SJOT

Student Journal of Occupational Therapy

Volume 2
Issue 2 *Summer 2021*

Article 1

2021

Effects of Social Technology on Older Adults in a Residential Living Facility

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Recommended Citation

Bennett, K., Gonzalez, M. L., Harper, S. L., Logan, M. N., Jeffers, K. M., Springer, A. C., & Sowers, J. (2021). Effects of Social Technology on Older Adults in a Residential Living Facility. *Student Journal of Occupational Therapy, 2*(2), 1-14. https://doi.org/10.46409/001.MCFL9362

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Cover Page Footnote

Author Note: There are no known conflicts of interest to disclose. Correspondence concerning this manuscript should be addressed to Mia L. Gonzalez, gonzalezm@huntington.edu

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Student Journal of Occupational Therapy, 2(2), 1—14

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DOI: https://doi.org/10.46409/001.MCFL9362

To cite this article:
Bennett, K., Gonzalez, M. L., Harper, S. L., Logan, M. N., Jeffers, K. M., Springer, A. C., & Sowers, J. (202#). Effects of social technology on older adults in a residential living facility. *Student Journal of Occupational Therapy, 2*(2), 1—14. https://doi.org/10.46409/001.MCFL9362

Abstract

Introduction*: Loneliness and social isolation impact physical and mental health negatively for older adults. Researchers noted an increased relevance of the need for social technology with the emergence of COVID-19. The objective was to investigate the impact of social technology on older adults' levels of loneliness and social isolation within a residential living facility.*

Methods*: Descriptive, multiple baseline; occurred over four months with quarterly intervals of data collection. Seven participants met inclusion criteria and were included in the convenience sample. Participants used Sherish℠ Connect for a minimum of one month. Sherish℠ Connect is a television-based social technology platform. Data was collected via survey responses and medical records review to determine the effect of the Sherish℠ Connect on perceived loneliness.*

Results*: Seven older adults (ages 73-101, 3 males, 4 females) were included. Six participants reported using the Sherish℠ Connect weekly or daily. The majority of participants reported this form of social technology provided comfort.*

Discussion*: Sherish℠ Connect has potential to combat loneliness and social isolation. Researchers hope this study provides baseline research that inspires additional studies investigating Sherish℠ Connect. Social technology adds value to occupational therapy intervention for social participation. Sherish℠ Connect has the capability to increase social participation among older adults.*

Keywords: loneliness, social isolation, social technology, social support, older adult, occupational therapy

Introduction

Half of adults over the age of 60 are at risk for social isolation, and approximately one-third of older adults will experience some form of loneliness in their lives (Chen & Schulz, 2016). Personal connection and social interaction are vital components of health throughout the lifespan (Landeiro et al., 2017). According to Eskimez et al. (2019), loneliness was seen in 56% of elderly living in a nursing home, possibly due to older adults transitioning from working to retirement, loss of a loved one, or worsening health conditions. Risk of mortality in older adults increases with social isolation and lack of social support (Eskimez et al., 2019). Loneliness and social isolation among the older adult population have been found to negatively impact mental health (Landeiro et al., 2017).

The negative feeling that stems from the quality and quantity of social needs not being met is defined as *loneliness* (Eskimez et al., 2019). Well-being among older adults is mainly dependent on personal relationships (Chopik, 2016). When addressing overall well-being in older adults, research suggests social technology may be a viable option to combat loneliness and social isolation (Chen & Schulz, 2016; Öngün et al., 2016).

Social technology is defined as any form of technology that fosters social interactions and includes communication capabilities (Chopik, 2016). Examples of social technology include email, social networking sites, video or phone calls, instant messaging, and smartphones (Chopik, 2016). Through social technology platforms, the opportunity for social support among family and friends may increase. *Social support* is defined as an individual's support system that strengthens the psychological dynamics to cope with emotions (Eskimez et al., 2019). Social technology can bridge location and time gaps, allowing individuals to communicate regardless of geographic location and time zone.

The interweaving of occupations to support desired engagement among community and family activities as well as those involving peers and friends is *Social Participation* (Gillen & Boyt Schell, 2014). Social participation is an important domain of occupational therapy that practitioners target during intervention. Social technology is a beneficial tool that may further support increased social participation. Social participation is an instrumental activity of daily living that is a component of occupational performance. Occupational therapists can use therapeutic interventions to target social participation among the older adult population, who are more vulnerable and at-risk for social isolation and loneliness.

This study aims to investigate the impact of social technology on older adults' perceived loneliness and social isolation within a residential living facility. Researchers of the current study hypothesized that social connectedness through participants' use of social technology medium *Sherish*℠ *Connect*, which consists of televised photographs and voice recordings, will have a positive effect on associated perceived loneliness and social isolation in an older adult residential setting.

Literature Review

A study conducted by O'Rourke et al. (2018) addressed the issue of loneliness and social connectedness and found that engaging in purposeful activities and maintaining contact with a social network were two valuable strategies to decrease loneliness. Interventions designed to address loneliness and social isolation included personal contact, reminiscence, and support groups. O'Rourke et al. (2018) considered contact with a relative or visitor as a component of intervention that targets multiple factors such as belonging, caring, and social support.

Verma and Kumar (2018) found a significant difference in the level of quality of life and social relationships of older adults living in a senior living facility, when compared to older adults living with family. The level of loneliness was high among older adults living in senior living facilities, which negatively correlated with physical health, psychological health, and social relationships (Verma & Kumar, 2018). Social technology can

address the interpersonal well-being of older adults, regardless of living accommodations (Chen & Schulz, 2016). Hasan and Linger (2016) identified connection, self-esteem, productivity, occupation, self-sufficiency, control, and enjoyment as outcomes of using social technology.

Older adults can rely on social technology to aid in alleviating feelings of social isolation (Andrews et al., 2019). According to a study by Chopik (2016), an increased rate of social technology use among older adults was associated with improved self-rated health and subjective well-being, and fewer onsets of chronic illnesses and depressive symptoms. Chen and Shulz (2016) found social technology interventions fostered social support, social contacts, social connectivity, and social networks among the participants. Andrews et al. (2019) found that social technology was a successful intervention and provided a helpful distraction from intrusive thoughts in older adults. Additionally, the older adults were highly motivated to use social technology as a treatment method to support mental health by promoting self-reliance, averting loneliness, and improving mood.

Moving into an assisted living facility brings new challenges regarding social exclusion. A lack of family connections can decrease the feeling of belonging for older adults (Miller, 2019). Drageset et al. (2011) found that more than half of the participants residing in a nursing home experienced loneliness. Family visitation to the facility is one component that can decrease the adverse effects of social exclusion, such as an improvement on an individual's quality of life (Miller, 2019; Puurveen et al, 2018). Satisfaction with the level of emotional connection to loved ones was an essential component of decreasing loneliness (Drageset et al., 2011). Miller (2019) identified seven different barriers to visiting family members residing in a nursing home, which further increased social isolation. The barriers were psychological, health, family and staff relationship, employment and finances, time for travel, transportation, and other miscellaneous obstacles. Social technology is a medium with the potential to combat the effects of these barriers.

Television-Based Social Technology

Approximately half of older adults watch television (TV) as the main source of company to combat loneliness (Öngün et al., 2016). Papa et al. (2017) utilized an easy-to-use technological interface that appealed to the older adult population to improve social participation. Choprik (2016) found that half of the participants identified learning to use new technology to be difficult and time-consuming, while the other half mentioned it was too expensive, challenging, and difficult to keep up with as the nature of technology continuously changes. However, older adults found it easier to navigate new technology when it is embedded in items they already use, such as a TV or telephone (Papa et al., 2017). To achieve user-friendliness for the older adult population, technology was embedded into a TV. Social TV was defined as "the idea of using communication technology to connect TV viewers to create remotely shared experiences around TV content" (Papa et al., 2017, p. 45). Interviewees discussed the many benefits of the technology, such as the usefulness to counteract social isolation, ease of use, accessibility, and extended possibilities of communication (Papa et al., 2017). A study by Coelho et al. (2017) utilized a television-based social media interface that featured printed photo sharing and multiple interactive functions, including remote control, voice, and gestures. Participants reported high usability and improved social interactions with relatives, both online and offline.

Intergenerational Reminiscence Activities

A study conducted by Morganti et al. (2016) supported that reminiscence or reflecting on past experiences and people is an effective way of decreasing loneliness among older adults. Findings demonstrated that older adults' emotional and social loneliness significantly decreased after Intergenerational Reminiscence (IR) activities that included memories from newspaper clippings, letters, photos, videos, and postcards. In this instance, the term intergenerational refers to the memory of individuals no longer alive and the older adults they left behind. Through the use of IR, with

and without the utilization of technology, feelings of social isolation decreased while self-esteem increased. The IR activities were perceived as enjoyable and engaging by older adults (Morganti et al., 2016). West et al. (2007) found that older adults identified a common memory aid to be a scrapbook or photo album. A digital scrapbook was created with features including photos, videos, and audio clips with captions. The digital scrapbook provided adequate support for reminiscence and was effective for memory sharing (West et al., 2007).

Videoconferencing-Based Social Technology

Tsai and Tsai (2015) examined the attitudes and predictors of videoconferencing use among family visitors to nursing homes. The mode of technology used provided live audio and visual telecommunication systems was found to have positive effects for residents transitioning into a nursing home facility. Additionally, videoconferencing was associated with reduced depression and loneliness among older adults living in nursing homes (Tsai & Tsai, 2015). Tsai and Tsai (2015) concluded that families could benefit more if videoconferencing were accessible across various devices such as smartphones or tablets. The need to develop "more interactive content for video conferencing, such as a family-oriented picture program that can help broaden topics of conversation" was also identified (Tsai & Tsai, 2015, p. 843). Chen and Schulz (2016) found that social technology interventions resulted in significant reductions in loneliness among study participants. Overall, it was found that social technology interventions enhanced interaction between generations and kept residents more connected with others, such as family and friends, outside of the nursing home (Chen & Schulz, 2016).

Justification for Study

Research findings suggest social technology can be beneficial for decreasing loneliness in older adults; however, established literature on the use of social technology for reducing loneliness in the older adult population is limited. Social technology as a medium for research is relatively new and expensive, which may account for the lack of publications available. Research analyzing the use of photographs through a technological interface in decreasing loneliness and social isolation is also scarce. The current study attempts to bridge the gap in existing research on the use of social technology to reduce social isolation and loneliness among older adults. Researchers of the current study hypothesized that social connectedness through participants' use of social technology, in the form of photographs and voice recordings, will have a positive effect on depression and associated loneliness, as measured respectively, utilizing the *Patient Health Questionnaire 9th edition (PHQ-9)* and participant report through a researcher created survey.

Methods

Study Design

This study was a descriptive pilot study design with convenience sampling, allowing for relevant data collection of older adults' usage of a social technology medium, Sherish℠ Connect. Sherish℠ Connect is a television-based, photo-sharing application in which family and friends send photos and captions to their loved ones in a residential living facility providing a low-cost alternative to similar, more costly products such as robotic pets. Participants were residents of a residential living facility in the Midwest already utilizing Sherish℠ Connect prior to the study.

A descriptive pilot study was an optimal approach to investigate the research question. The retrospective medical records review provided insight on (a) psychotropic/depression medication dosage and frequency (referred to as medication usage) and quarterly results of the (b) *Patient Health Questionnaire-9 (PHQ-9)* and (c) *Brief Interview for Mental Status (BIMS)*. Institutional Review Board (IRB) approval provided authorization for a review of medical records in the calendar quarter before the participants engaged in the intervention (pre-test). The post-test scores were recorded in the quarter immediately following

one month use of the social media platform. Same quarter pre- and post-test information was not used in the study.

Sampling

The executive director of a Midwest residential healthcare facility organized the recruitment process and identified residents that qualified for the study. The administration and staff of the residential living facility obtained informed consent from Sherish℠ Connect users and their power of attorney (See Appendix A). Permanent residents over the age of 50 who had purchased Sherish℠ Connect were included in the study. Residents in short-term rehabilitation and non-residents were excluded from participating in the study. There were neither gender nor ethnic/racial constraints for this study. Each participant had the option of withdrawing at any time without consequences.

Instrumentation

Two forms of instrumentation, which included a survey and data collection tool, were reviewed by two expert clinicians to increase face validity. The instruments used during this study are described below.

Data collection instruments

A data collection tool was created by researchers to aid in the collection and organization of data on the components analyzed (See Appendix B). The components included participants' *PHQ-9* score, *BIMS* score, medication usage, and healthcare utilization. Data from these components were collected retrospectively, before the participants began using Sherish℠ Connect, and once more following at least one month of usage.

The *PHQ-9* is a 10-item questionnaire that assesses depression and depressive symptoms. The *PHQ-9* was found to have an internal consistency value of 0.854, test-retest reliability value of 0.873, and an optimal cutoff score of 11 with a sensitivity of 0.89 and specificity of 0.97 (Zhang et al., 2013). The screening assessment can be used to help with a depression diagnosis and tracking of an individual's progress after retrieving a baseline score. A score between 0-4 indicates no depressive symptoms, 5-9 is mild, 10-14 is moderate, 15-19 is moderately severe, and 20-27 is severe depression. The *PHQ-9* is a valid and reliable tool that is utilized by the Midwest residential living facility participating in the study.

The *BIMS* assesses mental status by analyzing overall orientation, the ability to repeat words, and the ability to recall words. The summary of the three identified sections provides a score that can be used to understand an individual's mental status further. The *BIMS* was found to have a validity of 0.906 (Saliba et al., 2012). A score between 0-7 indicates severe cognitive impairment, 8-12 moderate impairment, and scores above 13 indicate little to no impairment. The *BIMS* is an interview-style assessment that is both valid and reliable as it is currently being used to assess residents of the Midwest residential living facility participating in the study.

Survey

Following the completion of the medical records review, researchers surveyed participants that consented to this portion of the study. The surveys consisted of 15 questions that identified how participants perceived Sherish℠ Connect (See Appendix C). Questions using Likert scale-type answers were utilized to examine the participants' perceptions and experiences regarding the Sherish℠ Connect. Each participant was surveyed individually by two researchers; one researcher facilitated the questions, and the other recorded participant responses.

Procedure

Upon obtaining consent, the executive director designated an appropriate staff member to extract data from existing medical records. Pre-test data was collected in the calendar quarter before the participant started using Sherish℠ Connect. Post-test data was collected in the quarter immediately following implementation of Sherish℠ Connect for one month or more. Data was gathered from two separate quarters. Researchers were blind to

participants medical records until completion of study.

Researchers gathered data on the use and perceived impact of using Sherish℠ Connect from the survey responses. Researchers surveyed each participant while utilizing a written script and pre-established questions, which were formatted as Likert scale response options. At the conclusion of this study, researchers reviewed the medical records data and survey responses to determine if the study supports significant evidence on the effects of Sherish℠ Connect.

Results

The study began with 10 participants, and due to discontinued use of Sherish℠ Connect, unforeseen health issues, and fatality, the final study contained seven participants, yielding an attrition rate of 30%. The resulting participant ages ranged from 73-101 with a mean age of 89.

Participant pre- and post-test scores on the *PHQ-9* showed no depressive signs for six participants, while one participant demonstrated increased depressive signs with a post-test score of 9, indicating mild depression. Three participants received pre-test scores indicating a severe cognitive impairment according to the *BIMS*. Two participants remained the same with one improving to the moderate cognitive impairment level. There was slight improvement with one client whose pre-test score was at the moderate cognitive impairment level. Four participants' pre-test scores placed them at little to no cognitive impairment level. Of these, one improved, one remained the same, and two deteriorated. Of those that deteriorated, only one participant's post-test score placed them in the moderate cognitive decline level. When comparing pre- and post-test scores, three participants' scores improved, two remained the same, and two had cognitive levels that declined. Data was insufficient to report on the impact of medication changes as a result of using Sherish℠ Connect. Results from the interviews demonstrated various common findings among participants' responses. Below are tables displaying the results of the data collection and interviews of participants.

Table 1 exhibits data collected from medical records review (see Appendix B).

Table 2 exhibits participant responses from the 15 interview questions (see Appendix C).

Discussion

Findings were consistent with published research from Drageset et al. (2011), who found that emotional connection to loved ones was a component of decreasing loneliness as results from this study showed that 57.1% of participants used Sherish℠ Connect to engage with family members. This finding suggests that Sherish℠ Connect could aid in decreasing loneliness and social isolation, though it is likely one of many possible components. Hasan and Linger (2016) found that enjoyment and connection were outcomes of social technology use, which aligns with results from the current study. Social connectedness was another target outcome of the current study; similarly, Chen and Schulz (2016) found that social technology fosters feelings of social connectivity.

During this study, three out of 10 participants

Table 1

Medical Chart Review Data (n = 7)

Participant	PHQ-9 (pre, post)	BIMS (pre, post)
1	0/27, 0/27	15/15, 15/15
2	0/27, 0/27	14/ 15, 12/ 15
3	0/27, 0/27	3/15, 5/15
4	0/27, 9/27	15/15, 13/15
5	0/27, 0/27	3/15, 3/15
6	0/27, 0/27	9/15, 11/15
7	0/27, 0/27	6/15, 8/15

Table 2

Interview Responses (n = 7)

Interview Questions	Participants 1	2	3	4	5	6	7
1. Contact with the family	Weekly	Daily	Daily	Daily	Monthly	Weekly	Weekly
2. Connection with the family outside of visits	*Sherish*SM *Connect*	Phone calls, *Sherish*SM *Connect*, letters/ cards	Phone calls	*Sherish*SM *Connect*	Phone calls	*Sherish*SM *Connect*	Phone calls
3. In person family	Monthly	Daily	Monthly	Daily	Never	Weekly	Weekly
4. Use of *Sherish*SM *Connect*	Weekly	Daily	Monthly	Daily	Daily	Weekly	Weekly
5. *Sherish*SM *Connect* caused an emotional response	Occasional	Always	Rarely	Rarely	Occasional	Occasional	Often
6. Emotion felt looking at photos	Happy	Sad	Other	Sentimental	Sentimental	Happy	Happy
7. *Sherish*SM *Connect* brings comfort	Occasional	Always	Often	Always	Often	Often	Always
8. Most enjoy seeing photos via	TV, frames, loose prints, albums	TV, frames, loose prints, albums	Loose prints	TV, frames, loose prints, albums	TV, frames, loose prints, albums	TV, frames, loose prints, albums	TV, frames, loose prints, albums
9. Pictures help to remember events and people	Occasional	Always	Occasional	Always	Often	Often	Often
10. Missing out on current activities	Occasional	Occasional	Often	Often	Occasional	Occasional	Rarely
11. Can you enjoy photos easily	With ease	With ease	With almost no difficulty	With some difficulty	With some difficulty	Not at all	With ease
12. Share photos in person	Never	Often	Rarely	Every visit	Every visit	Occasional	Occasional
13. Waiting for loved ones' picture uploads	Occasional	Never	Often	Often	Occasional	Rarely	Rarely
14. Feel connected to others	Rarely	Often	Often	Often	Often	Occasional	Often
15. Fell loneliness and isolation	Often	Occasional	Occasional	Often	Occasional	Occasional	Rarely

dropped out, which brought the final number of participants to seven. Two of the dropouts were due to fatality and health issues, and the last was excluded due to lack of use of Sherish℠ Connect. Various survey responses may have been skewed due to dementia and memory related diagnoses. Due to the inconsistency of participants' pre and post *BIMS* and *PHQ-9* scores, results were ultimately inconclusive if Sherish℠ Connect has a direct effect on mental status and depression. Researchers noted the increased relevance of the need for social technology in residential living facilities due to the COVID-19 pandemic. The COVID-19 pandemic began soon after completion of the on-site participant surveys, and residents were promptly prohibited from receiving visitors. Social distancing guidelines during the COVID-19 pandemic has contributed to increased feelings of social isolation. The COVID-19 pandemic brought to light the need for occupational therapy intervention, specifically through the use of social technology, to combat loneliness and isolation. Social technology is a practical and cost-effective solution that can effortlessly be embedded into occupational therapy intervention and activity-based therapy. It is within the scope of occupational therapy to incorporate social participation and engagement into the everyday lives of individuals of all ages. The results of this study offer the potential for further research and implementation of social technology within residential living facilities.

Limitations

There are a few limitations of the study that may have impacted the results. One limitation was the inclusion criteria, which prevented users of Sherish℠ Connect outside of the Midwest residential living facility from participating in the study. Another limitation found was excluding residents of the facility who have limited family support systems and cannot successfully use Sherish℠ Connect, resulting in a small sample size. Additionally, cognitive impairments of some of the participants resulted in overall confusion about the Sherish℠ Connect and use, which could have possibly skewed or impacted responses. Researchers were surprised to discover that numerous participants did not remember they had Sherish℠ Connect or reported they could not remember how to use the technology, despite receiving training from staff. The listed limitations could have a potential impact on the users' perceptions of Sherish℠ Connect.

Recommendations

Future research studies would benefit from modifying the inclusion criteria to include a more extensive selection of individuals to participate. Investigating external variables affecting components being studied apart from Sherish℠ Connect would also be beneficial. Future researchers might benefit from removing the direct assessment of participants' memory of Sherish℠ Connect and focusing on quantifiable aspects that could be assessed, even in the presence of cognitive impairment. Conducting the study for an entire year may provide more comprehensive data involving potential seasonal effects on the studied components. Researching multiple facilities to include a broader population among different geographical regions would also be a valuable element to include for future research. Future researchers should also further investigate the impact of diagnoses on the utilization and benefits of Sherish℠ Connect. Additionally, utilizing more sensitive instruments, such as the Beck Depression Inventory II and the Montreal Cognitive Assessment, to assess participants' cognition and depressive symptoms would increase validity, as the instruments currently being used demonstrate decreased sensitivity.

Despite the limitations, the results of the study may have applications in the evaluation and usage of such technologies within residential living facilities. Caregivers, family members, and potential healthcare providers may utilize this technology to reach the older adult population during mandated times of social distancing. This technology is an ideal option in times of national emergency. Without this form of technology, social distancing may result in isolation for many.

Conclusion

Despite a small sample size and limited duration, key findings are consistent with its application in combating loneliness and social isolation and providing comfort for older adults. For the majority of participants, social technology in the form of Sherish℠ Connect had a positive impact on older adults' self-report of loneliness and social isolation within a residential living facility. All participants did report feeling comforted by Sherish℠ Connect at least occasionally, with the majority of participants reporting often or always being comforted by the technology. Researchers hope this study provides baseline research that inspires additional studies investigating Sherish℠ Connect to occur, as this social technology has a great potential for a positive impact on the older adult population. During the time of the COVID-19 pandemic, social technology, as well as occupational therapy as a whole, is becoming critical in combating social isolation. The utilization of social technology, such as Sherish℠ Connect, is valuable to intervention as it supports social participation in a non-traditional way that allows older adults to connect with individuals that are not geographically close. Many older adults are currently in quarantine and, if living in a residential living facility, are not allowed visitors. Social technology has the opportunity to make colossal advancements in healthcare, via telehealth, and social participation from the safety of quarantine.

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Appendix A

Statement of Informed Consent

I have been asked to participate as a subject in a research project entitled:
Effects of social technology on older adults in a residential living facility.

This project is under the direction of Dr. Jeanne Sowers and Dr. Joel Vilensky, faculty at Huntington University, as a component of the Doctor of Occupational Therapy Program's research course, OTD 732: Research IV Design. The supervising professors can be contacted at the following numbers: Dr. Jeanne Sowers 260-702-9630 and Dr. Joel Vilensky 260-702-9621. The Huntington University Institutional Review Board Chair, Dr. Mike Rowley, can be contacted at 260-359-4277 for any questions pertaining to the research.

I understand that I am granting researchers access to certain data from my personal quarterly records including: healthcare utilization (including hospitalizations and unplanned physician visits), medication usage (including psychotropic and pain), results from the Brief Interview for Mental Status (BIMS) for cognition, and results from the (PHQ9) for depression. I understand that I will also be asked to participate in a survey with two researchers regarding my use of Sherish℠ Connect. I understand that there are very little associated risks with participating in this study. Due to researchers obtaining personal records, as well as asking survey questions, associated risks may include emotional distress.

I understand that the information obtained during this study will not be reported to anyone outside of the research team in any manner which might personally identify me. A non-identifying number will be assigned to each individual participating in the data collection and survey for confidentiality. Data will be stored in a locked drawer and on a password-protected computer to further ensure confidentiality of participants. A report of combined and generalized results involving multiple participants will be prepared and submitted to the supervising professors and may be submitted to a journal for publishing.

My signature indicates that I received a copy of this informed consent, understand and voluntarily agree to the conditions of participation described above, and that I may withdraw from the study at any time.

_____ _____

Printed Name **Date**

_____

Signature

_____ _____

Power of Attorney Signature (if applicable) **Date**

Appendix B

DATA COLLECTION TOOL

Records review will be completed by appropriate staff of

Participant # _____

Demographic info:

Age _____ Sex _____ Ethnicity _____

Primary Diagnosis _____ Secondary Diagnoses_____

Data Collection Dates

Pre: ___/___/_____ Post: ___/___/_____ 6 Month Follow-up: ___/___/_____

Measures	Pre (last quarter)	Post (at least 1 month of use)	6 Month Follow-up
PHQ9			
BIMS		----------	----------
Unplanned Physicians Visits			
Hospitalization			
Psychotropic Medications & Dosage			
Sherish℠ Connect Uploads			

Appendix C

PARTICIPANT QUESTIONNAIRE

Thank you for agreeing to participate in our study. We are conducting this research to study the effect of Sherish℠ Connect on residents at (Residential Living Facility). I will read you the questions and answer options and you may follow along on your copy. Please answer the questions out loud to the best of your ability. Are you ready to begin?

QUESTIONS:

1. How frequently are you in contact with your family? (including physical visit, phone calls, electronic conversations, or other modes of communication)

    1= never, 2= yearly, 3= monthly, 4= weekly, 5= daily

2. How do you stay connected with your family outside of visits? (choose all that apply, may be more than one)

    a. Phone calls; b. Sherish℠ Connect; c. letters/cards; d. email/social technology

3. How often does your family come to visit in person?

    1= never, 2= yearly, 3= monthly, 4= weekly, 5= daily

4. How often do you use Sherish℠ Connect?

    1= never, 2= yearly, 3= monthly, 4= weekly, 5= daily

5. When you view Sherish℠ Connect photos do they cause an emotional response? (emotional response and include, but are not limited to: joy, sadness, anger, excitement)

    1= never, 2=rarely, 3=occasionally, 4=often, 5= always

6. Which emotion do you feel most often when seeing photos?

    a. Happy; b. Sad; c. Sentimental; d. Angry; e. Other _____

7. How often does Sherish℠ Connect bring you comfort?

    1= never, 2= rarely, 3= occasionally, 4= often, 5= always

8. How do you most enjoy seeing photos? Please list your answers from most preferred to least preferred.

a. Albums, b. Frames, c. TV, d. Loose Prints (prioritize)

9. Do photos help you remember past events or people?

1 = not at all, 2 = rarely, 3 = occasionally, 4 = often, 5 = always

10. Do you feel like you are missing out on current activities with loved ones?

1 = never, 2 = rarely, 3 = occasionally, 4 = often, 5 = always

11. Can you enjoy your old photos easily? (are they easily accessible and available to you?)

1 = not at all, 2 = with much difficulty, 3 = with some difficulty, 4 = with almost no difficulty, 5= with ease

12. Do you share photos and memories during in person family visits?

1 = never, 2 = rarely, 3 = occasionally, 4 = often, 5 = every visit

13. Do you find yourself waiting for your loved ones to upload new pictures to Sherish[SM] Connect?

1 = never, 2 = rarely, 3 = occasionally, 4 = often, 5 = always

14. How often do you feel that you connect, or have a lot in common with those around you?

1 = never, 2 = rarely, 3 = occasionally, 4 = often, 5 = always

15. How often do you feel lonely, or isolated from others?

1 = never, 2 = rarely, 3 = occasionally, 4 = often, 5 = always

Thank you again for helping us with our research project, we truly appreciate this opportunity to learn about your experience using Sherish[SM] Connect.