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CREATIVE EXPRESSION INTERVENTION FOR OLDER ADULTS WITH SUBJECTIVE  
MEMORY COMPLAINTS: THE USE OF TIMESLIPS TO IMPROVE QUALITY OF LIFE

BY

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PROJECT FOR DISTINCTION

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### **Abstract**

This research study investigates the application of TimeSlips (TS) with individuals with Subjective Memory Complaints (SMC). TS is primarily used with individuals with dementia, and it has been shown to increase the quality of life for individuals with dementia. TS with individuals with SMC was predicted to increase quality of life and decrease depression symptoms and memory complaints. Participants completed quality of life, depression symptoms, and memory assessments before and after five weeks of one-hour sessions of TS. No significant results were found to support the hypothesis. One significant correlation was found between lower attendance rates and higher depressive symptom scores. The results were influenced by varying attendance rates and a small sample size. Future research is necessary in an alternate setting with more consistent attendance opportunities.

A new case of Alzheimer's disease (AD) develops every 66 seconds (Alzheimer's Association, n.d.). In 2017, it was estimated that 5.5 million Americans were living with AD (Center for Disease Control and Prevention, 2017). Interventions and therapies to slow the progression of AD are limited. Individuals experiencing memory issues are encouraged to monitor their symptoms for early detection. Individuals who detect their symptoms early are often diagnosed with Mild Cognitive Impairment (MCI). MCI is a slight decline of cognitive functioning that increases the risk of developing dementia.

Of the 65 and older population, the prevalence of MCI is estimated to be 15 to 20 percent according to long-term studies (Alzheimer's Association, n.d.). Unlike AD, there are currently no medications approved by the Food and Drug Administration for the treatment of MCI. Exercise and social activity are suggested interventions for treatment and coping strategies (Alzheimer's Association, n.d.).

SMC is one of the main components for diagnosing MCI and an identified indicator of developing dementia. One research study showed 72.3 percent of the subjects who had MCI also had SMC (Giuli et al., 2016). Besides memory, depression and personality are predictors of SMC (Montejo, Montenegro, Fernandez, & Maestu, 2011).

In a sample of community-dwelling older adults, lower verbal episodic learning and memory scores were correlated with increasing depressive symptoms. This relationship suggests the areas in the brain associated with verbal episodic learning and memory contribute to increased symptoms of depression (González, Bowen, M & Fisher, 2008). Research focused on age-related memory loss has found a connection with dysfunction in the frontal lobe (Simensky, & Abeles, 2002). Previous research found that depression is a significant predictor of SMC, and individuals with depression are at higher risk to have SMC (Giuli et al., 2016). Previous research

has also found that individuals with MCI and AD reported lower scores of quality of life (QOL-AD) and higher scores of difficulties in daily life (DEM-QOL; Stites, Karlawish, Harkins, Rubright & Wolk, 2017). The QOL-AD measured life satisfaction regarding physical health, living situation, marriage, self, money, and family. The DEM-QOL measured difficulty in daily life for well-being, cognitive functioning, daily activities, and health (Stites et al., 2017).

High SMC is associated with lower levels of quality of life. Negative self-perceived health is associated with higher SMC (Montejo et al., 2011). In one study, the biggest predictor of SMC was perceived state of health (Carrasco et al., 2016). Further research found perceived health status was the strongest predictor in addition to emotional reaction, low mood, sleep disturbances, pain, social isolation, and physical mobility issues (Montejo et al., 2014).

Individuals with MCI reported higher levels of stress and depression symptoms compared to individuals with AD or normal cognition (Stites et al., 2017). Research suggests individuals unaware of a diagnosis of MCI or AD reported higher scores of quality of life (QOL-AD) and lower scores of difficulties of cognitive functioning (DEM-QOL) than individuals aware of MCI or AD diagnosis (Stites et al., 2017). Research suggests that individuals with normal cognition are engaged in significantly more weekly activities than individuals with cognitive impairment (Johnson, Whitlatch, & Menne, 2014).

In a study analyzing rural older adults, hopelessness levels were negatively and significantly related to quality of life (Scogin, Morthland, DiNapoli, LaRocca, & Chaplin, 2016). This research suggests awareness of SMC could result in hopelessness and withdrawing from social activities. The increase of hopelessness and decrease of engagement in social activities could result in diminished quality of life.

Longino (as cited in Johnson et. al., 2014) notes increased understanding of the connections between social engagement, well-being, and quality of life as people live longer and as the baby boomers grow old. Individuals with MCI who had memory complaints have lower levels of quality of life than individuals with normal cognition (Maki et al., 2014). Individuals with MCI who participated in more weekly activities have demonstrated significantly higher quality of life (QOL-AD) scores (Johnson et al., 2014). Anderson reports that 24.1 percent of older adults volunteered in the United States in 2013 and that volunteering improves psychosocial, physical, and cognitive functioning. Volunteering may also reduce the risk of dementia and MCI (Allen, Azuero, Csikai, Parmelee, Shin, Kvale, Durkin, & Burgio, 2016).

Havinghurst (as cited in Johnson et al., 2014), in discussing activity theory, proposed that older adults who continue to be engaged in activities would have higher levels of life satisfaction and quality of life than those who are not active. Meaningful activity participation is positively correlated with life satisfaction (Eakman, Carlson, & Clark, 2010).

With the growing recognition that quality of life is improved by social engagement, researchers have developed a variety of interventions designed to stimulate social engagement. Several of these have also been found to increase quality of life in older adults. Cognitive Stimulation Therapy (CST) has been found to increase the quality of life for individuals with mild to moderate dementia (Woods, Thorgrimsen, Spector, Royan, & Orrell, 2006). CST includes different topics of dialogue and multisensory activities. Sessions are led by a facilitator who discusses several topics. Memory and energy level significantly increased on the quality of life measure after the intervention.

Bernfeld and Fritsch (2006) reported that creative expression interventions have also been found to increase quality of life for individuals with dementia. Creative expression (CE)

programs are designed to engage in creativity rather than memory in a group setting. Staff in long term care facilities developed more positive feelings towards individuals with dementia after TS (Fritsch, et al., 2009). Cohen (as cited Fritsch et al. 2009) reported that creative expression interventions in a failure-free atmosphere results in participants creating new things valued by themselves and others. Research suggests interventions that are motivational and metacognitive will increase self-esteem and are imperative for cognitive training (Giuli et al., 2016). CE programs engage the mind and the body and may include visual-arts based or movement-based activities.

TS is a creative expression intervention intended for individuals with middle-to late stage dementia. TS is designed to engage preserved abilities and creativity without requiring proficient memory (Fritsch, 2009). The storytelling intervention encourages individuals to engage and collaborate to create a story based on the photo shown. The intervention creates an opportunity to produce something new and meaningful. Participants' engagement is reinforced by the failure-free environment increasing engagement (Fritsch, 2009). Brodaty and Burns (2012) reviewed nonpharmacological interventions for dementia. Among therapeutic activities, CE interventions, were found to have the most evidence in dementia treatment effectiveness. The TimeSlips Newsletter (2018, March) introduced the concept of applying the intervention TimeSlips to populations other than those with dementia. The Pennsylvania TimeSlips Creative Community of Care Project, the Department of Military and Veterans Affairs, and the Pennsylvania Council on the Arts collaborated in this project. Caregivers, artists, and activities faculty are engaging with veterans by using TS intervention sessions (TimeSlips Creative Storytelling Project, n.d.).

### **Research Questions**

As noted above, individuals with SMC, MCI, and AD often have diminished quality of life and reduced social engagement. TS has shown success in improving overall life satisfaction for individuals with dementia; however, research has not yet tested the efficacy of TS in improving quality of life for individuals with SMC (Fritsch et al., 2009). The purpose of this study is to test whether TS can be effective in improving life satisfaction in individuals with SMC. One hypothesis is that TS intervention will increase quality of life of individuals with SMC. The second hypothesis is the intervention will lower symptoms of depression in individuals with SMC. The third hypothesis is the intervention will decrease memory complaints in individuals with SMC.

## **Method**

### **Participants**

The first research announcement appeared in the February 2018 edition of the Stockton Center on Successful Aging's (SCOSA) e-newsletter, which is distributed to 1050 individuals as well as to Stockton staff and faculty (about 1100). In addition, an e-mail invitation was sent to 155 individuals in SCOSA's Research Study Participant Pool who had previously expressed interest in participating in future research projects conducted by Stockton faculty and students under their supervision. Of 155 individuals on this list, 19 e-mails came back as undeliverable. An e-mail invitation was also extended to a moderated Listserv of Stockton University Retirees maintained by Stockton University Retirees Association (SURA) with a total of 180 recipients. Finally, an item was placed in the Community Calendar of the Press of Atlantic City newspaper.

Interested participants were instructed to either register via an online survey or to call the offices of SCOSA. A total of 19 participants initially registered for the program. All participants were over the age 65 with self-reported memory complaints. A total of 7 participants completed

the study. Two other participants dropped due to lack of interest, noting that they were expecting something a bit different. One participant was unable to attend sessions due to medical reasons. A snowstorm the day before the first session also led to some people who intended to participate to back out.

For the sample participants, six participants were female, and one participant was male. The average age of the participants was 73 years old. Four participants were widowed. Two participants were married, and one participant was divorced. Most participants' highest level of education was high school. One participant completed some high school. One participant completed an associate's or bachelor's degree, and one participant completed post-bachelor schooling.

A maximum incentive of \$25 was advertised to participants for their involvement. At the conclusion of the first session, participants received \$10. At the end of the fifth session, participants who completed 3-5 sessions received \$15. Refreshments were provided at each session. Funding for participant incentives and refreshments was provided by the Stockton Center on Successful Aging (SCOSA) as this project was consistent with SCOSA's intention to further develop its ability to regularly offer TimeSlips as a service to local long-term care facilities.

### **Measures**

The Everyday Memory Questionnaire - Revised (EMQ) is a 13-item self-report assessment designed to measure individuals' perceived memory ability. EMQ-R is adapted from EMQ which is a 28-item assessment. EMQ scores have been shown to strongly correlate with the Mini Mental State Examination (MMSE) scores for items on the Faces/Places and New Things

subscales ( $r = -0.28$  and  $-0.26$ , respectively, both  $p < .01$ ) (Ossher, Flegal, & Lustig, 2012).

EMQ-R is valid and internally reliable with adequate correlations between individual items and the total score. EMQ-R is a useful measure for a wide range of participants to measure individual perceptions of memory abilities, and this assessment is more likely to be used in clinical practice than EMQ (Royle, & Lincoln, 2008).

The Geriatric Depression Scale - Short (GDS) is a 15-item self-report assessment which measures depression symptoms. This scale has shown sensitivity to assess depressive symptoms in older adults with mild cognitive impairment (Conradsson, Rosendahl, Littbrand, Gustafson, Olofsson, & Lovheim, 2013). GDS-Short and GDS have high test-retest reliability demonstrated by correlations 1-2 weeks retest ( $r = 0.84-0.85$ ). GDS is highly correlated with Zung Self-Rating Scale for Depression (SDS) ( $r = 0.84$ ) (Smarr, & Keefer, 2011). The GDS shows similar results to the Center for Epidemiological Studies Depression Scale (CES-D), but GDS was shown to be significantly more validity than Yale-1-question screen. Results for GSD and GDS-Short had similar results for reliability and validity (Wancata, Alexandrowicz, Marquart, Weiss, & Friedrich, 2006).

Quality of life was measured pre-and post-intervention using the World Health Organization Quality of Life scale (WHOQOL-old), a 24 item self-report assessment shown effective in measuring quality of life in older adults (Power, Quinn, & Schmidt, 2005). The quality of life questionnaire measured individual's perception of their quality of life.

Sessions were conducted at Stockton University's campus in Galloway. In the classroom, participants were seated at tables. Triggers of the intervention were presented over a projector in the class and handed to each participant.

**Procedure**

This experiment used a within-subjects repeated measure design. This experimental design was used based on the number of participants in the study. TS intervention was the independent variable. The dependent variables were memory complaints, symptoms of depression, and levels of quality of life. All participants received the intervention comprised of five one-hour sessions over a 5-week period, and all participants completed subjective memory, depression symptoms, and quality of life questionnaires before the first week session and after the fifth week session.

The first session began with participants reviewing and completing informed consent forms. After informed consents were completed, participants each completed the EMQ-R, the GDS, and the WHOQOL self-assessment. Following data collection, the first one-hour TimeSlips intervention session was held.

The second, third, and fourth sessions consisted of one-hour intervention sessions. Each intervention session included two photos that the participants collectively created a story for. Each TS session was conducted by two trained and certified TS facilitators (two MSOT and one undergraduate Health Sciences Major/Gerontology minor). The fifth session involved a one-hour intervention session followed by participants completing the post-test surveys. After completion, participants were dismissed.

## Results

Data were entered in Stockton University's latest version of Statistical Package for Social Sciences (SPSS) software for data analysis.

Raw scores for all measures were entered into SPSS. WHOQOL-OLD was recoded to the transformed score in SPSS according to the WHOQOL-OLD Module Manual (2006). The GDS and EMQ scores did not require recoding or transforming. Three paired t-tests were conducted to compare pre-test and post-test scores for the EMQ-R, GDS, and transformed WHOQOL-OLD variables.

There was no significant change in the pre-test to post-test transformed WHOQOL-OLD measures ( $M = 57.813$ ,  $SD = 3.280$ ;  $M = 60.765$ ,  $SD = 5.340$ ;  $t(5) = -2.176$ ,  $p = 0.082$ ,  $d = 0.666$ ) four of the six participants (66.7%) had higher post-test scores, one had a lower post-test score, one case showed no change, another had missing data and was not included in the calculations. Mean scores for pre-test and post-test results can be seen in Figure 1.

There was no significant change in the pre-test to post-test for the EMQ-R ( $M = 24.000$ ,  $SD = 9.363$ ;  $M = 21.429$ ,  $SD = 9.396$ ;  $t(6) = 0.886$ ,  $p = 0.410$ ). Out of the seven participants, three cases (42.85%) had lower post-test scores, and three had higher post-test scores, and one showed no change. Mean scores for pre-test and post-test results can be seen in Figure 2.

There was no significant change in the pre-test to post-test on the GDS ( $M = 0.571$ ,  $SD = 1.512$ ;  $M = 0.857$ ,  $SD = 2.267$ ;  $t(6) = -1.000$ ,  $p = 0.356$ ). Six participants (85.71%) scored 0 on the pre-test and post-test GDS; one case had a higher post-test than pre-test GDS score (mentioning on several questions that it was due to a recent orthopedic problem). Mean scores for pre-test and post-test can be seen in Figure 3.

Bivariate correlations were calculated exploring the relationship among scores on each measure. Difference scores (pre-to-post) on all measures were computed by subtracting the post-test from the pre-test scores. There was a positive correlation between number of attended sessions and change in GDS scores ( $r = 0.881, n = 7, p = 0.009$ ) such that the more sessions attended the lower the participant's depression level. There was no statistically significant correlation between number of attended sessions and change in WHOQOL-OLD scores ( $r = .589, n = 6, p = 0.219$ ) or between number of attended sessions and change in EMQ-R ( $r = -0.240, n = 7, p = 0.604, R^2 = 0.347$ ). Nor was there a statistically significant correlation between change in GDS scores and change in WHOQOL-OLD scores ( $r = 0.589, n = 5, p = 0.219, R^2 = 0.347$ ). Of the seven participants, five (71.43%) attended all five sessions, one attended four sessions, and one attended three sessions.

### Discussion

TS is one of many creative expression programs developed for individuals with dementia. Individuals with SMC or MCI do not have dementia, but TS has the potential to bring the same effects to a different population. In this study, TS was implemented for 5 one-hour sessions over a 5-week period. The results were not support the hypotheses with significant results, but the results yielded change in the predicted direction. Memory complaints and depression symptoms of individuals with SMC were not significantly decreased. Levels of quality of life did not significantly increased, but the results showed a medium to large effect size. One significant finding in this study was a strong positive correlation between number of sessions attended and difference of GDS scores. This finding was significant due to one participant's increase GDS score in result of an orthopedic problem. This participant was a multivariate outlier. This participant's scores were outliers for multiple variables including attendance, GDS pre-test, GDS

post-test, and EMQ-R pre-test. Of the seven participants, one participant had significant missing data for a post-test measure. The correlations between number of attended sessions and difference of EMQ-R and number of attended sessions and difference of WHOQOL-OLD scores both had small effect sizes with insignificant correlations.

Although, this study did not find the statistically significant results that were expected, changes in several individual participants' scores showed the changes that were predicted. For example, most participants showed higher quality of life measures after participation in the program. The results were limited due to experimental design and sample size contributing to the study's inability to yield the hypothesized results. A repeated measure within-subjects was necessary to use for this experiment due to the small sample size. A control group would have been utilized if the sample size was higher. A greater number of Time Slips sessions may have yielded significant results.

Future research on TimeSlips with populations other than those with significant neurocognitive impairment will undoubtedly appear in the literature and has the potential to generate significant results. In past studies, TimeSlips storytelling with individuals with dementia has shown to engage creativity, but TimeSlips storytelling with individuals with SMC may engage creativity and encourage analytic thought processes (Fritsch et al., 2009). In the current study, participants incorporated obscure background details to make inferences about photos including the season and time-period. Session two of the intervention, the photo in Figure 4 was presented. An educated assumption of the location and time-period was predicted by the language of the police sign. The shoe style of the man dancing with the lady in the middle of the photo led participants to predict the photo was taken recently. Future research could combine TS intervention with detailed photos and elements of memory or cognition

improvement interventions. The integration of social engagement of TS and cognitive benefits of cognition interventions could produce more value to individuals with SMC than TS intervention alone.

Future research might consider utilizing individuals with SMC and/or MCI in Assisted Living facilities. That was considered for the current study but decided against due to time constraints and the expected need to go through IRB approval at those facilities, and greater difficulty in obtaining informed consent from residents' guardians/health-care proxies. Previous research has shown TS intervention in nursing homes can increase the quality of life of individuals with dementia and improve the staff's feelings towards individuals with dementia (Fritsch et al., 2009).

TS intervention was initially designed for use with individuals with dementia and their caregivers. Hopefully, future research will demonstrate TS's efficacy in improving well-being for those with mild cognitive impairment and/or subjective memory complaints.

## References

- Allen, R. S., Azuero, C. B., Csikai, E. L., Parmelee, P. A., Shin, H. J., Kvale, E., Durkin, D. W., & Burgio, L. D. (2016). "It was a very rewarding for me ...": senior volunteers' experiences with implementing a reminiscence and creative activity intervention. *The Gerontologist*, 56(2), 357-367. doi:10.1093/geront/gnu167
- Alzheimer's Association. (n.d.). Mild cognitive impairment (MCI): signs, symptoms, & diagnosis. Retrieved from <http://www.alz.org/dementia>
- Baek, M. J., Kim, K., Park, Y. H., & Kim, S. (2016). The validity and reliability of the mini-mental state examination-2 for detection of mild cognitive impairment and Alzheimer's disease in a Korean population. *PLoS ONE*, 11(9), 1-19. doi:10.1371/journal.pone.0163792
- Bernfeld S, & Fritsch T., Creative expression and dementia care: moving forward in research. Retrieved from [https://static1.squarespace.com/static/51e14a32e4b0aa3bc1fb5c0c/t/51e9399be4b0c091805d729a/1374239131815/final\\_white\\_paper.pdf](https://static1.squarespace.com/static/51e14a32e4b0aa3bc1fb5c0c/t/51e9399be4b0c091805d729a/1374239131815/final_white_paper.pdf)
- Brodsky, H. & Burns, K. (2012). Nonpharmacological management of apathy in dementia: a systematic review. *Am J Geriatric Psych*, 20(7), 549-564.
- Carrasco, P. M., Montenegro-Peña, M., López-Higes, R., Estrada, E., Crespo, D. P., Rubio, C. M., & Azorín, D. G. (2016). Subjective memory complaints in healthy older adults: Fewer complaints associated with depression and perceived health, more complaints also associated with lower memory performance. *Archives of Gerontology and Geriatrics*, doi: 10.1016/j.archger.2016.12.007

- Center for Disease Control and Prevention (2017). US death rates from Alzheimer's disease increased 55 percent from 1999 to 2014. Retrieved from <http://cdc.gov/media/releases/2017>
- Conradsson, M., Rosendahl, E., Littbrand, H., Gustafson, Y., Olofsson B., & Lovheim, H. (2013). Usefulness of the Geriatric Depression Scale 15-item version among very old people with and without cognitive impairment. *Aging & Mental Health, 17*(5), 638-645. doi: 10.1080/13607863.2012.758231
- Eakman, A. M., Carlson, M. E., & Clark, F. A. (2010). The meaningful activity participation assessment: a measure of engagement in personally valued activities. *International Journal of Aging and Human Development, 70*(4). 299-317. doi:10.2190/AG.70.4.b
- Fritsch, T., Kwak, J., Grant, S., Lang, J., Montgomery, R. R., & Basting, A. D. (2009). Impact of TimeSlips, a creative expression intervention program, on nursing home residents with dementia and their caregivers. *The Gerontologist, 49*(1), 117-127. doi:10.1093/geront/gnp008
- George, D. R., & Houser, W. S., (2014). "I'm a storyteller!": exploring the benefits of timeslips creative expression program at a nursing home. *American Journal of Alzheimer's Disease & Other Dementias, 29*(8), 678-684. doi:10.1177/1533317514539725
- Greenberg, S. A. (2012). The Geriatric Depression Scale (GDS). Try this: best practices in nursing care to older adults from the Hartford Institute for Geriatric Nursing, New York University, College of Nursing. (4)
- Giuli, C., Fabbietti, P., Paoloni, C., Pensieri, M., Lattanzio, F., & Postacchini, D. (2016). Subjective memory complaints in Italian elderly with mild cognitive impairment:

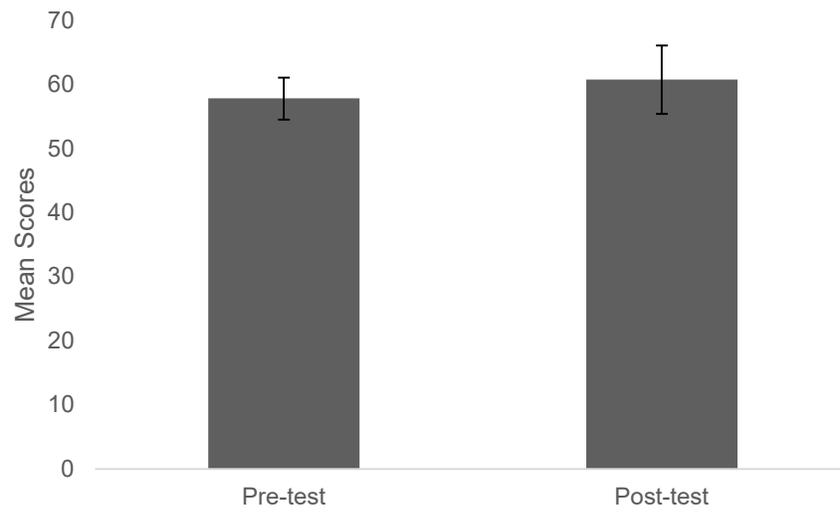
- Implication of psychological status. *Neurological Sciences*, 37(7), 1153-1157.  
doi:10.1007/s10072-016-2553-6
- González, H., Bowen, M., & Fisher, G. (2008). Memory decline and depressive symptoms in a nationally representative sample of older adults: the Health and Retirement Study (1998-2004). *Dementia & Geriatric Cognitive Disorders*, 25(3), 266-271.
- Johnson, J. D., Whitlatch, J. C., & Menne, L. H. (2014). Activity and well-being of older adults does cognitive impairment play a role? *Research on Aging*, 36(2), 147-160
- Maki, Y., Yamaguchi, T., Yamagami, T., Murai, T., Hachisuka, K., Miyamae, F., & ... Yamaguchi, H. (2014). Impact of subjective memory complaints on quality of life in community-dwelling older adults. *Psychogeriatrics*, 14(3), 175-181. doi: 10.1111/psyg.12056
- Montejo, P., Montenegro, M., Fernández-Blázquez, M. A., & Maestu, F. (2011). Subjective memory complaints in the elderly: Prevalence and influence of temporal orientation, depression and quality of life in a population-based study in the city of Madrid. *Aging & Mental Health*, 15(1), 85-96. doi:10.1080/13607863.2010.501062
- Montejo, P., Montenegro, M., Fernández-Blázquez, M. A., Turrero-Nogués, A., Yubero, R., Huertas, E., & Maestú, F. (2014). Association of perceived health and depression with older adults' subjective memory complaints: Contrasting a specific questionnaire with general complaints questions. *European Journal of Ageing*, 11(1), 77-87.  
10.1007/s10433-013-0286-4
- Ossher, L., Flegal, K. E., & Lustig, C., (2013). Everyday memory errors in older adults. *Aging, Neuropsychology, and Cognition*, 20(2), 220-242. Doi: 10.1080/13825585.2012.690365

- Power, M., Quinn, K., Schmidt S., & the WHOQOL-OLD Group. (2005). Development of the WHOQOL-OLD module. *Quality of Life Research*, 14, 2197-2214. doi: 10.1007/s11136-005-7380-9
- Power, M., & Schmidt, S. (2006). WHOQOL-OLD manual world health organization european office (Copenhagen), 27.
- Royle, J., & Lincoln, N. B. (2008). The everyday memory questionnaire-revised: Development of a 13-item scale. *Disability and Rehabilitation*, 30(2), 114-121.
- Scogin, F., Morthland, M., DiNapoli, E., LaRocca, M., & Chaplin, W. (2016). Pleasant events, hopelessness, and quality of life in rural older adults. *The Journal of Rural Health*, 32, 102-109. doi: 10.1111/jrh.12130
- Simensky, J., & Abeles, N. (2002). Decline in verbal memory performance with advancing age: the role of frontal lobe functioning. *Aging & Mental Health*, 6(3), 293-303.
- Smarr, K. L., & Keefer, A. L. (2011). Measures of depression and depressive symptoms: Beck depression inventory-II (BDI-II), center for epidemiologic studies depression scale (CES-D), geriatric depression scale (GDS), hospital anxiety and depression scale (HADS), and patient health questionnaire-9 (PHQ-9). *Arthritis Care & Research*, 63(S11), S454-S466. Doi: 10.1001/arc.20556
- Stites, S. D., Karlawish, J., Harkins, K., Rubright, J. D., & Wolk, D. (2017). Awareness of mild cognitive impairment and mild alzheimer's disease dementia diagnoses associated with lower self-ratings of quality of life in older adults. *Journals of Psychological Sciences*, 72(6), 974-985. doi:10.1093/geronb/gbx100
- TimeSlips Creative Storytelling Project. (n.d.). Retrieved April 2, 2018, from <http://www.timeslips.org>

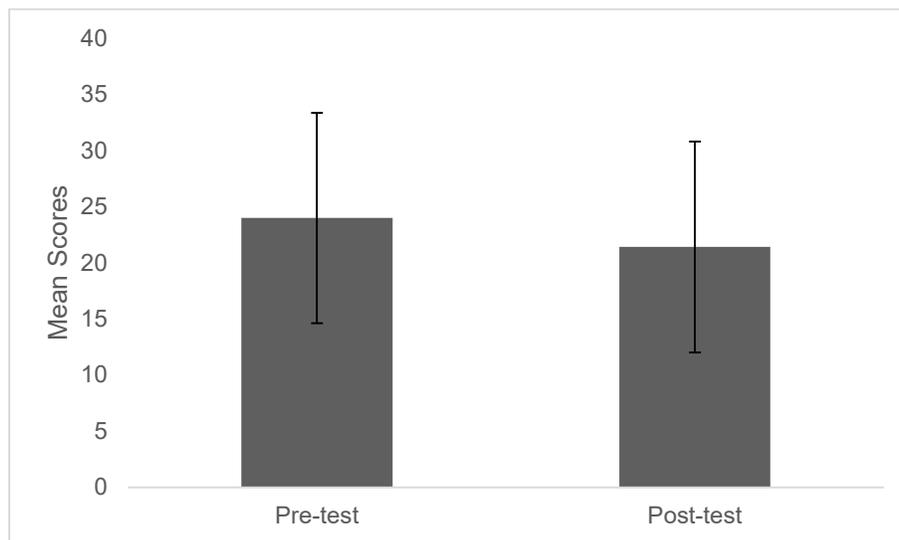
Wancata, J., Alexandrowicz, R., Marquart, B., Weiss, M., & Friedrich, F. (2006). The criterion validity of the geriatric depression scale: a systematic review. *Acta Psychiatr Scand*, 114, 398-410. doi: 10.1111/j1600-0447-2006.00888.x

Woods, B., Thorgrimsen, L., Spector, A., Royan, L., & Orrell, M. (2006). Improved quality of life and cognitive stimulation therapy in dementia. *Aging & Mental Health*, 10(3), 219-226.

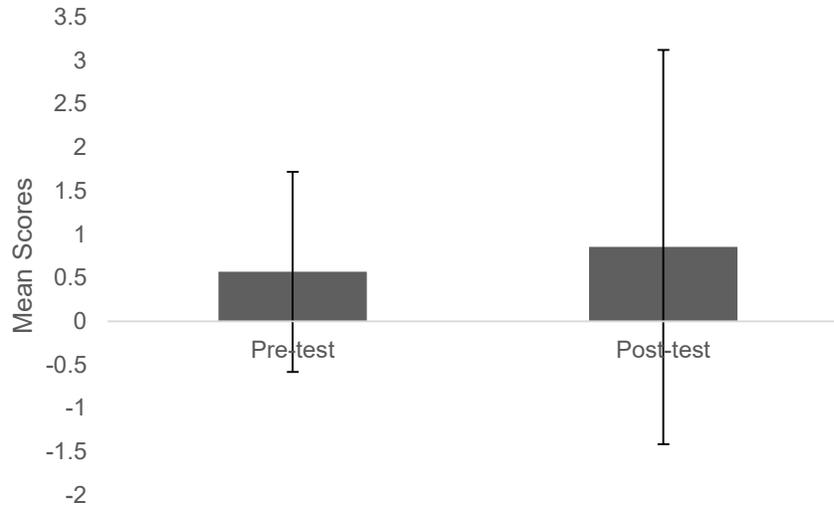
## Appendix A



**Figure 1.** Mean participant scores for transformed WHOQOL-OLD pre-test and post-test. Error bars represent one standard deviation from the mean.



**Figure 2.** Mean participant scores of EMQ pre-test and post-test. Error bars represent one standard deviation from the mean.



**Figure 3.** Mean participant scores for GDS pre-test and post-test. Error bars represent one standard deviation from the mean.



**Figure 4.** *TS trigger used in session three of study. Photo was taken from TimeSlips website under the start a story section (TimeSlips Creative Storytelling Project, n.d.).*