

# *Cognitive Benefits of Photo Reminiscence Therapy for Dementia Patients*

## *Preliminary findings within a narrative framework*

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### **Abstract**

The power of photo Reminiscence Therapy (pRT) for those living with dementia and their caregivers has been under-represented in the research community. To bridge the gap, a coalition of organizations joined forces to demonstrate a new understanding of the power of pRT and how it may improve the quality of life for those with dementia by minimizing social isolation and improving medication compliance and general cognitive performance. The aim of the preliminary pilot project was to identify photos that foster reminiscences and decrease social isolation for older adults living with dementia or a related form of memory impairment. This pilot project looked at the behavioral and somatic responses of older adults in senior living care through pRT grounded in a curriculum-based platform and intergenerational framework. Through the lens of a multi-paradigmatic coalition with new perspectives and insights to share, our findings were robust, insightful, and beneficial for participants.

### **About Dementia | Introduction**

The term dementia refers to a classification of signs and symptoms [1]. While there are more than 100 conditions that can cause dementia, Alzheimer's disease and Vascular dementia are the most commonly diagnosed. Currently, over 6.2 million Americans are living with Alzheimer's disease, which constitutes 70 percent of the dementia

population [1,2,3]. This number is expected to triple within the next few decades [4].

Alzheimer's disease is one of the leading causes of death in the United States. One in three seniors die with Alzheimer's disease or another form of dementia [1]. Many researchers state that there is no cure in sight, and each year the number of cases grows worldwide. It is an epidemic that is soon to

be classified as a pandemic. If a cure is not found within the next few decades, the rising cost of care could cripple the economy, and people living with dementia could suffer from lack of funding for treatment options and caregiver education.

This pilot project aimed to fill the gap of knowledge and provide a non-pharmacological intervention that uses photo reminiscence therapy (pRT) to improve the quality of life for those living with Alzheimer's disease and related forms of dementia, as well as help caregivers better connect with those in their care.

### **About Reminiscence Therapy**

As described by the National Institutes of Health, “Reminiscence Therapy (RT) involves the discussion of past activities, events and experiences with another person or group of people, usually with the aid of tangible prompts such as photographs, household, and other familiar items from the past, music and archive sound recordings.” [5]

### **Demographic Information**

Our preliminary study was conducted across four CERTUS Senior Living communities in partnership with Vivid-Pix, Tellegacy, achi, the CERTUS Institute, and the National Institute for Dementia Education. Study participants included a total of 37 residents who resided within the four CERTUS memory care specialty communities. They ranged in age from 67 to 92 years, were living with a diagnosis of dementia or memory impairment, and had a range of career and work backgrounds, from engineers to stay-at-home mothers.

Each resident was paired with a trained university health care student who led the

pRT sessions. A total of 20 students participated, and all were part of the Tellegacy platform, a program in which students help older adults stay connected via regular phone or virtual visits to help decrease a sense of social isolation and increase resiliency. The students were trained and coached in goal-setting, visualization, mindfulness, reminiscence therapy, and growth mindset. Students' academic disciplines ranged from undergraduate to graduate level, with concentrations in pre-med to social work; all were interested in or considering pursuing a career in health care. All students had limited knowledge of dementia prior to the project.

Each resident was randomly selected but specifically paired with a student based on abilities and scheduling to accommodate any needs including underlying medical and or environmental influences such as Sundowning (a common phenomenon where symptoms worsen after dark), sleep schedules, and medical appointments to ensure the highest level of success for each student and resident [4].

This pilot study was conducted in three five-week phases: two five-week phases to identify the influences of generic/general-themed stock photos, and an additional five-week session with personal photos provided by the family of the person with dementia. Images included family, self-portraits, pets, landmarks, newspaper articles, nature, and abstract themes. Students used black and white as well as color images. Personal photos were enhanced using Vivid-Pix technology to improve color, contrast, clarity, and overall quality.

The pilot group was divided into four areas of focus: Group A — generic stock photos

with Tellegacy program and 1:1 student-to-resident sessions; Group B — no photos with Tellegacy program and 1:1 student-to-resident sessions; Group C — no photos or Tellegacy program; Group D — personal photos with Tellegacy program and 1:1 student-to-resident sessions.

### **Resident Support**

During pRT sessions, all residents were monitored by the clinical team at CERTUS to ensure that sessions were positive and productive. Sessions did not interfere with their care or daily routines. The CERTUS engagement team was available to assist Tellegacy with setting up sessions, redirecting, and after-session support if needed.

### **Student Support**

Participating students received ongoing coaching from CERTUS Institute and Tellegacy to ensure they understood dementia and to support the overall success of the study. Students also received training through the National Institute for Dementia Education [6,7].

### **Project Environment**

CERTUS Senior Living is a research-based senior living community specifically designed for people living with dementia. CERTUS Senior Living research division, the CERTUS Institute, works with organizations to pilot programs, research products' effectiveness, and help improve the delivery of services following best practices with the mission of making memory care better. CERTUS Senior Living is a leader in memory care research and lifestyle accommodations through their evidence-based approach to memory care [8] endorsed by the National Institute for Dementia

Education, as well as a number of nationally recognized organizations.

Each community is identical in design. All residents are screened and cared for through standardized practices. All CERTUS staff are certified as Dementia Professionals through the National Institute for Dementia Education. All observational findings were reviewed by specialists within each CERTUS community who collaborate with one another and serve on the CERTUS Institute Project Review Committee.

For this pilot study, all assessments were completed in the non-medical, home-like environments at CERTUS to ensure a relaxed and comfortable setting for residents. Individuals with dementia perform better and more accurately when they do not feel pressured [8]. Therefore, ensuring that residents are not frightened or overstimulated is part of the established protocol.

### **The Use of Generic Photos**

University students used generic photos featuring family portraits, landscapes, famous landmarks, pets/animals, and comical and abstract images. Photos were both black and white, and color. Each session used five to 12 photos with themes including self-image, family, emotional events, homesteads, and pets. The CERTUS team measured residents' level of interest in photos as piqued interest including more animated and enthused expressions, widening of eyes, and more use of hand gestures. When the students showed residents photos that piqued less interest, students observed less somatic response, reduced eye contact, and less conversation from residents. Throughout the process, we noticed that residents who liked the photos would talk more about them; there was a strong emotional pull to photos of

things they recognized, including pets, people, and familiar landmarks. We noticed there was less engagement with photos that were less recognizable, abstract, or non-relatable. Blurry or hard to understand photos resulted in reduced conversation, while photos that were easy for residents to relate to fostered more conversation. The CERTUS team also noticed that residents would try to relate generic photos to their own lives. For instance, a generic or stock photo of a little girl encouraged residents to talk about their daughters, and photos of pets inspired stories about childhood dogs and cats.

### **The Use of Personal Photos**

Using prescribed photos that ranged from six to 58 photos throughout the five-week session, we noticed a stronger emotional pull and increased engagement with personal photos that captured the actual people and events of the resident's own life. Again, as with the stock generic photos, themes included family, self-portraits, landscapes, landmarks, and pets/animals.

We noticed that word structure formation and narrative storytelling were more vivid and took place more organically when students used personal photos. The CERTUS team also documented that residents were more successful at remembering specific details during and after the session when they related to their own personal photos. This makes sense as research shows a person with dementia processes their world primarily through sensory/emotions — they are better able to remember things to which they have emotional ties [6,7,8].

Overall, the team noted that residents smiled more frequently and engaged in deeper conversation when photos were recognizable.

Furthermore, CERTUS residents had greater verbal and somatic responses when engaging in conversations about their own personal photos. In many cases, residents shared detailed recollections of the time and place of photos with students, details that were later confirmed by a family member or friend. Many of these family members or friends were surprised and grew emotional upon learning that the resident vividly remembered the event or time captured by the photo, events the family member or friend had assumed were forgotten memories. These recollections typically occurred within 10 to 15 minutes of the session for several residents participating in the pilot study.

### **Collaboration for Project Success**

#### ***Tellegacy / achi and Reminiscence***

**Programming:** The Tellegacy intergenerational program focuses on social prompts that foster human connection through purposefully crafted questions as part of an evidence-based curriculum. These questions help to decrease social isolation and increase a sense of connection, resiliency, and self-efficacy within the lives of older adults. This was the first focused project using the Tellegacy program with residents diagnosed with dementia.

**Vivid-Pix:** To improve aged or faded personal photos used in the pilot study, we used Vivid-Pix technology to digitally enhance and restore images. This allowed photos to be more recognizable and relatable. Vivid-Pix's knowledge of how people emotionally connect and interact with photos was also beneficial.

#### ***National Institute for Dementia Education:***

The NIDE Standards of Excellence Council offered free dementia training and certification for participating students and

caregivers. This helped ensure that students understood dementia and supported the efforts of our pilot study. The Council also served as a sounding board to ensure the information gathered could be postured in a way to improve the future quality of life for seniors.

***CERTUS Institute:*** The CERTUS Institute (CI) oversaw the care and clinical assessment part of its daily practice when working with CERTUS Senior Living. CI uses its findings to improve both the industry and the quality of life of those living with dementia. CI research sites offer premier dementia care to its residents and provided a controlled memory care community environment to support the success of the project.

### **pRT Session Platform**

We used a video conference platform to study and analyze verbal and somatic expressions and human interactions. We also used a bi-weekly tracking meeting to see what actions came from the sessions. We modified session times when needed to accommodate the schedules of the students and residents, as well as to ensure optimum times for sessions. Ongoing conversations with both residents and students allowed us to gather peripheral data, including facial expressions, physical body reactions and gestures, tone of voice, verbal fluency, and overall body language (posturing forward to listen, using hands to tell a story, and eye contact).

### **Project Findings**

We had hypothesized that residents would enjoy, engage, and interact with their own personal photos more than generic photos, and that emotional and intergenerational bonds would develop between students and residents. We were not surprised that

residents did relate more to their own photos. This was validated by video footage as well as the after-session actions and behaviors of participating residents, as reported by family and CERTUS staff. For instance, residents often asked when their next session would be and talked enthusiastically about these sessions throughout the day following their session. In addition, residents retained more detailed information than is typically expected for those with a neurodegenerative diagnosis and short-term memory deficits.

Several residents also performed better socially after the pRT sessions that used personal photos. This pilot study found that residents showed more social engagement throughout the day and for an extended period of time. Residents also improved or maintained their cognitive screen score, which suggests that neural-visual stimulation may foster neurogenesis and improve cognitive abilities after pRT stimulation.

In memory care, one common area of concern is medication compliance. As a follow-up to the student conversations and sharing of photos, we noted that when a nurse reviewed at least three relatable photos with a resident prior to medication administration, this pRT interaction improved medication compliance by almost 50 percent. This number is shocking; however, the data pool is too limited at this time to create a full assumption. Further investigation is underway and shows great promise.

Overall, this observational pilot study and the data collected illustrate that elderly patients with dementia who participated in even short pRT sessions show improvement in cognitive function, a decrease in memory “fog,” and fewer occurrences of depressive stages than

patients who did not participate in sessions. This pilot study suggests that pRT sessions foster neurogenesis that temporarily “normalizes” and minimizes dementia symptoms including apathy depression, and inaccurate memory recall. In some cases, pRT sessions resulted in improvements in speech or decreased aphasia.

This preliminary study suggests that pRT stimulation may reduce dementia symptoms both during participation and as much as 24 to 36 hours later, when participants showed benefits from the residual effects of the photo-based reminiscence therapy session. This pilot study strongly supports and contributes to a medically valid, non-pharmacological approach to working with and treating patients with dementia.

### Conclusion

Engagement with personal photos may provide healthy neurological and action-based benefits to patients with dementia, especially when such engagement occurs within supportive care environments. Although this was a pilot study, we conclude that the power of engaging with personal photos, matched with a high-quality care curriculum and living environment, may improve the quality of life for those with dementia by stimulating the brain and fostering neurogenesis as well as neuroplasticity. This may improve quality of life and, in some cases, temporarily diminish dementia symptoms during therapeutic sessions. Our hope is that these and continued findings will allow caregivers and professionals to be more successful in creating a connection with and improving the quality of life for the person with dementia.

This pilot study provides a replicable process and framework for future and ongoing

exploration on pRT and its applications. It also creates an educational platform and learning opportunity for college students pursuing careers in health care. Future research funding is needed to move to a fully protocolled treatment and measures to standardize the procedures established in this promising pRT pilot study.

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