pictures demonstrate that geometrical and symmetrical shapes gradually substituted the detailed representations made before the disease, where perspective was perfectly reproduced and shadowing was a characteristic. Simplifications were evident, reproductions are flat and spatial relationships no more respected. Shadows and other elements within the works change as well. His last known work was reduced to faintly drawn geometric shapes only; the remarkable thing, however, it is the clear intent to draw the bridge (Musella & Fasanaro, 2011).

William Utermohlen was an American artist living in London. As a student of human emotion and expression, he chronicled his own disease through a series of self-portraits. Unlike deKooning’s apparent acceptance of his disease, Utermohlen created works that show growing anger, despair and isolation (Musella & Fasanaro, 2011). His web site suggests that, “His work represents the most complete and coherent testimony of a patient’s experience with the disease” (Galerie Beckel Odille Boicos, 2009).

Effect of Art on Caregivers

According to Bertman (2007) there is a growing trend in medical schools to incorporate the arts into the training of physicians. Fine art and art observation can improve visual diagnostic skills and thinking strategies in physicians (Dolev, et al., 2001; Naghshinesh, et al., 2008; Shapiro, et al., 2006). Rollins, et al. (2009) also states that “(f)or students in medical and other healthcare fields, the arts can enhance their skills—improving their observational, diagnostic, and empathic abilities. It helps them to understand patients in a different way and connect with them on a more humanizing level.” Dialogues with student nurses viewing Edward Munch’s painting *The Sick Girl* were found to increase awareness about interpersonal relationships and empathetic thought in caregiving (Wikström, 2003). There are also reports of the value of caregivers making art in the workplace as an opportunity for releasing stress and not taking it home (Rollins, et al., 2009).

Clearly staff stress in the healthcare industry is a growing issue, especially when considering statistics on physician and nursing burnout and predicted staff shortages in the future (Juraschek, et al., 2012; Shanafelt, et al., 2012). In a post-occupancy study at M.D. Anderson Cancer Center in Houston, Texas, 69% of 240 staff respondents said that the visual art

program at the facility made them feel better or much better (Nanda, 2011). At Ben Taub Hospital, one of the largest public hospitals in the US, emergency department waiting front desk staff reported fewer inquiries from patients and family members in a nature art intervention study (Nanda, et al., 2012). Nursing staff at a cancer center in Shreveport, Louisiana, reported similar findings when patients were involved in an art project at their bedside. They also reported that patients' moods were better due to the painting projects (Rollins, et al., 2009).

Staricoff, Duncan, and Wright (2004) found similar results from studies done at London's Chelsea and Westminster Hospital, citing that 60% of the staff indicated that the hospital environment, which includes a robust visual arts program, helped reduce stress and improve their overall mood. Ninety percent agreed that the visual arts, along with a performing arts program, created "a very pleasant working environment." They also cite a study commissioned in 1999 by the British National Health Service which, in part, concluded that patients moved to a well-designed new hospital building felt that they were receiving better care than when they were in the old building (Staricoff, Duncan, & Wright, 2004). In a non-healthcare but highly stressful environment, prison employees reported lower blood pressure and lower heart rates on days when a large savannah landscape mural was installed on the wall in the inmate holding room (Farbstein, et al., 2012). While none of these institutions specialize in caring for the elderly, these studies suggest real possibility for improving the working conditions for staff with the expectation that, in turn, they will be more able to provide compassionate humane care to the residents and patients of those facilities.

Research Gaps and Opportunities

Older adults can benefit from visual art in multiple ways by: 1) viewing art passively, 2) viewing art and actively engaging with it, 3) making art as therapy, and 4) making art as expression. The lines between these different channels are blurred; differences lie in the level of engagement, solo or group participation, the level of facilitation and supervision, and the level of fundamental skill levels. While there is a robust and growing body of research on engagement with visual arts through participation, little is known about passive viewing. Even less is known about passively viewing art on a one-on-one level in personal spaces like bedrooms/inpatient rooms or more public areas such as waiting rooms, lounges of long-term care facilities, and dementia day cares. Given the physical and cognitive impairment of older adults, and their emotional vulnerability, learning how they respond to the art that becomes part of their permanent visual environment is vital.

Research discussed in this paper shows that art, with its power to unlock memories, can have a significant impact on people with dementia. This power has the potential to be harmful if unleashed in the absence of trained caregivers who can work with individuals to deal with the opening of cognitive floodgates. The involvement of therapists and trained medical professionals is important to the therapeutic process. In the absence of caregivers, older adults, with or without dementia, continue to engage with their physical environment, and within that environment, with visual art as a focal point.

Learning more about this personal interaction, and how that is affected (if at all) by content, is imperative. The amount of research on the role of art with older adults is strikingly

small and the need is great, considering the fact that longer life spans and aging baby boomers are combining to double the population of Americans aged 65 and older during the next 25 years. By 2030, there will be 71 million American older adults accounting for roughly 20% of the U.S. population (CDC, 2007). The studies that do exist generally involve a small number of subjects, thus making it difficult to know if there are broader implications or the possibility of replication of those studies. Putting together insights on changes in color and spatial perception with emotional and cognitive needs is key to determining appropriate art for healing and aging.

As Alzheimer's disease advances, patients frequently fail to recognize other human beings, including caregivers and family. It seems possible that art that depicts humans could be very confusing and frightening to those individuals whose disease has progressed. On the other hand, the social isolation that many older adults experience living far from their families may help them connect to other humans. No study has been done to explore this area, but the potential of causing more harm than good makes this an important area of investigation.

Finally, fascinating opportunities in research about nature art exist in the context of aging. Can nature art be used as a non-pharmacological intervention to reduce anxiety and agitation? Given the growing body of research on exposure to nature for older adults, it is a valuable area of research. In addition, anecdotal research supports the hypothesis that nature images that reduce stress in acute-care settings may not be as effective in reducing stress and anxiety in long term care settings where the social component becomes important.

Finally, issues of color saturation, clear definition of form, and composition, warrant investigation. The purpose is not to prescribe art, but to really understand the "ingredients" of art that can create the most impact in terms of a recipe for healing. Though art is hugely subjective, and art expression must not have boundaries on it, art exposure is more challenging.

Can art in the environment that can potential cause harm be included in an environment with vulnerable populations, and if not, then how best do we address the complexity of perception issues associated with aging, with the complexity of color, context, composition and quality issues associated with art. The research opportunity is unique and complex, but with far reaching consequences. Expression and exposure to art both have a huge potential for impact on aging-one that remains untapped until we understand more about the underlying mechanisms through controlled, carefully designed, but inspired research.

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